TABLE OF CONTENTS

Foreword

Statement of Direction

Vision Statement

Policy Statements by Subject

Policy Statements by Alphabet
FOREWORD

We are pleased to present the American College of Emergency Physicians (ACEP) Policy Compendium. This reference guide contains the complete text of the College’s current policy statements.

The ACEP Board of Directors sets policy for the College. The breadth of this compendium illustrates the scope of external issues being addressed by emergency medicine and is an essential resource for ACEP’s policy communication, research and development efforts.

In 2002, the ACEP Board of Directors directed that all policy statements undergo automatic regular review. In the fifth year after the adoption of a policy statement, the policy statement is referred to the appropriate ACEP committee or section, with relevant content expertise, for a full review and recommendation to the Board of Directors regarding further action. Policy statements may then be reaffirmed, revised, rescinded or allowed to sunset.

New College policy statements may be approved at Board of Directors meetings throughout the year. They are added to the compendium and the ACEP website and are distributed to all ACEP members via the online version of Annals of Emergency Medicine.

Users of this compendium may use the bookmarks to search for policy statements by title or by subject area, as well as through a keyword search engine. Policy statements are available on ACEP’s web site at http://www.acep.org.
STATEMENT OF DIRECTION

Mission Statement

The American College of Emergency Physicians (ACEP) exists to support quality emergency medical care, and to promote the interests of emergency physicians.

Values

The Board of Directors has identified values that serve as the guiding principles for the specialty of emergency medicine. These values, and the objectives that follow, are the foundation of ACEP's planning processes and Council and Board actions.

The values of the American College of Emergency Physicians are:

• Quality emergency care is a fundamental right and unobstructed access to emergency services should be available to all patients who perceive the need for emergency services.

• There is a body of knowledge unique to emergency medicine that requires continuing refinement and development.

• Physicians entering the practice of emergency medicine should be residency trained in emergency medicine.

• Quality emergency medicine is best practiced by qualified, credentialed emergency physicians.

• The best interests of patients are served when emergency physicians practice in a fair, equitable, and supportive environment.

• Emergency physicians have the responsibility to play the lead roles in the definition, management, evaluation, and improvement of quality emergency care.

Approved by the Board of Directors
August 16, 2000
POLICY STATEMENTS BY SUBJECT

*Indicates the policy statement has an associated Policy Resource and Education Paper (PREP)

CERTIFICATION/CREDENTIALING

- ACEP Recognized Certifying Bodies in Emergency Medicine
- Advanced Life Support Courses
- Advocating for Certified Emergency Nurses (CENs) in Departments of Emergency Medicine
- CME Burden
- Economic Credentialing
- Emergency Medicine Training, Competency, and Professional Practice Principles
- Emergency Ultrasound Certification by External Entities
- Guidelines Regarding the Role of Physician Assistants and Nurse Practitioners in the Emergency Department
- Hospital Disaster Physician Privileging
- Physician Credentialing and Delineation of Clinical Privileges in Emergency Medicine *
- Physician Impairment
- Procedural Sedation in the Emergency Department
- Providers of Unsupervised Emergency Department Care
- Recognition of Subspecialty Boards in Emergency Medicine
- The Role of the Legacy Emergency Physician in the 21st Century
- Unsolicited Medical Personnel Volunteering at Disaster Scenes
- Use of Short Courses in Emergency Medicine as Criteria for Privileging or Employment
- Use of the Title “Doctor” in the Clinical Setting

COVID-19

- Care of Patients with Behavioral Health Emergencies and Suspected or Confirmed COVID-19
- COVID-19 Personal Protective Equipment (PPE) During the Pandemic
- COVID-19 Use of Donated or Self-Purchased Personal Protective Equipment (PPE)

CONTRACTS AND COMPENSATION

- Antitrust
- Compensation Arrangements for Emergency Physicians
- Definition of Democracy in Emergency Medicine Practice
- Emergency Physician Contractual Relationships *
- Emergency Physician Rights and Responsibilities
- Protecting Emergency Physician Compensation During Contract Transitions
- Salary and Benefits Considerations for Emergency Medical Services Professionals
- Third-Party Payers and Emergency Medical Care

DISASTER PREPAREDNESS AND RESPONSE

- Boarding of Admitted and Intensive Care Patients in the Emergency Department
- Boarding of Pediatric Patients in the Emergency Department
- Definition of Emergency Medicine
- Disaster Data Collection
- Disaster Medical Response
- Disaster Medical Services
- Disaster Planning and Response
- Emergency Physician Overhead
• Good Samaritan Protection
• Health Care System Surge Capacity Recognition, Preparedness and Response
• Hospital Disaster Physician Privileging
• Pediatric Mental Health Emergencies in the Emergency Department
• Personal Protective Equipment Guidelines for Health Care Facility Staff
• Role of the State EMS Medical Director
• Support for National Disaster Medical System and Other Response Teams
• The Patient-Centered Medical Home Model
• Unsolicited Medical Personnel Volunteering at Disaster Scenes

DIVERSION
• Boarding of Admitted and Intensive Care Patients in the Emergency Department
• Definition of Boarded Patient
• Emergency Department Utilization During Outbreaks of Influenza

EMERGENCY MEDICAL SERVICES (EMS)
• 911 Caller Good Samaritan Laws
• A Culture of Safety in EMS Systems
• Access to 9-1-1 Public Safety Centers, Emergency Medical Dispatch, and Public Emergency Aid Training
• Advanced Automatic Crash Notification and Intelligent Transportation Systems
• Appropriate and Safe Utilization of Helicopter Emergency Medical Services *
• COVID-19 Personal Protective Equipment (PPE) During the Pandemic
• Due Process for Physician Medical Directors of Emergency Medical Services
• Emergency Medical Services Interfaces with Health Care Systems
• Handling of Hazardous Materials
• Human Resources Concepts Governing Physician Medical Directors of EMS
• Medical Transport Advertising, Marketing, and Brokering
• Military Considerations in Emergency Medical Services (EMS) *
• Naloxone Access and Utilization for Suspected Opioid Overdoses
• Out-of-Hospital Medical Direction and the Intervener Physician
• Patient Autonomy and Destination Factors in Emergency Medical Services (EMS) and EMS-Affiliated Mobile Integrated Healthcare Community Paramedicine Programs
• Pediatric Readiness in Emergency Medical Services Systems
• Physician Medical Direction of Emergency Medical Services Education Programs *
• Relationship Between Clinical Capabilities and Medical Equipment in the Practice of Emergency Medical Services Medicine
• Role of the State EMS Medical Director
• Salary and Benefits Considerations for Emergency Medical Services Professionals
• Special Roles for Emergency Medical Services Professionals
• Spinal Motion Restriction in the Trauma Patient
• Support for National Disaster Medical System and Other Response Teams
• Tactical Emergency Medical Support
• The Clinical Practice of Emergency Medical Services Medicine
• The Role of Emergency Physicians in Emergency Medical Services for Children
• The Role of the Physician Medical Director in Emergency Medical Services Leadership
• Transfer of Patient Care Between EMS Providers and Receiving Facilities
• Violence Prevention and Intervention in Emergency Medical Services Systems
ETHICS

- ACEP Business Arrangements
- Advertising and Publicity of Emergency Medical Care
- Animal Use in Research
- Antitrust
- Audiovisual Recording in the Emergency Department
- Civil Commitment
- Code of Ethics for Emergency Physicians
- Collective Bargaining, Work Stoppages and Slowdowns
- College Board Member and Officer Expert Testimony
- Commercial Filming of Patients in the Emergency Department
- Confidentiality of Patient Information *
- Conflict of Interest
- Conflicts of Interest in Biomedical Research
- Cultural Awareness and Emergency Care
- Delivery of Care to Undocumented Persons
- Disclosure of Medical Errors
- Domestic Family Violence
- Electronic Prescription Drug Monitoring Programs
- Emergency Physician Contractual Relationships *
- Emergency Physician Rights and Responsibilities
- Emergency Physician Stewardship of Finite Resources *
- Emergency Physicians’ Patient Care Responsibilities Outside of the Emergency Department
- EMTALA and On-Call Responsibility for Emergency Department Patients
- Ethical Issues at the End of Life
- Ethical Issues of Resuscitation
- Ethical Use of Telemedicine in Emergency Care
- Expert Witness Cross-Specialty Testimony for Standard of Care
- Expert Witness Guidelines for the Specialty of Emergency Medicine
- Fictitious Patients
- Gifts to Emergency Physicians from Industry *
- Guidelines for Emergency Physicians on the Interpretation of Physician Orders for Life-Sustaining Treatment (POLST)
- Law Enforcement Information Gathering in the Emergency Department
- Medical Practice Review and the Practice of Medicine
- Meeting Conduct Policy
- Nonbeneficial (“Futile”) Emergency Medical Interventions
- Non-Discrimination and Harassment
- Observers in Emergency Medical Settings
- Optimizing the Treatment of Acute Pain in the Emergency Department
- Patient- and Family-Centered Care and the Role of the Emergency Physician Providing Care to a Child in the Emergency Department
- Physician Reporting of Potentially Impaired Drivers
- Treatment of Family, Friends, Colleagues, and Self
- Universal Health Care Coverage
• Use of Patient Restraints
• Use of Social Media by Emergency Physicians

HEALTH CARE REFORM
• Health Care Cost Assignment by Taxes
• Medical Services Coding
• Prior Authorization
• The Patient-Centered Medical Home Model
• Third-Party Payers and Emergency Medical Care
• Universal Health Care Coverage

HOSPITALS
• Advocating for Certified Emergency Nurses (CENs) in Departments of Emergency Medicine
• Appropriate Interfacility Patient Transfer
• Availability of Hospital Diagnostic and Therapeutic Services
• Boarding of Admitted and Intensive Care Patients in the Emergency Department
• Coverage for Patient Home Medication While Under Observation Status
• Deferral of Care after Medical Screening of Emergency Department Patients
• Definition of “Admit Time”
• Delivery of Care to Undocumented Persons
• Emergency Department Nurse Staffing
• Emergency Physician Rights and Responsibilities
• Emergency Physicians’ Patient Care Responsibilities Outside of the Emergency Department
• EMTALA and On-Call Responsibility for Emergency Department Patients
• Food and Drink for Staff in the Emergency Department
• Freestanding Emergency Departments
• Geriatric Emergency Department Guidelines
• Good Samaritan Protection
• Guidelines for Smallpox Vaccination for Health Care Workers
• Handling of Hazardous Materials
• Immunization of Adults and Children in the Emergency Department
• Non-Discrimination and Harassment
• Patient Support Services
• Personal Protective Equipment Guidelines for Health Care Facility Staff
• Protection from Violence in the Emergency Department
• Providers of Unsupervised Emergency Department Care
• Responsibility for Admitted Patients
• Specialty Hospitals
• Urgent Care Centers
• Workforce Diversity in Health Care Settings

IMAGING
• Advanced Practice Provider Point-of-Care Ultrasound Guidelines
• Advocacy for Emergency Department Ultrasound Privilege and Practice
• Appropriate Use Criteria for Handheld/Pocket Ultrasound Devices
• Availability of Hospital Diagnostic and Therapeutic Services
• Definition of Clinical Ultrasonography
• Emergency Ultrasound Certification by External Entities
• Emergency Ultrasound Imaging Criteria Compendium
• Guideline for Ultrasound Transducer Cleaning and Disinfection
• Guidelines for the Use of Transesophageal Echocardiography (TEE) in the ED for Cardiac Arrest
• Interpretation of Diagnostic Imaging Tests
• Payment for Ultrasound Services in the Emergency Department
• Point-of-Care Ultrasonography by Pediatric Emergency Medicine Physicians
• Ultrasound Guidelines: Emergency, Point-of-Care, and Clinical Ultrasound Guidelines in Medicine

INFORMATION TECHNOLOGY AND DATA
• Clinical Emergency Data Registry Quality Measures
• Disaster Data Collection
• Electronic Prescription Drug Monitoring Programs
• Emergency Care Electronic Data Collection and Exchange
• Emergency Medicine Telehealth
• External Cause of Morbidity Codes and Injury Surveillance Data Systems
• Health Information Technology
• Health Information Technology Standards
• Patient Information Systems
• Patient Medical Records in the Emergency Department
• Standards for Measuring and Reporting Emergency Department Wait Times

INJURY PREVENTION
• Distracted and Impaired Driving
• Firearm Safety and Injury Prevention
• International Development and Promotion of Emergency Medicine
• Pedestrian Injury Prevention
• Role of the Emergency Physician in Injury Prevention and Control of Adult and Pediatric Patients
• The Role of Emergency Physicians in the Care of Children
• Universal Bicycle Helmet Use
• Worldwide Nuclear Disarmament

INJURY PREVENTION - MOTOR VEHICLE INJURY
• Advanced Automatic Crash Notification and Intelligent Transportation Systems *
• Distracted and Impaired Driving
• Motor Vehicle Safety *
• Pedestrian Injury Prevention
• School Bus Safety
• Small Motorized Recreational Vehicles
MEDICAL EDUCATION

- Academic Departments of Emergency Medicine in Medical Schools
- Compensated Time for Faculty Academic Administration and Teaching Involvement
- Emergency Physician Rights and Responsibilities
- Fictitious Patients
- Financing of Graduate Medical Education in Emergency Medicine
- Guidelines for Undergraduate Education in Emergency Medicine
- Physician Medical Direction of Emergency Medical Services Education Programs
- Providers of Unsupervised Emergency Department Care
- Recognition of Subspecialty Boards in Emergency Medicine
- Resident Training for Practice in Non-Urban/Underserved Areas
- Scholarly Sabbatical Leave for Emergency Medicine Faculty
- The Role of the Legacy Emergency Physician in the 21st Century
- Use of Short Courses in Emergency Medicine as Criteria for Privileging or Employment
- Use of the Title “Doctor” in the Clinical Setting

MENTAL HEALTH

- Civil Commitment
- Pediatric Mental Health Emergencies in the Emergency Department
- Use of Patient Restraints

PATIENT SAFETY

- Boarding for Admitted and Intensive Care Patients in the Emergency Department
- Clinical Guidelines Affecting Emergency Medicine Practice
- Emergency Physician Stewardship of Finite Resources
- Fictitious Patients
- Providers of Unsupervised Emergency Department Care
- Use of Patient Restraints

PEDIATRICS/CHILDREN AND YOUTH

- Boarding of Pediatric Patients in the Emergency Department
- Corporal Punishment of Children
- Death of a Child in the Emergency Department
- Emergency Information Form for Children with Special Health Care Needs
- Evaluation and Treatment of Minors *
- Immunization of Adults and Children in the Emergency Department
- Management of the Patient with the Complaint of Sexual Assault
- Patient- and Family-Centered Care and the Role of the Emergency Physician Providing Care to a Child in the Emergency Department
- Pediatric Medication Safety in the Emergency Department
- Pediatric Mental Health Emergencies in the Emergency Department
- Pediatric Readiness in Emergency Medical Services Systems
- Pediatric Readiness in the Emergency Department
• Point-of-Care Ultrasonography by Pediatric Emergency Medicine Physicians
• Recognition of Subspeciality Boards in Emergency Medicine
• Role of the Emergency Physician in Injury Prevention and Control for Adult and Pediatric Patients
• School Bus Safety
• The Role of Emergency Physicians in Emergency Medical Services for Children
• The Role of Emergency Physicians in the Care of Children
• Use of Antitussive Medications in the Pediatric Population

PHYSICIAN PAYMENT
• Assignment of Benefits
• Balance Billing
• Compensation Arrangements for Emergency Physicians
• Emergency Physician Overhead
• Fair Coverage When Services are Mandated
• Fair Payment for Emergency Department Services
• Medical Services Coding
• Payment for Ultrasound Services in the Emergency Department
• The Patient-Centered Medical Home Model
• Third-Party Payers and Emergency Medical Care

PHYSICIAN WELLBEING
• Considerations for Emergency Physicians in Pre-Retirement Years
• Emergency Physician Shift Work *
• Family and Medical Leave
• Physician Impairment

PRACTICE MANAGEMENT
• 2016 Model of the Clinical Practice of Emergency Medicine
• Alternative Methods to Vascular Access in the Emergency Department
• Appropriate Interfacility Patient Transfer
• Bloodborne Pathogens in Emergency Medicine
• Boarding of Admitted and Intensive Care Patients in the Emergency Department
• Clinical Guidelines Affecting Emergency Medicine Practice
• Clinical Pharmacist Services in the Emergency Department
• Coverage for Patient Home Medication While Under Observation Status
• COVID-19 Personal Protective Equipment (PPE) During the Pandemic
• Crowding
• Cultural Awareness and Emergency Care
• Deferral of Care After Medical Screening of Emergency Department Patients
• Definition of “Admit Time”
• Definition of an Emergency Physician
• Definition of an Emergency Service
• Definition of Boarded Patient
• Definition of Emergency Medicine
• Definition of Rural Emergency Medicine
• Electronic Prescription Drug Monitoring Programs
• Emergency Department Observation Services *
• Emergency Department Planning and Resource Guidelines
• Emergency Department Utilization During Outbreaks of Influenza
• Emergency Medicine Telehealth
• Emergency Medicine’s Role in Organ and Tissue Donation
• Emergency Physician Rights and Responsibilities
• Emergency Physicians’ Patient Care Responsibilities Outside the Emergency Department
• EMTALA and On-Call Responsibility for Emergency Department Patients
• Ensuring Emergency Department Patient Access to Appropriate Pain Treatment
• External Cause of Morbidity Codes and Injury Surveillance Data Systems
• Food and Drink for Staff in the Emergency Department
• Freestanding Emergency Departments
• Geriatric Emergency Department Guidelines
• Handling for Hazardous Materials
• Health Care Guidelines for Cruise Ship Medical Facilities *
• Health Information Technology
• Health Information Technology Standards
• International Development and Promotion of Emergency Medicine
• Interpretation of Diagnostic Imaging Tests
• Mechanical Ventilation
• Medical Cannabis
• Non-Discrimination and Harassment
• Opposition to Copays for Medicaid Beneficiaries
• Opposition to Routine Culturing of Skin and Soft Tissue Abscesses
• Optimizing the Treatment of Acute Pain in the Emergency Department
• Orders Received from Outside the Emergency Department
• Patient Experience of Care Surveys
• Patient Medical Records in the Emergency Department
• Personal Protective Equipment Guidelines for Health Care Facility Staff
• Prescription Drug Pricing
• Procedural Sedation in the Emergency Department
• Protection from Violence in the Emergency Department
• Providers of Unsupervised Emergency Department Care
• Providing Telephone Advice from the Emergency Department
• Quality Improvement Initiatives for the Care of Geriatric Patients in the Emergency Department
• Rapid-Sequence Intubation
• Responsibility for Admitted Patients
• Retail-Based Clinics
• Reversal of Non-Vitamin K Antagonist Oral Anticoagulants in the Presence of Major Life-Threatening Bleeding
• Role of the Emergency Physician in the Care of Trauma Patients
• Safe Discharge from the Emergency Department
• Screening Questions at Triage
• Specialty Hospitals
• Staffing Models and the Role of the Emergency Department Medical Director
• Standardized Protocols for Optimizing Emergency Department Care
• Standards for Measuring and Reporting Emergency Department Wait Times
• Sub-dissociative Dose Ketamine for Analgesia *
• Triage Scale Standardization
• Unscheduled Procedural Sedation: A Multidisciplinary Consensus Practice Guideline
• Use of Nurse-Implemented Order Sets
• Use of Peak Expiratory Flow Rate Monitoring for the Management of Asthma in Adults in the Emergency Department *
• Use of Short Courses in Emergency Medicine as Criteria for Privileging or Employment
• Verification of Endotracheal Tube Placement
• Workforce Diversity in Health Care Settings
• Writing Admission and Transition Orders *

PROFESSIONAL LIABILITY
• Anonymous Affidavits of Merit
• Anonymous Complaints to State Licensing Boards by Third Parties
• Anonymous Expert Physician Testimony for a State Medical Licensing Board
• College Board Member and Office Expert Testimony
• Disaster Medical Response
• Emergency Physicians’ Patient Care Responsibilities Outside of the Emergency Department
• Expert Witness Guidelines for the Specialty of Emergency Medicine
• Fictitious Patients
• Good Samaritan Protection
• Health Courts
• Interpretation of EMTALA in Medical Malpractice Litigation
• Law Enforcement Information Gathering in the Emergency Department
• Medical Practice Review and the Practice of Medicine
• Reform of Tort Law
• Responsibility for Admitted Patients
• State Medical Board Peer Review

PUBLIC HEALTH
• Alcohol Advertising
• Alcohol Screening in the Emergency Department
• Autonomous Self-Driving Vehicles
• Bloodborne Pathogens in Emergency Medicine
• Definition of an Emergency Service
• Definition of Rural Emergency Medicine
• Delivery of Care to Undocumented Persons
• Distracted and Impaired Driving
• Domestic Family Violence
• Drug Take-Back Programs
• Emergency Contraception for Women at Risk of Unintended and Preventable Pregnancy
• Emergency Department Utilization During Outbreaks of Influenza
• External Cause of Morbidity Codes and Injury Surveillance Data Systems
• Guidelines for Smallpox Vaccination for Health Care Workers
• Health Care Cost Assignment by Taxes
• HIV Testing and Screening in the Emergency Department
• Human Trafficking
• Immunization of Adults and Children in the Emergency Department
• Impact of Climate Change on Public Health and Implications for Emergency Medicine
• Management of the Patient with the Complaint of Sexual Assault
• Motor Vehicle Safety *
• Naloxone Prescriptions by Emergency Physicians
• Patient Support Services
• Pedestrian Injury Prevention
• Physician Reporting of Potentially Impaired Drivers
• Protection from Violence in the Emergency Department
• Reporting of Vaccine-Related Adverse Events
• Role of Poison Centers in Emergency Health Care, Preparedness, and Response
• School Bus Safety
• Selective Triage for Victims of Sexual Assault to Designated Exam Facilities
• Separation of Children from Family/Guardians
• Support for Nursing Mothers
• The Role of Emergency Physicians in the Completion of Death Certificates
• Tobacco and Nicotine Products – Public Policy Measures
• Trauma Care Systems
• Universal Bicycle Helmet Use
• Universal Health Care Coverage
• Violence-Free Society
• Worldwide Nuclear Disarmament

STAFF/WORKFORCE
• Advocating for Certified Emergency Nurses (CENs) in Departments of Emergency Medicine
• Bloodborne Pathogens in Emergency Medicine
• Collective Bargaining, Work Stoppages, and Slowdowns
• Compensated Time for Faculty Academic Administration and Teaching Involvement
• Considerations for Emergency Physicians in Pre-Retirement Years
• Emergency Department Nurse Staffing
• Emergency Department Patient Advocate Role and Training
• Emergency Medicine Workforce
• Emergency Physician Shift Work
• Food and Drink for Staff in the Emergency Department
• Guidelines for Smallpox Vaccination for Health Care Workers
• Guidelines Regarding the Role of Physician Assistants and Nurse Practitioners in the Emergency Department
• Immunization of Adults and Children in the Emergency Department
• Maximizing the Potential of Women in Emergency Medicine
• Personal Protective Equipment Guidelines for Health Care Facility Staff
• Staffing Models and the Role of the Emergency Department Medical Director
• Supporting Political Advocacy in the Emergency Department
- Triage Scale Standardization
- Use of the Title “Doctor” in the Clinical Setting
- Workforce Diversity in Health Care Settings

**SUBSTANCE ABUSE**
- 911 Caller Good Samaritan Laws
- Alcohol Advertising
- Alcohol Screening in the Emergency Department
- Distracted and Impaired Driving
- Drug “Take-Back” Programs
- Electronic Prescription Drug Monitoring Programs
- Naloxone Access and Utilization for Suspected Opioid Overdoses
- Naloxone Prescriptions by Emergency Physicians
- Optimizing the Treatment of Acute Pain in the Emergency Department
- Sub-dissociative Dose Ketamine for Analgesia
- Use of Patient Restraints

**VIOLENCE AND ABUSE**
- Domestic Family Violence
- Management of the Patient with the Complaint of Sexual Abuse
- Protection from Violence in the Emergency Department
- Selective Triage for Victims of Sexual Assault to Designated Exam Facilities
- Violence-Free Society
- Violence Prevention and Intervention in Emergency Medical Services Systems
POLICY STATEMENTS BY ALPHABET

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2016 Model of the Clinical Practice of Emergency Medicine
911 Caller Good Samaritan Laws
A Culture of Safety in EMS Systems
Academic Departments of Emergency Medicine in Medical Schools
Access to 9-1-1 Public Safety Centers, Emergency Medical Dispatch, and Public Emergency Aid Training
ACEP Business Arrangements
ACEP Recognized Certifying Bodies in Emergency Medicine
Advanced Automatic Crash Notification and Intelligent Transportation Systems *
Advanced Life Support Courses
Advanced Practice Provider Point-of-Care Ultrasound Guidelines
Advertising and Publicity of Emergency Medical Care
Advocacy for Emergency Department Ultrasound Privilege and Practice
Advocating for Certified Emergency Nurses (CENs) in Departments of Emergency Medicine
Alcohol Advertising
Alcohol Screening in the Emergency Department
Alternative Methods to Vascular Access in the Emergency Department
Animal Use in Research
Anonymous Affidavits of Merit
Anonymous Complaints to State Licensing Boards by Third Parties
Anonymous Expert Physician Testimony for a State Medical Licensing Board
Antitrust
Appropriate and Safe Utilization of Helicopter Emergency Medical Services *
Appropriate Interfacility Patient Transfer
Appropriate Use Criteria for Handheld/Pocket Ultrasound Devices
Assignment of Benefits
Audiovisual Recording in the Emergency Department
Autonomous Self-Driving Vehicles
Availability of Hospital Diagnostic and Therapeutic Services
Balance Billing
Bloodborne Pathogens in Emergency Medicine
Boarding of Admitted and Intensive Care Patients in the Emergency Department
Boarding of Pediatric Patients in the Emergency Department
Care of Patients with Behavioral Health Emergencies and Suspected or Confirmed COVID-19
Civil Commitment
Clinical Emergency Data Registry Quality Measures
Clinical Guidelines Affecting Emergency Medicine Practice
Clinical Pharmacist Services in the Emergency Department
CME Burden
Code of Ethics for Emergency Physicians
Collective Bargaining, Work Stoppages, and Slowdowns
College Board Member and Officer Expert Testimony
Commercial Filming of Patients in the Emergency Department
Compensated Time for Faculty Academic Administration and Teaching Involvement
Compensation Arrangements for Emergency Physicians
Confidentiality of Patient Information *
Conflict of Interest
Conflicts of Interest in Biomedical Research
Considerations for Emergency Physicians in Pre-Retirement Years
Corporal Punishment of Children
Coverage for Patient Home Medication While Under Observation Status
COVID-19 Personal Protective Equipment (PPE) During the Pandemic
COVID-19 Use of Donated or Self-Purchased Personal Protective Equipment (PPE)
Cultural Awareness and Emergency Care
Death of a Child in the Emergency Department
Deferral of Care After Medical Screening of Emergency Department Patients Definition of Admit Time
Definition of an Emergency Physician
Definition of an Emergency Service
Definition of Boarded Patient
Definition of Clinical Ultrasonography
Definition of Democracy in Emergency Medicine Practice
Definition of Emergency Medicine
Definition of Rural Emergency Medicine
Delivery of Care to Undocumented Persons
Disaster Data Collection
Disaster Medical Response
Disaster Medical Services
Disaster Planning and Response
Disclosure of Medical Errors
Distracted and Impaired Driving
Domestic Family Violence
Drug Take-Back Programs
Due Process for Physician Medical Directors of Emergency Medical Services
Economic Credentialing
Electronic Prescription Drug Monitoring Programs
Emergency Care Electronic Data Collection and Exchange
Emergency Contraception for Women at Risk of Unintended and Preventable Pregnancy
Emergency Department Nurse Staffing
Emergency Department Observation Services *
Emergency Department Patient Advocate Role and Training
Emergency Department Planning and Resource Guidelines
Emergency Department Utilization During Outbreaks of Influenza
Emergency Information Form for Children With Special Health Care Needs
Emergency Medical Services Interfaces with Health Care Systems
Emergency Medicine Telehealth
Emergency Medicine Training, Competency, and Professional Practice Principles
Emergency Medicine Workforce
Emergency Medicine's Role in Organ and Tissue Donation
Emergency Physician Contractual Relationships *
Emergency Physician Overhead
Emergency Physician Rights and Responsibilities
Emergency Physician Shift Work *
Emergency Physician Stewardship of Finite Resources *
Emergency Physicians' Patient Care Responsibilities Outside the Emergency Department
Emergency Ultrasound Certification by External Entities
Emergency Ultrasound Imaging Criteria Compendium
EMTALA and On-call Responsibility for Emergency Department Patients
Ensuring Emergency Department Patient Access to Appropriate Pain Treatment
Ethical Issues at the End of Life
Ethical Issues of Resuscitation
Ethical Use of Telemedicine in Emergency Care
Evaluation and Treatment of Minors *
Expert Witness Cross-Specialty Testimony for Standard of Care
Expert Witness Guidelines for the Specialty of Emergency Medicine
External Cause of Morbidity Codes and Injury Surveillance Data Systems
Fair Coverage When Services are Mandated
Fair Payment for Emergency Department Services
Family Leave of Absence
Fictitious Patients
Financing of Graduate Medical Education in Emergency Medicine
Firearm Safety and Injury Prevention
Food and Drink for Staff in the Emergency Department
Freestanding Emergency Departments
Geriatric Emergency Department Guidelines
Gifts to Emergency Physicians from Industry *
Good Samaritan Protection
Guideline for Ultrasound Transducer Cleaning and Disinfection
Guidelines for Emergency Physicians on the Interpretation of Physician Orders for Life-Sustaining Treatment (POLST)
Guidelines for Smallpox Vaccination for Health Care Workers
Guidelines for the Use of Transesophageal Echocardiography (TEE) in the ED for Cardiac Arrest
Guidelines for Undergraduate Education in Emergency Medicine
Guidelines Regarding the Role of Physician Assistants and Nurse Practitioners in the Emergency Department
Handling of Hazardous Materials
Health Care Cost Assignment by Taxes
Health Care Guidelines for Cruise Ship Medical Facilities *
Health Care System Surge Capacity Recognition, Preparedness, and Response
Health Courts
Health Information Technology
Health Information Technology Standards
HIV Testing and Screening in the Emergency Department
Hospital Disaster Physician Privileging
Human Resources Concepts Governing Physician Medical Directors of EMS
Human Trafficking
Immunization of Adults and Children in the Emergency Department
Impact of Climate Change on Public Health and Implications for Emergency Medicine
International Development and Promotion of Emergency Medicine
Interpretation of Diagnostic Imaging Tests
Interpretation of EMTALA in Medical Malpractice Litigation
Law Enforcement Information Gathering in the Emergency Department
Management of the Patient with the Complaint of Sexual Assault
Maximizing the Potential of Women in Emergency Medicine
Mechanical Ventilation
Medical Cannabis
Medical Practice Review and the Practice of Medicine
Medical Services Coding
Medical Transport Advertising, Marketing, and Brokering
Meeting Conduct Policy
Military Considerations in Emergency Medical Services (EMS) *
Motor Vehicle Safety *
Naloxone Access and Utilization for Suspected Opioid Overdoses
Naloxone Prescriptions by Emergency Physicians
Nonbeneficial ("Futile") Emergency Medical Intervention
Non-Discrimination and Harassment
Observers in Emergency Medical Settings
Opposition to Copays for Medicaid Beneficiaries
Opposition to Routine Culturing of Skin and Soft Tissue Abscesses
Optimizing the Treatment of Acute Pain in the Emergency Department
Orders Received from Outside the Emergency Department
Out-of-Hospital Medical Direction and the Intervener Physician
Patient Autonomy and Destination Factors in Emergency Medical Services (EMS) and EMS-Affiliated Mobile Integrated Healthcare/Community Paramedicine Programs
Patient Experience of Care Surveys
Patient Information Systems
Patient Medical Records in the Emergency Department
Patient Support Services
Payment for Ultrasound Services in the Emergency Department
Pedestrian Injury Prevention
Pediatric Medication Safety in the Emergency Department
Pediatric Mental Health Emergencies in the Emergency Department
Pediatric Readiness in Emergency Medical Services Systems
Pediatric Readiness in the Emergency Department
Personal Protective Equipment Guidelines for Health Care Facility Staff
Physician Credentialing and Delineation of Clinical Privileges in Emergency Medicine *
Physician Impairment
Physician Medical Direction of Emergency Medical Services Education Programs *
Physician Reporting of Potentially Impaired Drivers
Point-of-Care Ultrasonography by Pediatric Emergency Medicine Physicians
Prescription Drug Pricing
Prior Authorization
Procedural Sedation in the Emergency Department
Protecting Emergency Physician Compensation During Contract Transitions
Protection from Violence in the Emergency Department
Providers of Unsupervised Emergency Department Care
Providing Telephone Advice from the Emergency Department
Quality Improvement Initiatives for the Care of Geriatric Patients
Rapid-Sequence Intubation
Recognition of Subspecialty Boards in Emergency Medicine
Reform of Tort Law
Relationship Between Clinical Capabilities and Medical Equipment in the Practice of Emergency Medical Services Medicine
Reporting of Vaccine-Related Adverse Events
Resident Training for Practice in Non-Urban/Underserved Areas
Responsibility for Admitted Patients
Retail-Based Clinics
Reversal of Non-Vitamin K Antagonist Oral Anticoagulants (NOACs) in the Presence of Major Life-Threatening Bleeding
Role of Poison Centers in Emergency Health Care, Preparedness, and Response
Role of the Emergency Physician in Injury Prevention and Control for Adult and Pediatric Patients
Role of the Emergency Physician in the Care of Trauma Patients
Role of the State EMS Medical Director
Safe Discharge from the Emergency Department
Salary and Benefits Considerations for Emergency Medical Services Professionals
Scholarly Sabbatical Leave for Emergency Medicine Faculty
School Bus Safety
Screening Questions at Triage
Selective Triage for Victims of Sexual Assault to Designated Exam Facilities
Separation of Children from Family/Guardians
Small Motorized Recreational Vehicles
Special Roles for Emergency Medical Services Professionals
Speciality Hospitals
Spinal Motion Restriction in the Trauma Patient
Staffing Models and the Role of the Emergency Department Medical Director
Standardized Protocols for Optimizing Emergency Department Care
Standards for Measuring and Reporting Emergency Department Wait Times
State Medical Board Peer Review
Sub-dissociative Dose Ketamine for Analgesia *
Support for National Disaster Medical System and Other Response Teams
Support for Nursing Mothers
Supporting Political Advocacy in the Emergency Department
Tactical Emergency Medical Support
The Clinical Practice of Emergency Medical Services Medicine
The Patient-Centered Medical Home Model
The Role of Emergency Physicians in Emergency Medical Services for Children
The Role of Emergency Physicians in the Care of Children
The Role of Emergency Physicians in the Completion of Death Certificates
The Role of the Legacy Emergency Physician in the 21st Century
The Role of the Physician Medical Director in Emergency Medical Services Leadership
Third-Party Payers and Emergency Medical Care
Tobacco and Nicotine Products::Public Policy Measures
Transfer of Patient Care Between EMS Providers and Receiving Facilities
Trauma Care Systems
Treatment of Family, Friends, Colleagues, and Self
Triage Scale Standardization
Ultrasound Guidelines: Emergency, Point-of-Care and Clinical Ultrasound Guidelines in Medicine
Universal Bicycle Helmet Use
Universal Health Care Coverage
Unscheduled Procedural Sedation: A Multidisciplinary Consensus Practice Guideline
Unsolicited Medical Personnel Volunteering at Disaster Scenes
Urgent Care Centers
Use of Antitussive Medications in the Pediatric Population
Use of Nurse Implemented Order Sets
Use of Patient Restraints
Use of Peak Expiratory Flow Rate Monitoring for the Management of Asthma in Adults in the Emergency Department *
Use of Short Courses in Emergency Medicine as Criteria for Privileging or Employment
Use of Social Media by Emergency Physicians
Use of the Title "Doctor" in the Clinical Setting
Verification of Endotracheal Tube Placement
Violence-Free Society
Violence Prevention and Intervention in Emergency Medical Services Systems
Workforce Diversity in Health Care Settings
Worldwide Nuclear Disarmament
Writing Admission and Transition Orders *
2019 Model of the Clinical Practice of Emergency Medicine


The 2019 EM Model Review Task Force conducted the eighth review of the EM Model. Their work is built on the original 2001 EM Model and the subsequent four revisions. The 2019 EM Model is published online in the May 2020 Journal of Emergency Medicine.

All changes that resulted from the 2019 EM Model Review Task Force are summarized in Figure 1. The three dimensions as revised in 2019 are presented in Tables 1-4.

Preamble of the Core Content Task Force II, Adapted for the 2019 EM Model

In 1975, the American College of Emergency Physicians and the University Association for Emergency Medicine (now the Society for Academic Emergency Medicine; SAEM) conducted a practice analysis of the emerging field of Emergency Medicine. This work resulted in the development of the Core Content of Emergency Medicine, a listing of common conditions, symptoms, and diseases seen and evaluated in emergency departments. The Core Content listing was subsequently revised four times, expanding from 5 to 20 pages. However, none of these revisions had the benefit of empirical analysis of the developing specialty but relied solely upon expert opinion.
Following the 1997 revision of the Core Content listing, the contributing organizations felt that the list had become complex and unwieldy, and subsequently agreed to address this issue by commissioning a task force to re-evaluate the Core Content listing and the process for revising the list. As part of its final set of recommendations, the Core Content Task Force recommended that the specialty undertake a practice analysis of the clinical practice of Emergency Medicine. Results of a practice analysis would provide an empirical foundation for content experts to develop a core document that would represent the needs of the specialty.

Following the completion of its mission, the Core Content Task Force recommended commissioning another task force that would be charged with the oversight of a practice analysis of the specialty - Core Content Task Force II.

The practice analysis relied upon both empirical data and the advice of several expert panels and resulted in The Model of the Clinical Practice of Emergency Medicine (EM Model). The EM Model resulted from the need for a more integrated and representative presentation of the Core Content of Emergency Medicine. It was created through the collaboration of six organizations:

- American Board of Emergency Medicine (ABEM)
- American College of Emergency Physicians (ACEP)
- Council of Emergency Medicine Residency Directors (CORD)
- Emergency Medicine Residents’ Association (EMRA)
- Residency Review Committee for Emergency Medicine (RRC-EM)
- Society for Academic Emergency Medicine (SAEM)

As requested by Core Content Task Force II, the six collaborating organizations reviewed the 2001 EM Model in 2002-2003 and developed a small list of proposed changes to the document. The changes were reviewed and considered by 10 representatives from the organizations, i.e., the 2003 EM Model Review Task Force. The Task Force’s recommendations were approved by the collaborating organizations and were incorporated into the EM Model. The work of the Task Force was published in the June 2005 Annals of Emergency Medicine and Academic Emergency Medicine.

The six collaborating organizations reviewed the 2002-2003 EM Model in 2005 and developed a small list of proposed changes to the document. The changes were reviewed and considered by nine representatives from the organizations, i.e., the 2005 EM Model Review Task Force. The Task Force’s recommendations were approved by the collaborating organizations and were incorporated into the EM Model. The work of the Task Force was published in the October 2006 Academic Emergency Medicine and December 2006 Annals of Emergency Medicine.

The next regular review of the EM Model occurred in 2007. The 2007 EM Model Review Task Force recommendations were approved by the collaborating organizations and were
incorporated into the EM Model. The work of the Task Force was published in the August 2008 Academic Emergency Medicine and online-only in the August 2008 Annals of Emergency Medicine.

The fourth review of the EM Model occurred in 2009. The 2009 EM Model Review Task Force recommendations were approved by the collaborating organizations and were incorporated into the EM Model. The work of the Task Force was published in the January 2011 Academic Emergency Medicine and online-only in Annals of Emergency Medicine.

The fifth review of the EM Model occurred in 2011. The 2011 EM Model Review Task Force recommendations were approved by the collaborating organizations and were incorporated into the EM Model. The work of the Task Force was published online-only in the July 2012 Academic Emergency Medicine.

The sixth review of the EM Model occurred in 2013, with the addition of a seventh collaborating organization, the American Academy of Emergency Medicine (AAEM). The 2013 EM Model Review Task Force recommendations were approved by the collaborating organizations and were incorporated into the EM Model. The work of the Task Force was published online-only in the May 2014 Academic Emergency Medicine.

In 2014, the collaborating organizations made the decision to review the EM Model on a three-year review cycle. The seventh review of the EM Model occurred in 2016. The 2016 EM Model Review Task Force recommendations were approved by the collaborating organizations and were incorporated into the EM Model. The full 2016 EM Model was published online in the March 2017 Journal of Emergency Medicine.

The eighth review of the EM Model occurred in 2019. The 2019 EM Model Review Task Force recommendations were approved by the collaborating organizations and are incorporated into this document. The full 2019 EM Model was published online in the May 2020 Journal of Emergency Medicine.

There are three components to the EM Model: 1) an assessment of patient acuity; 2) a description of the tasks that must be performed to provide appropriate emergency medical care; and 3) a listing of medical knowledge, patient care, and procedural skills. Together these three components describe the clinical practice of Emergency Medicine (EM) and differentiate it from the clinical practice of other specialties. The EM Model represents essential information and skills necessary for the clinical practice of EM by board-certified emergency physicians.

Patients often present to the emergency department with signs and symptoms rather than a known disease or disorder. Therefore, an emergency physician’s approach to patient care begins with the recognition of patterns in the patient’s presentation that point to a specific diagnosis or diagnoses. Pattern recognition is both the hallmark and cornerstone of the clinical practice of EM, guiding the diagnostic tests and therapeutic interventions during the entire patient encounter.

The Accreditation Council for Graduate Medical Education (ACGME) has implemented the ACGME Outcome Project to assure that physicians are appropriately trained in the knowledge and skills of their specialties. The ACGME derived six general (core) competencies thought to be essential for any practicing physician: patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice. The six general competencies are an integral part of the practice of
Emergency Medicine and are embedded into the EM Model. To incorporate these competencies into the specialty of EM, an Emergency Medicine Competency Task Force demonstrated how these competencies are integrated into the EM Model.¹

The EM Model is designed for use as the core document for the specialty. It provides the foundation for developing future medical school and residency curricula, certification examination specifications, continuing education objectives, research agendas, residency program review requirements, and other documents necessary for the functional operation of the specialty. In conjunction with the EM Model, these six core competencies construct a framework for evaluation of physician performance and curriculum design to further refine and improve the education and training of competent emergency physicians.

The 2019 review of the EM Model resulted in significant changes and clarifications, including the addition of an oncology section within Category 8, Hematologic and Oncologic Disorders. The complete updated 2016 EM Model can be found on the websites of each of the seven collaborating organizations.

¹ Accreditation Council for Graduate Medical Education (ACGME). ACGME Core Competencies. (ACGME Outcome Project Website). Available at http://www.acgme.org/outcome/comp/compCPRL.asp

Summary of 2019 EM Model Review Task Force Changes

Listed below are the changes approved by the seven collaborating organizations.

Changes to Table 1. Matrix of Physician Tasks by Patient Acuity

Changed Multiple patient care to Task switching/Multiple patient care

Changes to Table 3. Physician Task Definitions

Modifying factors: Added “gender identity, sexual orientation”

Prevention and education: Added “and harm reduction”

Documentation: Changed from Communicate patient care information in a concise and appropriate manner that facilitates quality care and coding.

to

Communicate patient care information in a concise and appropriate manner that facilitates quality care. This includes documentation and medical decision-making variables related to billing, coding, and reimbursement for patient care.

Changed Multiple patient care to Task switching/Multiple patient care

Patient-centered communication skills: Added Identify situations that require individualized communication, such as goals of care, end of life care, and palliative options.

Changes to Table 4. Medical Knowledge, Patient Care, and Procedural Skills

<table>
<thead>
<tr>
<th>Location</th>
<th>Description of Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2.6</td>
<td>Changed Pelvic pain to Pelvic and genital pain</td>
</tr>
<tr>
<td>1.2.10</td>
<td>Added Neck pain (Critical, Emergent Lower)</td>
</tr>
<tr>
<td>1.3.2</td>
<td>Changed Anuria to Anuria/Oliguria</td>
</tr>
<tr>
<td>1.3.3</td>
<td>Deleted Anxiety</td>
</tr>
<tr>
<td>1.3.8</td>
<td>Changed Constipation to Constipation/Obstipation (Added Emergent)</td>
</tr>
<tr>
<td>1.3.45</td>
<td>Changed Syncope to Syncope/Near syncope</td>
</tr>
<tr>
<td>1.3.53</td>
<td>Deleted Vertigo</td>
</tr>
<tr>
<td>1.3.57</td>
<td>Added Suicidal ideation (Critical, Emergent, Lower)</td>
</tr>
<tr>
<td>1.3.58</td>
<td>Added Brief resolved unexplained events (BRUE) – (Critical, Emergent, Lower)</td>
</tr>
<tr>
<td>1.3.59</td>
<td>Added Intoxication syndromes (Critical, Emergent, Lower)</td>
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<tr>
<td>1.3.60</td>
<td>Added Postsurgical complications (Critical, Emergent, Lower)</td>
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<td>Changed Cirrhosis to Noninfectious hepatitis/Cirrhosis</td>
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<td>Added Nonalcoholic steatohepatitis (NASH) – (Lower)</td>
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<td>2.3.3.3</td>
<td>Added Perihepatitis (Lower)</td>
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<td>2.4.2</td>
<td>Added Critical</td>
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<td>2.5.3</td>
<td>Added Pseudocyst (Lower)</td>
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<td>2.7.7</td>
<td>Added Cyclic vomiting syndrome (See 17.1.24.1.1) – (Emergent, Lower)</td>
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<td>Changed Gluten enteropathy to Gluten enteropathy/Celiac disease</td>
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<td>2.9.3.3</td>
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<td>Changed Post-surgical to Specific Post-surgical Populations</td>
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<td>3.5.2.2</td>
<td>Added Dilated (Critical, Emergent, Lower)</td>
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<td>3.7</td>
<td>Deleted Endocarditis</td>
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<td>Added Asymptomatic hypertension (Lower)</td>
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<td>3.7.2</td>
<td>Added Hypertensive emergency (Critical, Emergent)</td>
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<td>3.9.1</td>
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<td>Deleted Henoch-Schönlein purpura (HSP)</td>
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<td>4.6.4</td>
<td>Added Erythema nodosum (Lower)</td>
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<td>4.8</td>
<td>Added Purpuric Rash (Critical, Emergent, Lower)</td>
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<td>Added Henoch-Schönlein purpura (HSP) – (Emergent)</td>
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<td>Changed Fluid overload/Volume depletion to Hypervolemia/Hypovolemia (Added Lower)</td>
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<td>Added Febrile neutropenia (Critical, Emergent, Lower)</td>
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<td>Added Hypercalcemia of malignancy (Critical, Emergent, Lower)</td>
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<td>Added Hyperviscosity syndrome (Critical, Emergent, Lower)</td>
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<td>Added Malignant pericardial effusion (Critical, Emergent, Lower)</td>
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<td>Added Spinal cord compression (See 12.10) – (Critical, Emergent)</td>
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<td>Added Superior vena cava syndrome (Critical, Emergent)</td>
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<td>Added Tumor lysis syndrome (Critical, Emergent)</td>
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<td>9.1.2</td>
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<td>12.13</td>
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<td>12.14</td>
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<td>Added Amniotic fluid embolism (Critical, Emergent)</td>
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<td>Added Opioid use disorder (Critical, Emergent, Lower)</td>
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<td>Added Stimulant use disorder (Critical, Emergent, Lower)</td>
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<td>Added Medication-assisted treatment (MAT) – (Emergent, Lower)</td>
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<td>Added Peritoneal (Critical, Emergent, Lower)</td>
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<td>16.6.2</td>
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<td>16.6.2.1</td>
<td>Added Massive and submassive embolism (Critical, Emergent)</td>
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<td>17.1.4</td>
<td>Changed Anticoagulants/Antithrombotics to Anticoagulants/Antithrombotics/Antiplatelets</td>
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<td>17.1.4.3</td>
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<td>Added (See 2.7.7)</td>
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<td>Changed Chest trauma to Thoracic trauma</td>
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<td>Added Scapula (Emergent, Lower)</td>
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<td>Changed Cutaneous injuries to Cutaneous trauma</td>
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<td>Changed Facial fractures to Facial trauma</td>
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<td>Changed Injuries of the spine to Spine trauma</td>
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<td>18.1.10.6.1</td>
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<td>Added Extracorporeal membrane oxygenation (ECMO)</td>
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<td>19.2.12</td>
<td>Added Thermoregulation procedures</td>
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<td>19.3.1</td>
<td>Deleted Local anesthesia; changed Regional nerve block to Regional anesthesia</td>
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<td>19.4.1.3</td>
<td>Deleted Gastric lavage</td>
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<td>19.4.1.6</td>
<td>Added Mechanical control of upper gastrointestinal bleeding</td>
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<td>19.4.8.2</td>
<td>Changed Perimortem c-section to Resuscitative hysterotomy</td>
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<td>19.4.11.2</td>
<td>Added Antidote administration</td>
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<td>20.1.2.4</td>
<td>Changed Delivering bad news to Delivering bad news/death notifications</td>
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<td>20.1.2.7</td>
<td>Added Management of patient expectations</td>
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<td>20.3.2.2</td>
<td>Changed Diversity awareness to Diversity and inclusion awareness</td>
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<td>20.3.2.6</td>
<td>Added Care of vulnerable populations</td>
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<td>Changed Well-being to Well-being and resilience</td>
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<td>20.3.4.5</td>
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<td>20.3.4.6</td>
<td>Added Care for the caregiver</td>
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<td>20.4.1.4</td>
<td>Changed Health information integration to Health information exchange and interoperability</td>
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<td>20.4.2.4.3</td>
<td>Added Staffing/Scheduling</td>
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<tr>
<td>20.4.2.5</td>
<td>Added Emergency preparedness</td>
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<td>20.4.4</td>
<td>Reorganized Health care coordination section</td>
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<td>20.4.7.2</td>
<td>Added Gender identity and sexual orientation</td>
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<tr>
<td>20.4.7.2.1</td>
<td>Added Transgender care</td>
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<tr>
<td>20.4.7.3</td>
<td>Added Social determinants of health</td>
</tr>
<tr>
<td>20.4.7.4</td>
<td>Added Firearm injury prevention</td>
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</table>
Table 1. Matrix of physician tasks by patient acuity

<table>
<thead>
<tr>
<th>Physician Tasks</th>
<th>Critical</th>
<th>Emergent</th>
<th>Lower Acuity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prehospital care</td>
<td></td>
<td></td>
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<tr>
<td>Emergency stabilization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance of focused history and physical examination</td>
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</tr>
<tr>
<td>Modifying factors</td>
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<tr>
<td>Professional issues</td>
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<td></td>
<td></td>
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<tr>
<td>Legal issues</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnostic studies</td>
<td></td>
<td></td>
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<tr>
<td>Diagnosis</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Therapeutic interventions</td>
<td></td>
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<td></td>
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<tr>
<td>Pharmacotherapy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observation and reassessment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consultation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transitions of Care</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prevention and education</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Documentation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task switching/Multiple patient care</td>
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<tr>
<td>Team management</td>
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<tr>
<td>Mass casualty/Disaster management</td>
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<tr>
<td>Patient -centered communication skills</td>
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<tr>
<td>Prognosis</td>
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Table 2. Patient acuity definitions

<table>
<thead>
<tr>
<th>Acuity</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Critical</td>
<td>Patient presents with symptoms of a life-threatening illness or injury with a high probability of mortality if immediate intervention is not begun to prevent further airway, respiratory, hemodynamic, and/or neurologic instability.</td>
</tr>
<tr>
<td>Emergent</td>
<td>Patient presents with symptoms of an illness or injury that may progress in severity or result in complications with a high probability for morbidity if treatment is not begun quickly.</td>
</tr>
<tr>
<td>Lower Acuity</td>
<td>Patient presents with symptoms of an illness or injury that have a low probability of progression to more serious disease or development of complications.</td>
</tr>
</tbody>
</table>
Table 3. Physician task definitions

<table>
<thead>
<tr>
<th>Task Definition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prehospital care</td>
<td>Participate actively in prehospital care; provide direct patient care or online or off-line medical direction or interact with prehospital medical providers; assimilate information from prehospital care into the assessment and management of the patient.</td>
</tr>
<tr>
<td>Emergency stabilization</td>
<td>Conduct primary assessment and take appropriate steps to stabilize and treat patients.</td>
</tr>
<tr>
<td>Performance of focused history and physical examination</td>
<td>Effectively interpret and evaluate the patient’s symptoms and history; identify pertinent risk factors in the patient's history; provide a focused evaluation; interpret the patient’s appearance, vital signs and condition; recognize pertinent physical findings; perform techniques required for conducting the exam.</td>
</tr>
<tr>
<td>Modifying factors</td>
<td>Recognize age, gender, ethnicity, barriers to communication, socioeconomic status, underlying disease, gender identity, sexual orientation, and other factors that may affect patient management.</td>
</tr>
<tr>
<td>Professional issues</td>
<td>Understand and apply principles of professionalism and ethics pertinent to patient management.</td>
</tr>
<tr>
<td>Legal issues</td>
<td>Understand and apply legal concepts pertinent to the practice of EM.</td>
</tr>
<tr>
<td>Diagnostic studies</td>
<td>Select and perform the most appropriate diagnostic studies and interpret the results, e.g., electrocardiogram, emergency ultrasound, radiographic and laboratory tests.</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>Develop a differential diagnosis and establish the most likely diagnoses in light of the history, physical, interventions, and test results.</td>
</tr>
<tr>
<td>Therapeutic interventions</td>
<td>Perform procedures and nonpharmacologic therapies, and counsel.</td>
</tr>
<tr>
<td>Pharmacotherapy</td>
<td>Select, prescribe, and be aware of adverse effects of appropriate pharmaceutical agents based upon relevant considerations such as intended effect, financial considerations, possible adverse effects, patient preferences, institutional policies, and clinical guidelines; and monitor and intervene in the event of adverse effects in the ED.</td>
</tr>
<tr>
<td>Observation and reassessment</td>
<td>Evaluate and re-evaluate the effectiveness of a patient’s treatment or therapy, including addressing complications and potential errors; monitor, observe, manage, and maintain the stability of one or more patients who are at different stages in their work-ups.</td>
</tr>
<tr>
<td>Consultation</td>
<td>Collaborate with physicians and other professionals to help guide optimal management of patients.</td>
</tr>
<tr>
<td>Transitions of care</td>
<td>Arrange for patient admission, discharge (including follow-up plan), observation, or transfer and transitions of care as appropriate, and communicate these arrangements effectively with patients, family, and involved healthcare team members.</td>
</tr>
<tr>
<td>Task</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Prevention and education</td>
<td>Apply epidemiologic information to patients at risk; conduct patient education; select appropriate disease and injury prevention, and harm reduction techniques.</td>
</tr>
<tr>
<td>Documentation</td>
<td>Communicate patient care information in a concise and appropriate manner that facilitates quality care. This includes documentation and medical decision-making variables related to billing, coding, and reimbursement for patient care.</td>
</tr>
<tr>
<td>Task switching/Multiple patient care</td>
<td>Prioritize and implement the evaluation and management of multiple patients in the emergency department, including handling interruptions and task-switching, in order to provide optimal patient care.</td>
</tr>
<tr>
<td>Team management</td>
<td>Coordinate, educate, or supervise members of the patient management team and utilize appropriate hospital resources.</td>
</tr>
<tr>
<td>Mass casualty/Disaster management</td>
<td>Understand and apply the principles of disaster and mass casualty management including preparedness, triage, mitigation, response, and recovery.</td>
</tr>
<tr>
<td>Patient-centered communication skills</td>
<td>Establish rapport with and demonstrate empathy toward patients and their families; listen effectively to patients and their families. Identify situations that require individualized communication, such as goals of care, end of life care, and palliative options.</td>
</tr>
<tr>
<td>Prognosis</td>
<td>Forecast the likely outcome of a medical disease or traumatic condition.</td>
</tr>
</tbody>
</table>

**MEDICAL KNOWLEDGE, PATIENT CARE, AND PROCEDURAL SKILLS**

As originally developed, the third dimension of the EM Model was called the Listing of Conditions and Components. The listing contained the fundamental conditions for which patients presented to emergency departments, and was based on data collected by the National Center for Health Statistics at the Centers for Disease Control and Prevention (CDC) during 1995-1996. The CDC data were collected from 40,000 emergency department records statistically representative of 90.3 million emergency department visits in metropolitan and non-metropolitan short-stay or general hospitals in all 50 states and the District of Columbia. Frequency of occurrence was a primary factor in determining inclusion in the Listing of Conditions and Components. Frequency of occurrence, however, was not the sole determinant of inclusion, nor was the number of entries pertaining to a single topic representative of importance. The final list was developed by several expert panels of practicing emergency physicians based on three factors: 1) frequency of occurrence; 2) critical nature of patient presentation; and 3) other components of EM practice.

The Listing of Conditions and Components also contained two appendices. Appendix 1 outlined the diagnostic and/or therapeutic procedures and tests considered essential to the clinical practice of Emergency Medicine. Appendix 2 listed the other essential components and core competencies of EM practice.

With each Task Force review, the Listing of Conditions and Components has evolved to maintain consistency with the current clinical practice of EM. In 2011, it was determined that the contents of the two appendices represented core components of EM knowledge, which, when combined with the Listing of Conditions and Components, encompassed the universe of
knowledge that all practicing emergency physicians should possess. Consequently, the appendices were incorporated into the body of the document and the entire section was renamed Medical Knowledge, Patient Care, and Procedural Skills (Table 4). This change strengthened the inherent link between the EM Model and the ACGME six core competencies.

**NOTE:** The listing of Medical Knowledge, Patient Care, and Procedural Skills is not intended to be comprehensive. It is intended to be representative of the most frequent conditions seen, those with the most serious implications for patients presenting to the emergency department, and the core knowledge and skills required to provide safe and effective patient care.

Table 4. Medical Knowledge, Patient Care, and Procedural Skills

**1.0 SIGNS, SYMPTOMS, AND PRESENTATIONS**

<table>
<thead>
<tr>
<th>1.1 Abnormal Vital Signs</th>
<th>Critical</th>
<th>Emergent</th>
<th>Lower Acuity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1.1 Hypothermia</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.1.2 Fever</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.1.3 Bradycardia</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.1.4 Tachycardia</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>1.1.5 Bradypnea/Apnea</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>1.1.6 Tachypnea</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>1.1.7 Hypoxia</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>1.1.8 Hypotension</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>1.1.9 Hypertension</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>1.2 Pain</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2.1 Pain (unspecified)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.2.2 Headache (See 12.3)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.2.3 Eye pain</td>
<td></td>
<td>X</td>
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<tr>
<td>1.2.4 Chest pain</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.2.5 Abdominal pain</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.2.6 Pelvic and genital pain</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.2.7 Back pain</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.2.8 Chronic pain</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>1.2.9 Extremity pain</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.2.10 Neck pain</td>
<td>X</td>
<td>X</td>
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</table>

<table>
<thead>
<tr>
<th>1.3 General</th>
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<th></th>
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</thead>
<tbody>
<tr>
<td>1.3.1 Altered mental status</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2 Anuria/Oliguria</td>
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</tr>
<tr>
<td>1.3.3 Ascites</td>
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<td>X</td>
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</tr>
<tr>
<td>1.3.4 Ataxia</td>
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<td>X</td>
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<tr>
<td>1.3.5 Auditory disturbances</td>
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<td></td>
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<tr>
<td>1.3.6 Bleeding</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.7 Congestion/Rhinorrhea</td>
<td></td>
<td></td>
<td>X</td>
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<tr>
<td>1.3.8 Constipation/Obstipation</td>
<td></td>
<td>X</td>
<td>X</td>
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<tr>
<td></td>
<td>1.3.9</td>
<td>Cough</td>
<td>Critical</td>
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<tr>
<td></td>
<td>1.3.10</td>
<td>Crying/Fussiness</td>
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<td></td>
<td>1.3.11</td>
<td>Cyanosis</td>
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<td></td>
<td>1.3.12</td>
<td>Dehydration</td>
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<td>1.3.13</td>
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<td>1.3.14</td>
<td>Dysmenorrhea</td>
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<td>1.3.15</td>
<td>Dysphagia</td>
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<td>1.3.16</td>
<td>Dysuria</td>
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<td>Edema</td>
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<td>Failure to thrive</td>
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<td>1.3.19</td>
<td>Fatigue/Malaise</td>
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<td>Jaundice</td>
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<td>Joint swelling</td>
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<td>Lethargy</td>
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<td>Lightheaded/Dizziness</td>
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<td>1.3.29</td>
<td>Limp</td>
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<td>Lymphadenopathy</td>
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<td>1.3.31</td>
<td>Mechanical and indwelling devices, complications</td>
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<td>1.3.32</td>
<td>Nausea/Vomiting</td>
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<td>Occupational exposure</td>
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<td>Palpitations</td>
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<td>Paralysis</td>
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<td>1.3.36</td>
<td>Paresthesia/Dysesthesia</td>
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<td>1.3.37</td>
<td>Poisoning</td>
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<td>Rectal Bleeding</td>
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<td>1.3.41</td>
<td>Shock</td>
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<td>1.3.42</td>
<td>Shortness of breath</td>
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<td>Sore throat</td>
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<td>Stridor</td>
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<td>1.3.45</td>
<td>Syncope/Near syncope</td>
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<td>1.3.46</td>
<td>Tinnitus</td>
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<td>Tremor</td>
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<td>Urinary incontinence</td>
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<td>Urinary retention</td>
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<td>Vaginal bleeding</td>
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<td>Vaginal discharge</td>
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<td>1.3.52</td>
<td>Visual disturbances</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Critical</td>
<td>Emergent</td>
<td>Lower Acuity</td>
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</tr>
<tr>
<td>1.3.53</td>
<td>Weakness</td>
<td></td>
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<tr>
<td>1.3.54</td>
<td>Wheezing</td>
<td>X</td>
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<td>1.3.55</td>
<td>Toxidromes</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.56</td>
<td>Sudden unexpected infant death (SUID)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>1.3.57</td>
<td>Suicidal ideation</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.58</td>
<td>Brief resolved unexplained events (BRUE)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.59</td>
<td>Intoxication syndromes</td>
<td>X</td>
<td>X</td>
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<tr>
<td>1.3.60</td>
<td>Postsurgical complications</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
2.0 ABDOMINAL AND GASTROINTESTINAL DISORDERS

2.1 Abdominal Wall

2.3.1 Hernias
2.3.2 Hematoma

2.2 Esophagus

2.2.1 Infectious disorders
2.2.1.1 Candida (See 4.4.2.1, 7.4.6) X X
2.2.1.2 Viral esophagitis X X

2.2.2 Inflammatory disorders
2.2.2.1 Esophagitis X X
2.2.2.2 Gastroesophageal reflux (GERD) X
2.2.2.3 Toxic effects of caustic agents (See 17.1.16.1)
  2.2.2.3.1 Acid X X
  2.2.2.3.2 Alkali X X

2.2.3 Motor abnormalities

2.2.4 Structural disorders
2.2.4.1 Boerhaave’s syndrome X X
2.2.4.2 Diverticula X X
2.2.4.3 Foreign body X
2.2.4.4 Hernias X X
2.2.4.5 Mallory-Weiss syndrome X X
2.2.4.6 Stricture and stenosis X X
2.2.4.7 Tracheoesophageal fistula X X
2.2.4.8 Varices X X

2.2.5 Tumors X X

2.3 Liver

2.3.1 Noninfectious hepatitis/Cirrhosis X X
2.3.1.1 Alcoholic X X
2.3.1.2 Biliary obstructive X
2.3.1.3 Drug-induced X X
2.3.1.4 Nonalcoholic steatohepatitis (NASH) X

2.3.2 Hepatorenal failure X X

2.3.3 Infectious disorders X X
2.3.3.1 Abscess X
2.3.3.2 Hepatitis X
2.3.3.3 Perihepatitis X

2.3.4 Tumors X X

2.3.5 Hepatic encephalopathy X X

2.4 Gall Bladder and Biliary Tract

2.4.1 Cholangitis X X
2.4.2 Cholecystitis X X
2.4.3 Cholelithiasis/Choledocholithiasis X X
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
</table>
| 2.4.4   | Tumors  
Critical | Emergent | Lower Acuity |
| 2.5     | Pancreas  
2.5.1 | Pancreatitis | X | X |  
2.5.2 | Tumors | X | X |  
2.5.3 | Pseudocyst |  
| 2.6     | Peritoneum  
2.6.1 | Spontaneous bacterial peritonitis | X | X |  
2.6.2 | Abdominal compartment syndrome | X | X |  
| 2.7     | Stomach  
2.7.1 | Infectious disorders |  
2.7.2 | Inflammatory disorders  
2.7.2.1 | Gastritis | X | X |  
2.7.3 | Peptic ulcer disease  
2.7.3.1 | Hemorrhage | X | X |  
2.7.3.2 | Perforation | X | X |  
2.7.4 | Structural disorders  
2.7.4.1 | Congenital hypertrophic pyloric stenosis | X |  
2.7.4.2 | Foreign body | X | X |  
2.7.5 | Tumors | X | X |  
2.7.6 | Gastroparesis | X | X |  
2.7.7 | Cyclic vomiting syndrome (See 17.1.24.1.1) | X | X |  
| 2.8     | Small Bowel  
2.8.1 | Infectious disorders |  
2.8.2 | Inflammatory disorders  
2.8.2.1 | Regional enteritis/Crohn’s disease | X | X |  
2.8.2.2 | Gluten enteropathy/Celiac disease | X |  
2.8.3 | Motor abnormalities  
2.8.3.1 | Obstruction | X | X |  
2.8.3.2 | Paralytic ileus | X |  
2.8.4 | Structural disorders  
2.8.4.1 | Aortoenteric fistula | X |  
2.8.4.2 | Congenital anomalies | X | X |  
2.8.4.3 | Intestinal malabsorption | X | X |  
2.8.4.4 | Meckel’s diverticulum | X | X |  
2.8.5 | Tumors | X | X |  
2.8.6 | Vascular insufficiency | X | X |  
| 2.9     | Large Bowel  
2.9.1 | Infectious disorders  
2.9.1.1 | Antibiotic-associated | X |  
2.9.1.2 | Bacterial | X | X |  
2.9.1.3 | Parasitic | X | X |  
2.9.1.4 | Viral | X | X |  
2.9.2 | Inflammatory disorders  
2.9.2.1 | Appendicitis | X |  

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<td>Radiation colitis</td>
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<td>Ulcerative colitis</td>
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<td>2.9.2.5</td>
<td>Neutropenic enterocolitis/Typhlitis</td>
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<td>Motor abnormalities</td>
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<td>Hirschsprung’s disease</td>
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<td>Irritable bowel</td>
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<td>Diverticula</td>
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<td>2.9.5</td>
<td>Tumors</td>
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2.10 Rectum and Anus

2.10.1 Infectious disorders
- 2.10.1.1 Perianal/Anal abscess | X | X | |
- 2.10.1.2 Perirectal abscess | | X | |
- 2.10.1.3 Pilonidal cyst and abscess | X | X | |

2.10.2 Inflammatory disorders
- 2.10.2.1 Proctitis | | | X |

2.10.3 Structural disorders
- 2.10.3.1 Anal fissure | | | X |
- 2.10.3.2 Anal fistula | X | | X |
- 2.10.3.3 Congenital anomalies | | | X |
- 2.10.3.4 Foreign body | | | X |
- 2.10.3.5 Hemorrhoids | | | X |
- 2.10.3.6 Rectal prolapse | | | X |

2.10.4 Tumors | | | X |

2.11 Spleen
- 2.11.1 Asplenism | | | X |
- 2.11.2 Splenomegaly | | | X |
- 2.11.3 Vascular insufficiency/Infarction | X | | X |

2.12 Specific Post-surgical Populations
- 2.12.1 Bariatric surgery | X | | X |
- 2.12.2 Ostomy | | X | X |
# 3.0 CARDIOVASCULAR DISORDERS

## 3.1 Cardiopulmonary Arrest

X

## 3.2 Congenital Abnormalities of the Cardiovascular System

<table>
<thead>
<tr>
<th>Subcategory</th>
<th>Diagnosis</th>
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<tbody>
<tr>
<td>3.2.1</td>
<td>Tetralogy of Fallot spells</td>
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<tr>
<td>3.2.2</td>
<td>Patent ductus arteriosus-dependent congenital heart anomalies</td>
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X X X

## 3.3 Disorders of Circulation

### 3.3.1 Arterial

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<td>3.3.1.1</td>
<td>Aneurysm</td>
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<td>3.3.1.2</td>
<td>Dissection</td>
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X X

### 3.3.2 Venous

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<td>3.3.2.1</td>
<td>Thromboembolism (See 16.6.2)</td>
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X X

## 3.4 Disturbances of Cardiac Rhythm

### 3.4.1 Cardiac dysrhythmias

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<td>3.4.1.2</td>
<td>Supraventricular</td>
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<tr>
<td>3.4.1.3</td>
<td>Pulseless electrical activity</td>
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X X X

### 3.4.2 Conduction disorders

X X X

## 3.5 Diseases of the Myocardium, Acquired

### 3.5.1 Cardiac failure

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<td>3.5.1.2</td>
<td>High output</td>
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<td>3.5.1.3</td>
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X X

### 3.5.2 Cardiomyopathy

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<td>Hypertrophic</td>
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<tr>
<td>3.5.2.2</td>
<td>Dilated</td>
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X X X

### 3.5.3 Congestive heart failure

X X

### 3.5.4 Coronary syndromes

X X

### 3.5.5 Ischemic heart disease

X X

### 3.5.6 Myocardial infarction

X X

### 3.5.7 Myocarditis

X X X

### 3.5.8 Ventricular aneurysm

X X X

## 3.6 Diseases of the Pericardium

### 3.6.1 Pericardial tamponade (See 18.1.2.6)

X X

### 3.6.2 Pericarditis

X X

## 3.7 Hypertension

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X X
### Tumors

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<th>3.8 Tumors</th>
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### Valvular Disorders

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<td>3.9.1 Endocarditis</td>
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### Cardiovascular Devices

<table>
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<th>3.8 Cardiovascular Devices</th>
<th>Critical</th>
<th>Emergent</th>
<th>Lower Acuity</th>
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<tbody>
<tr>
<td>3.10.1 Pacemaker/AICD</td>
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<td>X</td>
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<tr>
<td>3.10.2 LVAD</td>
<td>X</td>
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4.0 CUTANEOUS DISORDERS

4.1 Cancers of the Skin
   4.1.1 Basal cell X
   4.1.2 Kaposi’s sarcoma X
   4.1.3 Melanoma X
   4.1.4 Squamous cell X

4.2 Ulcerative Lesions
   4.2.1 Decubitus X X
   4.2.2 Venous stasis X
   4.2.3 Diabetic foot ulcers X X

4.3 Dermatitis
   4.3.1 Atopic/Eczema X
   4.3.2 Contact X
   4.3.3 Psoriasis X
   4.3.4 Seborrhea X

4.4 Infections
   4.4.1 Bacterial
      4.4.1.1 Abscess X X
      4.4.1.2 Cellulitis X X
      4.4.1.3 Erysipelas X
      4.4.1.4 Impetigo X
      4.4.1.5 Necrotizing infection X X
   4.4.2 Fungal
      4.4.2.1 Candida (See 2.2.1.1, 7.4.6) X
      4.4.2.2 Dermatophytes X
   4.4.3 Ectoparasites X
   4.4.4 Viral
      4.4.4.1 Aphthous ulcers X
      4.4.4.2 Childhood exanthems
         (See 10.6.8, 10.6.9) X
      4.4.4.3 Herpetic infections
         (See 10.6.4, 10.6.5, 13.1.3.1) X X
      4.4.4.4 Human papillomavirus (HPV)
         (See 13.1.3.2) X
      4.4.4.5 Molluscum contagiosum X

4.5 Maculopapular Lesions
   4.5.1 Erythema multiforme X X
   4.5.2 Pityriasis rosea X
   4.5.3 Urticaria X X
   4.5.4 Drug eruptions X X

4.6 Papular/Nodular Lesions
<table>
<thead>
<tr>
<th>4.6.1</th>
<th>Hemangioma/Lymphangioma</th>
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<tr>
<td>4.6.2</td>
<td>Lipoma</td>
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<tr>
<td>4.6.3</td>
<td>Sebaceous cyst</td>
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<td>4.6.4</td>
<td>Erythema nodosum</td>
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4.7 **Vesicular/Bullous Lesions**

| 4.7.1  | Pemphigus              |          |          | X            |
| 4.7.2  | Staphylococcal scalded skin syndrome | X | X |
| 4.7.3  | Stevens-Johnson syndrome | X | X |
| 4.7.4  | Toxic epidermal necrolysis | X | X |
| 4.7.5  | Bullous pemphigoid      |          |          | X            |

4.7 **Purpuric Rash**

| 4.8.1  | Henoch-Schönlein purpura (HSP) |          |          | X            |
|        |                                      |          |          | X            |
5.0  ENDOCRINE, METABOLIC, AND NUTRITIONAL DISORDERS

5.1  Acid-base Disturbances

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<tr>
<td>5.1.1  Metabolic or respiratory</td>
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<td>5.1.1.1  Acidosis</td>
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<td>5.1.1.2  Alkalosis</td>
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<td>5.1.2  Mixed acid-base balance disorder</td>
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5.2  Adrenal Disease

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<tr>
<td>5.2.1  Corticoadrenal insufficiency</td>
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<td>5.2.2  Cushing’s syndrome</td>
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5.3  Fluid and Electrolyte Disturbances

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<td>5.3.2  Hypervolemia/Hypovolemia</td>
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<td>5.3.3  Potassium metabolism</td>
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<td>5.3.4  Sodium metabolism</td>
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<td>5.3.5  Magnesium metabolism</td>
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<td>5.3.6  Phosphorus metabolism</td>
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5.4  Glucose Metabolism

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<td>5.4.1.1  Complications in glucose metabolism</td>
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5.5  Nutritional Disorders

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<td>5.5.2  Wernicke-Korsakoff syndrome</td>
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<td>5.5.3  Malabsorption</td>
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<td>5.5.4  Malnutrition</td>
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5.6  Parathyroid Disease | X | X |

5.7  Pituitary Disorders

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5.8  Thyroid Disorders

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<td>5.8.3  Thyroiditis</td>
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<td>5.8.4  Thyroid storm</td>
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5.9  Tumors of Endocrine Glands
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## 6.0 ENVIRONMENTAL DISORDERS

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<td><strong>Bites and Envenomation</strong> (See 18.1.3.2)</td>
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<td>Arthropods</td>
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<td>Marine organisms (See 17.1.20)</td>
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<td><strong>Electrical Injury</strong> (See 18.1.3.3.1)</td>
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<td>6.4.1</td>
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### 7.0 HEAD, EAR, EYE, NOSE, THROAT DISORDERS

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7.4 **Oropharynx/Throat**

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7.4 **Tumors**

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8.0 HEMATOLOGIC AND ONCOLOGIC DISORDERS

8.1 Blood Transfusion
8.1.1 Complications X X

8.2 Hemostatic Disorders
8.2.1 Coagulation defects X X X
8.2.1.1 Acquired X X X
8.2.1.2 Hemophilias X X X
8.2.1.3 Anticoagulation agents X X X
8.2.2 Disseminated intravascular coagulation X
8.2.3 Platelet disorders X X X
8.2.3.1 Thrombocytopenia X X
8.2.3.2 Idiopathic thrombocytopenic purpura X X X
8.2.3.3 Thrombotic thrombocytopenic purpura X X

8.3 Lymphomas X X

8.4 Pancytopenia X X

8.5 Red Blood Cell Disorders
8.5.1 Anemias
8.5.1.1 Aplastic X X
8.5.1.2 Hemoglobinopathies X X
8.5.1.2.1 Sickle cell anemia X X X
8.5.1.2.2 Thalassemia X X
8.5.1.3 Hemolytic X
8.5.1.4 Hypochromic
8.5.1.4.1 Iron deficiency X X
8.5.1.5 Megaloblastic X X
8.5.2 Polycythemia X X
8.5.3 Methemoglobinemia (See 17.1.21) X X

8.6 White Blood Cell Disorders
8.6.1 Leukemia X X
8.6.2 Multiple myeloma X X
8.6.3 Leukopenia X X

8.7 Oncologic Emergencies X X X
8.7.1 Febrile neutropenia X X X
8.7.2 Hypercalcemia of malignancy X X X
8.7.3 Hyperviscosity syndrome X X X
8.7.4 Malignant pericardial effusion X X X
8.7.5 Spinal cord compression (See 12.10) X X
8.7.6 Superior vena cava syndrome X X
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## 9.0 IMMUNE SYSTEM DISORDERS

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### 10.0 SYSTEMIC INFECTIOUS DISORDERS

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<td>10.1.8 Spirochetes</td>
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<td>10.1.8.1 Syphilis</td>
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<td>10.1.9 Tetanus</td>
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10.2 Biological Warfare Agents | | X | X |

10.3 Fungal Infections | | X | X |

10.4 Protozoan/Parasites | | | |
| 10.4.1 Malaria | | X | |
| 10.4.2 Toxoplasmosis | | X | X |

10.5 Tick-borne | | | |
| 10.5.1 Anaplasmosis (Ehrlichiosis) | X | | |
| 10.5.2 Lyme disease | | X | |
| 10.5.3 Rocky Mountain spotted fever | | X | |
| 10.5.4 Babesiosis | | X | |

10.6 Viral | | X | X |
<p>| 10.6.1 Infectious mononucleosis | | X | X |
| 10.6.2 Influenza/Parainfluenza | | X | X |
| 10.6.3 Arbovirus | | X | X |
| 10.6.4 Herpes simplex (See 4.4.4.3, 13.1.3.1) | | X | X |
| 10.6.5 Herpes zoster/Varicella (See 4.4.4.3) | | | X |
| 10.6.6 HIV/AIDS | | X | X |
| 10.6.7 Rabies | | X | |
| 10.6.8 Roseola (See 4.4.4.2) | | | X |
| 10.6.9 Rubella (See 4.4.4.2) | | | X |
| 10.6.10 Measles | | X | X |
| 10.6.11 Mumps (Paramyxovirus) | | X | X |</p>
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11.0 MUSCULOSKELETAL DISORDERS (NONTRAUMATIC)

11.1 Bony Abnormalities

11.1.1 Aseptic/Avascular necrosis  
11.1.2 Osteomyelitis  
11.1.3 Tumors  
11.1.4 Atypical fractures  
11.1.4.1 Osteoporotic  
11.1.4.2 Tumor-related  
11.1.4.3 Congenital disorders

11.2 Disorders of the Spine

11.2.1 Disc disorders  
11.2.2 Inflammatory/Infectious spondylopathies  
11.2.3 Radiculopathy (See 12.7.3)  
11.2.4 Spinal stenosis  
11.2.5 Cervical pain  
11.2.6 Thoracic pain  
11.2.7 Lumbosacral pain  
11.2.7.1 Cauda equina syndrome  
11.2.7.2 Sacroiliitis  
11.2.7.3 Sciatica  
11.2.8 Discitis

11.3 Joint Abnormalities

11.3.1 Arthritis  
11.3.1.1 Septic  
11.3.1.2 Crystal arthropathies  
11.3.1.3 Rheumatoid (See 9.1.3)  
11.3.1.4 Juvenile  
11.3.1.5 Osteoarthrosis  
11.3.1.6 Reactive arthritis (See 9.1.2)

11.3.2 Developmental dysplasia of the hip  
11.3.3 Slipped capital femoral epiphysis  
11.3.4 Synovitis

11.4 Muscle Abnormalities

11.4.1 Myositis  
11.4.2 Rhabdomyolysis

11.5 Overuse Syndromes

11.5.1 Bursitis  
11.5.2 Muscle strains  
11.5.3 Peripheral nerve syndrome  
11.5.3.1 Carpal tunnel syndrome
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## 12.0 NERVOUS SYSTEM DISORDERS

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<td>Cerebral venous sinus thrombosis</td>
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### Seizure Disorders

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### Spinal Cord Compression

12.10 Spinal Cord Compression (See 8.7.5) | X | X |

### Stroke

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### Transient Cerebral Ischemia
12.12 Transient Cerebral Ischemia | X | X |

### Tumors
12.13 Tumors | X | X | X |

### Delirium
12.14 Delirium | X | X | X |
| 12.14.1 Excited delirium syndrome | X | X |
## 13.0 Obstetrics and Gynecology

### 13.1 Female Genital Tract

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### 13.2 Normal Pregnancy

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13.4 **High-risk Pregnancy**

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13.5 **Normal Labor and Delivery**

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<thead>
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<th>Subsection</th>
<th>Title</th>
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13.6 **Complications of Labor**

<table>
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<th>Title</th>
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<tbody>
<tr>
<td>13.6.1</td>
<td>Fetal distress</td>
<td>X</td>
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<tr>
<td>13.6.2</td>
<td>Premature labor (See 18.2.3)</td>
<td>X</td>
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<tr>
<td>13.6.3</td>
<td>Premature rupture of membranes</td>
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<tr>
<td>13.6.4</td>
<td>Rupture of uterus (See 18.2.4)</td>
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13.7 **Complications of Delivery**

<table>
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<tr>
<td>13.7.1</td>
<td>Malposition of fetus</td>
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<tr>
<td>13.7.2</td>
<td>Nuchal cord</td>
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<tr>
<td>13.7.3</td>
<td>Prolapse of cord</td>
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<tr>
<td>13.7.4</td>
<td>Amniotic fluid embolism</td>
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13.8 **Postpartum Complications**

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<td>13.8.1</td>
<td>Endometritis</td>
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<tr>
<td>13.8.2</td>
<td>Hemorrhage</td>
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<td>13.8.3</td>
<td>Mastitis</td>
<td>X</td>
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<td>13.8.4</td>
<td>Pituitary infarction</td>
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13.9 **Contraception**

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### 14.0 PSYCHOBEHAVIORAL DISORDERS

#### 14.1 Substance Use Disorders

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<tr>
<td>Alcohol use disorder (See 17.1.1)</td>
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<td>Illicit drug use</td>
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<td>Prescription drug use</td>
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<tr>
<td>Drug diversion</td>
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<tr>
<td>Tobacco use disorder</td>
<td>X</td>
<td></td>
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<tr>
<td>Withdrawal syndromes</td>
<td>X</td>
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<tr>
<td>Opioid use disorder (See 17.1.2.3)</td>
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<tr>
<td>Stimulant use disorder</td>
<td>X</td>
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<tr>
<td>Medication-assisted treatment (MAT)</td>
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#### 14.2 Mood Disorders and Thought Disorders

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<tbody>
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<td>Acute psychosis</td>
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<tr>
<td>Bipolar disorder</td>
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<td>X</td>
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<tr>
<td>Depression</td>
<td>X</td>
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<tr>
<td>Suicidal risk</td>
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<tr>
<td>Grief reaction</td>
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<tr>
<td>Schizophrenia</td>
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#### 14.3 Factitious Disorders

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#### 14.4 Neurotic Disorders

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<tbody>
<tr>
<td>Anxiety/Panic</td>
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<tr>
<td>Obsessive compulsive</td>
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<tr>
<td>Phobic</td>
<td>X</td>
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<tr>
<td>Post-traumatic stress</td>
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#### 14.5 Organic Psychoses

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<tr>
<td>Chronic organic psychotic conditions</td>
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<tr>
<td>Alcoholic psychoses</td>
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<tr>
<td>Drug psychoses</td>
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<tr>
<td>Dementia (See 12.8.1)</td>
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#### 14.6 Patterns of Violence/Abuse/Neglect

<table>
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<th>Condition</th>
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<tr>
<td>Interpersonal violence</td>
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<td>Child</td>
<td>X</td>
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<td>Intimate partner</td>
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<tr>
<td>Elder</td>
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<tr>
<td>Homicidal risk</td>
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<tr>
<td>Sexual assault</td>
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<tr>
<td>Staff/Patient safety</td>
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<tr>
<td>Human trafficking</td>
<td>X</td>
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</table>
14.7 **Personality Disorders**  
Critical  Emergent  Lower Acuity  
X

14.8 **Psychosomatic Disorders**  
14.8.1 Hypochondriasis  X  
14.8.2 Hysteria/Conversion  X

14.9 **Feeding and Eating Disorders**  
X  X  X
## 15.0 RENAL AND UROGENITAL DISORDERS

<table>
<thead>
<tr>
<th>15.1 Acute and Chronic Renal Failure</th>
<th>Critical</th>
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<th>Lower Acuity</th>
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<table>
<thead>
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<th>15.2 Complications of Dialysis</th>
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<tr>
<td>15.2.1 Vascular</td>
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<td>15.2.2 Peritoneal</td>
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<th>15.3 Glomerular Disorders</th>
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<tbody>
<tr>
<td>15.3.1 Glomerulonephritis (See 9.4.4)</td>
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<td>15.3.2 Nephrotic syndrome</td>
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<table>
<thead>
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<th>15.4 Infection</th>
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<tbody>
<tr>
<td>15.4.1 Cystitis</td>
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<td>15.4.2 Pyelonephritis</td>
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<td>15.4.3 Asymptomatic bacteriuria</td>
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<table>
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<th>15.5 Male Genital Tract</th>
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<td>15.5.1 Genital lesions</td>
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<td>15.5.2 Hernias</td>
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<tr>
<td>15.5.3 Inflammation/Infection</td>
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<td>15.5.3.1 Balanitis/Balanoposthitis</td>
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<tr>
<td>15.5.3.2 Epididymitis/Orchitis</td>
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<td>15.5.3.3 Gangrene of the perineum</td>
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<tr>
<td>(Fournier’s gangrene)</td>
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<tr>
<td>15.5.3.4 Prostatitis</td>
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<td>15.5.3.5 Urethritis</td>
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<tr>
<td>15.5.4 Structural</td>
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<td></td>
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<tr>
<td>15.5.4.1 Paraphimosis/Phimosis</td>
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<td>15.5.4.2 Priapism</td>
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<td>15.5.4.2.1 Medication induced</td>
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<tr>
<td>15.5.4.3 Prostatic hypertrophy (BPH)</td>
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<td>15.5.4.4 Torsion</td>
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<td>15.5.5 Testicular masses</td>
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<tr>
<th>15.6 Nephritis</th>
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<tr>
<td>15.6.1 Hemolytic uremic syndrome</td>
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<th>15.7 Structural Disorders</th>
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<tbody>
<tr>
<td>15.7.1 Calculus of urinary tract</td>
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<tr>
<td>15.7.2 Obstructive uropathy</td>
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<tr>
<td>15.7.3 Polycystic kidney disease</td>
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| 15.8 Tumors                          |          |          | X            |
### 16.0 THORACIC-RESPIRATORY DISORDERS

#### 16.1 Acute Upper Airway Disorders
- **Infections**
  - **Croup**
  - **Epiglottitis (See 7.4.5.1)**
- **Obstruction/Foreign body (See 16.4.7)**

#### 16.2 Disorders of Pleura, Mediastinum, and Chest Wall
- **Costochondritis**
- **Mediastinitis**
- **Pleural effusion**
- **Pleuritis**
- **Pneumomediastinum**
- **Pneumothorax (See 18.1.2.7)**
  - **Simple**
  - **Tension**
  - **Open**
- **Empyema**

#### 16.3 Acute Respiratory Distress Syndrome

#### 16.4 Obstructive/Restrictive Lung Disease
- **Asthma/Reactive airway disease**
- **Bronchitis and bronchiolitis**
- **Chronic obstructive pulmonary disease**
- **Cystic fibrosis**
- **Environmental/Industrial exposure**
- **Foreign body (See 16.1.2)**

#### 16.5 Physical and Chemical Irritants/Insults
- **Pneumoconiosis**
- **Toxic effects of gases, fumes, vapors (See 18.1.3.3.2)**

#### 16.6 Pulmonary Embolism/Infarct
- **Septic emboli**
- **Venous thromboembolism (See 3.3.2.1)**
  - **Massive and submassive embolism**
- **Fat emboli**

#### 16.7 Pulmonary Infections
- **Lung abscess**
- **Pneumonia**
  - **Aspiration**
<table>
<thead>
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<th>Section</th>
<th>Condition</th>
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<td>16.7.2.3</td>
<td>Hospital-acquired pneumonia</td>
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<td>Pneumocystis</td>
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<td>16.7.3</td>
<td>Pulmonary tuberculosis</td>
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<td>16.7.4</td>
<td>Respiratory syncytial virus (RSV)</td>
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<td>16.7.5</td>
<td>Pertussis</td>
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16.8 **Tumors**

- 16.8.1 Breast
- 16.8.2 Pulmonary

16.9 **Pulmonary Hypertension**

<table>
<thead>
<tr>
<th>Section</th>
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### 17.0 TOXICOLOGIC DISORDERS

#### 17.1 Drug and Chemical Classes

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<td>17.1.1.2 Ethylene glycol</td>
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<td>17.1.1.3 Isopropyl</td>
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<td>17.1.1.4 Methanol</td>
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<td><strong>17.1.2 Analgesics</strong></td>
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<td>17.1.2.2 Nonsteroidal anti-inflammatories (NSAIDs)</td>
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<td>17.1.2.3 Opioids (See 14.1.6)</td>
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<td>17.1.2.4 Salicylates</td>
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<td><strong>17.1.3 Anticholinergics</strong></td>
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<td>17.1.3.1 Antihistamines</td>
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<td><strong>17.1.4 Anticoagulants/Antithrombotics/Antiplatelets</strong></td>
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<td>17.1.4.1 Direct thrombin inhibitors</td>
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<td>17.1.4.2 Factor Xa inhibitors</td>
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<td>17.1.4.3 Heparins</td>
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<td>17.1.4.4 Vitamin K antagonists</td>
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<td><strong>17.1.5 Anticonvulsants</strong></td>
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<td><strong>17.1.6 Antidepressants</strong></td>
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<td>17.1.6.2 Selective serotonin reuptake Inhibitors</td>
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<td>17.1.6.3 Tricyclic antidepressants</td>
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<td>17.1.8.3 Antiretrovirals</td>
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### 18.0 TRAUMATIC DISORDERS

#### 18.1 Trauma

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<td>Spinal cord injury</td>
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<td>18.1.15.4.1</td>
<td>Spinal cord injury without radiologic abnormality (SCIWORA)</td>
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<td>18.2</td>
<td>Trauma in Pregnancy</td>
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<tr>
<td>18.2.1</td>
<td>Abruptio placentae (See 13.3.4.1)</td>
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<tr>
<td>18.2.2</td>
<td>Resuscitative hysterotomy (See 19.4.8.2)</td>
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<td>18.2.3</td>
<td>Premature labor (See 13.6.2)</td>
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<tr>
<td>18.2.4</td>
<td>Rupture of uterus (See 13.6.4)</td>
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<td>18.3</td>
<td>Multi-system Trauma</td>
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<td>18.3.1</td>
<td>Blast injury</td>
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<tr>
<td>18.3.2</td>
<td>Falls</td>
<td></td>
<td>X</td>
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<tr>
<td>18.3.3</td>
<td>Motor vehicle collision</td>
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<tr>
<td>18.3.4</td>
<td>Assault</td>
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19.0 PROCEDURES AND SKILLS INTEGRAL TO THE PRACTICE OF EMERGENCY MEDICINE

19.1 Airway Techniques
   19.1.1 Intubation
   19.1.2 Airway adjuncts
   19.1.3 Surgical airway
   19.1.4 Mechanical ventilation
   19.1.5 Non-invasive ventilatory management
   19.1.6 Ventilatory monitoring

19.2 Resuscitation
   19.2.1 Cardiopulmonary resuscitation
   19.2.2 Neonatal resuscitation
   19.2.3 Pediatric resuscitation
   19.2.4 Post-resuscitative care
      19.2.4.1 Therapeutic hypothermia (or targeted temperature management)
   19.2.5 Blood, fluid, and component therapy
   19.2.6 Arterial catheter insertion
   19.2.7 Central venous access
   19.2.8 Intraosseous line placement
   19.2.9 Defibrillation
   19.2.10 Thoracotomy
   19.2.11 Extracorporeal membrane oxygenation (ECMO)
   19.2.12 Thermoregulation procedures

19.3 Anesthesia and Acute Pain Management
   19.3.1 Regional anesthesia
   19.3.2 Procedural sedation
   19.3.3 Analgesia

19.4 Diagnostic and Therapeutic Procedures
   19.4.1 Abdominal and gastrointestinal
      19.4.1.1 Anoscopy
      19.4.1.2 Excision of thrombosed hemorrhoid
      19.4.1.3 Gastrostomy tube replacement
      19.4.1.4 Nasogastric tube
      19.4.1.5 Paracentesis
      19.4.1.6 Mechanical control of upper gastrointestinal bleeding
   19.4.2 Cardiovascular and Thoracic
      19.4.2.1 Cardiac pacing
      19.4.2.2 Cardioversion
      19.4.2.3 ECG interpretation
      19.4.2.4 Pericardiocentesis
      19.4.2.5 Thoracentesis
      19.4.2.6 Thoracostomy
   19.4.3 Cutaneous
19.4.3.1 Escharotomy
19.4.3.2 Incision and drainage
19.4.3.3 Trephination, nails
19.4.3.4 Wound closure techniques
19.4.3.5 Wound management

19.4.4 Head, ear, eye, nose, and throat
19.4.4.1 Control of epistaxis
19.4.4.2 Drainage of peritonsillar abscess
19.4.4.3 Laryngoscopy
19.4.4.4 Lateral canthotomy
19.4.4.5 Slit lamp examination
19.4.4.6 Tonometry
19.4.4.7 Tooth stabilization
19.4.4.8 Corneal foreign body removal (See 18.1.10.4)
19.4.4.9 Drainage of hematoma

19.4.5 Systemic infectious
19.4.5.1 Personal protection (equipment and techniques)
19.4.5.2 Universal precautions and exposure management

19.4.6 Musculoskeletal
19.4.6.1 Arthrocentesis
19.4.6.2 Compartment pressure measurement
19.4.6.3 Fracture/Dislocation immobilization techniques
19.4.6.4 Fracture/Dislocation reduction techniques
19.4.6.5 Spine immobilization techniques
19.4.6.6 Fasciotomy

19.4.7 Nervous system
19.4.7.1 Lumbar puncture

19.4.8 Obstetrics and gynecology
19.4.8.1 Delivery of newborn
19.4.8.2 Resuscitative hysterotomy (See 18.2.2)
19.4.8.3 Sexual assault examination

19.4.9 Psychobehavioral
19.4.9.1 Psychiatric screening examination
19.4.9.2 Violent patient management/Restraint

19.4.10 Renal and urogenital
19.4.10.1 Bladder catheterization
   19.4.10.1.1 Urethral catheter
   19.4.10.1.2 Suprapubic catheter
19.4.10.2 Cystourethrogram
19.4.10.3 Testicular detorsion

19.4.11 Toxicologic
19.4.11.1 Decontamination
19.4.11.2 Antidote administration

19.5 Ultrasound
19.5.1 Diagnostic ultrasound
19.5.2 Procedural ultrasound

19.6 Other Diagnostic and Therapeutic Procedures
   19.6.1 Foreign body removal
   19.6.2 Collection and handling of forensic material
20.0 OTHER CORE COMPETENCIES OF THE PRACTICE OF EMERGENCY MEDICINE

20.1 Interpersonal and Communication Skills
20.1.1 Interpersonal skills
   20.1.1.1 Inter-departmental and medical staff relations
   20.1.1.2 Intra-departmental relations, teamwork, and collaboration skills
   20.1.1.3 Patient and family experience of care
20.1.2 Communication skills
   20.1.2.1 Complaint management and service recovery
   20.1.2.2 Conflict management
   20.1.2.3 Crisis resource management
   20.1.2.4 Delivering bad news/Death notifications
   20.1.2.5 Cultural competency
   20.1.2.6 Negotiation skills
   20.1.2.7 Management of patient expectations

20.2 Practice-based Learning and Improvement
20.2.1 Performance improvement and lifelong learning
   20.2.1.1 Evidence-based medicine
   20.2.1.2 Interpretation of medical literature
   20.2.1.3 Knowledge translation
   20.2.1.4 Patient safety and medical errors
   20.2.1.5 Performance evaluation and feedback
   20.2.1.6 Research
20.2.2 Practice guidelines
20.2.3 Education
   20.2.3.1 Patient and family
   20.2.3.2 Provider
20.2.4 Principles of quality improvement

20.3 Professionalism
20.3.1 Advocacy
   20.3.1.1 Patient
   20.3.1.2 Professional
   20.3.1.3 Healthcare disparities
20.3.2 Ethical principles
   20.3.2.1 Conflicts of interest
   20.3.2.2 Diversity and inclusion awareness
   20.3.2.3 Electronic communications/Social media
   20.3.2.4 Medical ethics
   20.3.2.5 Stewardship of resources
   20.3.2.6 Care of vulnerable populations
20.3.3 Leadership and management principles
20.3.4 Well-being and resilience
   20.3.4.1 Fatigue and impairment
      20.3.4.1.1 Sleep hygiene
20.3.4.2 Time management/Organizational skills
20.3.4.3 Work/Life balance
20.3.4.4 Work dysphoria (burn-out)
20.3.4.5 Job and contract evaluation
20.3.4.6 Care for the caregiver

**Systems-based Practice**

20.4.1 Clinical informatics
   20.4.1.1 Computerized order entry
   20.4.1.2 Clinical decision support
   20.4.1.3 Electronic health record
   20.4.1.4 Health information exchange and interoperability

20.4.2 ED Administration
   20.4.2.1 Contracts and practice models
   20.4.2.2 Patient flow and throughput
      20.4.2.2.1 Patient triage and classification
      20.4.2.2.2 Hospital crowding and diversion
      20.4.2.2.3 Observation and rapid treatment units
   20.4.2.3 Financial principles
      20.4.2.3.1 Billing and coding
      20.4.2.3.2 Cost-effective care and resource utilization
      20.4.2.3.3 Reimbursement issues
   20.4.2.4 Human resource management
      20.4.2.4.1 Allied health professionals
      20.4.2.4.2 Recruitment, credentialing, and orientation
      20.4.2.4.3 Staffing/Scheduling
   20.4.2.5 Emergency preparedness

20.4.3 ED operations
   20.4.3.1 Policies and procedures
   20.4.3.2 ED data acquisition and operational metrics
   20.4.3.3 Safety, security, and violence in the ED
   20.4.3.4 Patient satisfaction

20.4.4 Health care coordination
   20.4.4.1 Advance directives
   20.4.4.2 Palliative care
      20.4.4.2.1 Patient identification for palliative care
      20.4.4.2.2 Withdrawal of support
      20.4.4.2.3 Hospice referral
   20.4.4.3 Placement options
      20.4.4.3.1 Activities of daily living/Functional assessment
   20.4.4.4 Outpatient services
   20.4.4.5 Organ donation

20.4.5 Regulatory/Legal
   20.4.5.1 Accreditation
   20.4.5.2 Compliance and reporting requirements
   20.4.5.3 Confidentiality and privacy
20.4.5.4 Consent, capacity, and refusal of care
20.4.5.5 Emergency Medical Treatment and Active Labor Act (EMTALA)
20.4.5.6 External quality metrics
20.4.5.7 Good Samaritan emergency care
20.4.6 Risk management
   20.4.6.1 Liability and litigation
   20.4.6.2 Professional liability insurance
   20.4.6.3 Risk mitigation
   20.4.6.4 Error disclosure
   20.4.6.5 Root cause analysis
20.4.7 Evolving trends in health care delivery
   20.4.7.1 Public policy
   20.4.7.2 Gender identity and sexual orientation
      20.4.7.2.1 Transgender care
   20.4.7.3 Social determinants of health
   20.4.7.4 Firearm injury prevention
20.4.8 Regionalization of emergency care
To encourage the public to call for help during a potential overdose or other medical condition, the American College of Emergency Physicians (ACEP) supports the widespread passage of laws eliminating legal liability for good faith reporting of emergencies through 911 and other official communication channels. ACEP also supports public participation, education, funding and coordination for successful implementation of such laws.
A Culture of Safety in EMS Systems

Approved 2014

The American College of Emergency Physicians (ACEP) and the National Association of EMS Physicians (NAEMSP) believe that safety must become a foundational component of every EMS system. Providing high-quality emergency medical services (EMS) requires that we understand risk and embrace practices to prevent harm to patients, EMS personnel and members of our community. It is the EMS physician’s role to develop and support a culture of safety in EMS systems.

We believe:

- EMS systems should support the development, implementation, and ongoing evaluation of comprehensive system-wide safety, quality, and risk management programs
- EMS safety and comprehensive risk management should be emphasized in both initial and continuing education for EMS providers
- EMS systems should implement and support a just culture to facilitate honest and prompt reporting of risk and error and to support analysis of near miss and adverse events in an environment of professionalism and accountability
- Integrated EMS safety data systems should be created to promote evaluation of safety programs and to promote research that advances understanding of safety for EMS providers, systems, and patients
- EMS physicians should advocate for EMS safety-related programs coordinated at the local, regional, state, and federal levels based on evidence-based practice and benchmarks
- EMS physicians should evaluate technologies and equipment for improvements in safety for patients, medical providers, and the public.
- EMS physicians should evaluate protocols, policies, and standing orders for opportunity to limit risk and increase safety by design.
ACEP believes each medical school should include an academic department of emergency medicine that will be responsible for educational programs in emergency medicine and will be equal in status to the other departments.
Access to 9-1-1 Public Safety Centers, Emergency Medical Dispatch, and Public Emergency Aid Training

The American College of Emergency Physicians (ACEP) believes that patients with a medical emergency as defined using the prudent layperson standard must have universal access to 9-1-1 based emergency medical services (EMS) systems, and supports the following principles:

- 100% of the United States population should have Next Generation 911 (NG911) access to local public safety answering points (PSAPs). The definition of Next Generation 911 and multiple information resources about Next Generation 911 can be found at https://www.911.gov/issue_nextgeneration911.html.

- ACEP strongly supports education in cardiopulmonary resuscitation (CPR), to include use of an automated external defibrillator (AED), and hemorrhage control being compulsory prior to high school graduation. Scientific studies conclude that pre-high school students can successfully attain and retain this lifesaving education. ACEP strongly supports a structured program of education in CPR, AED use, and hemorrhage control throughout primary and secondary school curriculums. These same skills should be widely taught to the adult public at large.

- All EMS-related PSAPs should utilize an evidence-based system of pre-EMS arrival medical aid instructions, approved by the PSAP physician medical director(s), to include CPR, an AED and hemorrhage control as primary instruction for those without prior training, and as secondary supportive instruction for those utilizing their prior training.

- An AED should be registered with the applicable PSAP in order to develop a real-time map of AED locations, to promote AED use when suspected sudden cardiac arrest victims collapse in the vicinity of an AED. Local ordinances regarding AEDs should be developed that include requirements that AEDs be maintained with physician consultation, including within AED plans developed by the local PSAP and EMS physician medical director(s).
• All EMS-related PSAPs should incorporate an organized system of initial education, continuing education, and continuous quality improvement for an evidence-based system of pre-EMS arrival medical aid instructions, approved by the PSAP physician medical director(s).

• It is advantageous that the physician medical director(s) of the EMS system(s) dispatched by the PSAP also serves as the PSAP physician medical director(s). Shared medical oversight best promotes an effective, integrated emergency medical dispatch system into the local standards of EMS care for the ultimate goal of improving patient clinical outcomes.

• Appropriate and enduring funding should be provided to ensure continuous, efficient and effective PSAP operations. Mechanism to promote funding may include local, regional, state, and/or federal legislative measures.

• Research designed to improve public training in CPR, AEDs, and hemorrhage control and effective utilization of such training in times of patient need is encouraged.
ACEP Business Arrangements

• ACEP may enter into business arrangements determined to be beneficial to the College. College policies and sound business practices, including a clear delineation of the expected benefits and risks, determine whether such arrangements are prudent and proper.

• ACEP may endorse business ventures based on the merit of each individual proposal and consistent with the College’s value statements.

• Except for customary ACEP educational agreements, the College does not enter into business arrangements with staff or College officers (as defined in the ACEP Bylaws), directors, committee chairs, or section chairs.

• All business arrangements involving ACEP and other College members or staff not excluded above are considered for approval by the Executive Committee of the Board of Directors subject to ratification by the Board of Directors.

• ACEP staff, in conjunction with the Finance Committee and the Board of Directors, manages College business not otherwise covered in this policy.
The American College of Emergency Physicians (ACEP) recognizes and supports the American Board of Emergency Medicine (ABEM) as the sole American Board of Medical Specialties (ABMS) certifying body for emergency medicine.

ACEP recognizes the American Osteopathic Board of Emergency Medicine (AOBEM) as the sole certifying body in emergency medicine, under the jurisdiction of the American Osteopathic Association (AOA).

ACEP recognizes ABEM and the American Board of Pediatrics (ABP) as the sole ABMS certifying bodies that provides certification in the subspecialty of pediatric emergency medicine.

ACEP also acknowledges and values its special relationship with ABEM, which includes ACEP's role as an original sponsor and founder and continuing sponsor of ABEM, and the opportunity to submit nominations for appointment to the Board of Directors of ABEM.
As an adjunct to this policy statement, ACEP has prepared a Policy Resource Education Paper (PREP) titled “Automatic Crash Notification and Intelligent Transportation Systems: Implications for the Emergency Physician.”

The American College of Emergency Physicians (ACEP) supports the development, implementation, monitoring and updating of programs, policies, legislation, and regulations that promote the use of advanced automatic crash notification (AACN) and intelligent transportation systems (ITS) technologies to maximize patient outcome. ACEP encourages its members to provide a leadership role in defining public policy, developing guidelines and securing adequate funding for enhancement and implementation of AACN/ITS systems, as well as performing and evaluating outcomes research to improve the care of patients.
The American College of Emergency Physicians (ACEP) believes that education and instructional tools, such as Advanced Cardiac Life Support (ACLS), Pediatric Advanced Life Support (PALS), Advanced Pediatric Life Support (APLS), Advanced Trauma Life Support (ATLS), Comprehensive Advanced Life Support (CALS) and other similar courses are guidelines that are used as educational tools. They should not be interpreted as standards of care. Furthermore, the content of the guidelines may not be appropriate for an individual patient; therefore the guidelines should not be used to direct or standardize the actions of emergency providers.
Advanced Practice Provider
Point-of-Care Ultrasound Guidelines

Given both the substantial contribution of Advanced Practice Providers (APPs) in the provision of emergency care, and the 2016 Model of the Clinical Practice of Emergency Medicine recognizing emergency ultrasound (EUS)* as a skill integral to emergency medicine, it is important to consider the value of APP-performed EUS, and how EUS can be safely, efficiently, and effectively employed by all clinicians providing care in the emergency setting.1-4

APPs seeking to integrate EUS into their practice should follow the same education and competency standards outlined in ACEP’s Ultrasound Guidelines: Emergency, Point-of-care, and Clinical Ultrasound Guidelines in Medicine.5 APPs who have demonstrated adherence to these guidelines may be considered eligible for credentialing in EUS according to institutional and regional practices. EUS program leadership is encouraged to incorporate APPs into EUS training programs when feasible and support the credentialing of APPs in EUS when competency standards have been met. Departmental leadership may consider both static and dynamic factors such as resource allocation, local culture, provider training and levels of experience with EUS to make decisions as to the final APP EUS program architecture.6,7

In accordance with ACEP’s Guidelines Regarding the Role of Physician Assistants and Advanced Practice Registered Nurses in the Emergency Department, EUS directors are encouraged to develop local training and practice standards for APP ultrasound, defining the institutional scope of practice for APP EUS.6 In addition, physician oversight includes supervisory agreements and roles as defined by the above Guidelines.

For APPs practicing in rural and austere environments, EUS training still needs to adhere to the recommendations in ACEP’s Guidelines. However, the use of online modalities, tele-ultrasound, and cloud-based applications which offer the opportunity for remote image review and quality assurance, can be used for physician oversight in this setting. There is an expectation of physician supervision of EUS, and emergency physicians providing oversight in this setting should be trained and credentialed in EUS. Given the significant benefits of EUS for patient care, APPs trained in EUS should not be discouraged from integrating those skills into their practice.
Appropriately trained APPs who demonstrate proficiency in administrative tasks associated with EUS program operations should be considered capable to assume administrative positions within EUS programs as deemed appropriate by EUS physician directors. Examples include, but are not limited to, experiences as sonographers prior to becoming APPs, APP completion of EUS fellowships and completion of EUS management courses.

Within these parameters, the American College of Emergency Physicians supports the training, practice and integration of APP EUS into current EUS programs.

* EUS is synonymous with emergency medicine point-of-care ultrasound (EM POCUS) in this document

References

The American College of Emergency Physicians (ACEP) believes:

- Emergency physicians, emergency medicine groups and health institutions may publicize themselves through any commercial media or other form of public communication provided that the information is true and accurate and in no way deceptive or misleading. Claims regarding experience, competence, quality, or unique qualifications or resources only may be made if they are factually supportable.

- Patients may be confused by unfamiliar terms and by illustrations that are difficult to understand or are misleading. Advertising and publicity should be designed in a manner that is readily comprehensible.

- Physicians, other health care providers, and health care facilities should emphasize in advertising their own positive attributes and should not denigrate the capabilities of other providers or facilities.
ACEP believes that hospitals should encourage the implementation, privileging and performance of potentially life-saving point-of-care ultrasound (POCUS) examinations in the emergency department. As such, hospitals and hospital systems should not engage in the use of exclusive institution-wide imaging contracts which can restrict the use of POCUS.

Emergency department POCUS examinations enable emergency physicians to make critical diagnoses and treatment decisions immediately at the bedside. Additionally, POCUS minimizes complications during emergency procedures.

The American Medical Association approved a policy in 2000 that acknowledges the diverse use and application of ultrasound in medical practice and that ultrasound is within the scope of practice of appropriately trained physicians. Initial training, credentialing and maintenance of certification in POCUS requires significant time and resources for emergency physicians.

As with other healthcare services, emergency POCUS should be reimbursed at fair market value, and the billing of these studies should not be restricted by exclusive imaging contracts on an institutional level.
The American College of Emergency Physicians supports the efforts of the Emergency Nurses Association (ENA) and the Board of Certification for Emergency Nursing (BCEN) regarding defining standards of emergency nursing care and the provision of resources, support, and incentives for emergency nurses to be able to readily attain Certified Emergency Nurses (CEN) certification.
The American College of Emergency Physicians (ACEP) recognizes that alcohol misuse and abuse are significant risk factors for preventable diseases, injuries, and premature death. ACEP also acknowledges that print, broadcast, internet, and social media advertising of alcohol may play a significant role in promoting underage and unhealthy alcohol consumption. Therefore, ACEP strongly opposes the promotion of alcohol which: 1) may be perceived as directed towards youth; 2) draws a positive correlation between physical performance and the consumption of alcoholic beverages; and 3) depicts the irresponsible use of alcohol without showing its adverse consequences.
The American College of Emergency Physicians (ACEP) believes alcohol abuse is a significant public health problem. Further, ACEP believes emergency medical professionals are positioned and qualified to mitigate the consequences of alcohol abuse through screening programs, brief intervention, and referral to treatment. ACEP encourages wide availability of resources necessary to address the needs of patients with alcohol-related problems and those at-risk for them.
There are situations in the emergency department (ED) when intravenous access (IV) procedures fail or are insufficient to meet the clinical needs of the patient. Alternative access methods must be available under such circumstances and their usage should be a part of the emergency medicine practice privileges. These alternate access modalities include, but are not limited to, intraosseous lines, external jugular lines, central lines and peripheral lines placed under the guidance of ultrasound or illumination devices. Facility policies and procedures for non-physician practitioners including but not limited to: nurses, allied health professionals, advanced practice providers and technicians performing these procedures in accordance with their scope of practice should allow for expeditious establishment of IV access via alternate routes when indicated. These policies should include a discussion of the initial and recurrent training requirements and provisions for periodic physician oversight, such as orders and/or protocols.
Animal Use in Research

The American College of Emergency Physicians (ACEP) supports the responsible use of animals in biomedical research and ongoing discussion regarding the moral status of animals and the proper scope and limits of the use of animals in research.

ACEP therefore endorses the following principles regarding use of animals in research:

- Research using animals has been and will, in the foreseeable future, continue to be essential to scientific advances in emergency medicine and in health care in general.
- ACEP endorses the humane and responsible use of animals in scientifically sound research in order to achieve the significant benefits of improved treatment for humans and animals.
- Animals should not be subjected to research unnecessarily or arbitrarily. ACEP recognizes that the great benefits of improved treatment for humans and animals are gained at the moral cost of the infliction of pain, suffering, and death on animal research subjects. Researchers are obligated to refine their techniques to minimize or eliminate animal pain and suffering, to reduce the number of animals used in research to the minimum necessary to achieve scientifically valid research goals, and to use alternatives to animal research wherever possible.
- Institutional animal care and use committees should be used to review animal research protocols and to monitor animal care facilities and laboratories based on federal regulations designed to ensure animal welfare.

ACEP respects the moral convictions and the free speech rights of those who oppose the use of animals in some or all research and supports a continuing dialogue among those who hold different positions on this important issue. While ACEP respects differences of opinion, it does not support violent or illegal acts to disrupt or discourage animal research.

ACEP encourages its members to study the ongoing debate over animal research and to contribute to that debate from their valuable perspective as emergency physicians.
Affidavits of merit, generally provided by the plaintiff’s expert witness, are required in some jurisdictions to assure through this certification process that a legal case has a substantive basis for filing. Their stated intent is to reduce the number of frivolous lawsuits. Anonymous affidavits of merit are uncommon, however are being discussed in some regions.

Anonymous testimony, in any form, does not permit confirmation of the expert’s qualifications, authoritative expertise or potential bias.

The American College of Emergency Physicians (ACEP) opposes the admission of anonymous affidavits of merit in medical malpractice litigation and other judicial proceedings.
Anonymous Complaints to State Licensing Boards by Third Parties

The American College of Emergency Physicians (ACEP) believes several problems are created when state medical licensing boards permit anonymous reporting of complaints about physicians by individuals who were not directly aggrieved by the physician:

- Allows third parties not directly associated with the patient care (such as a plaintiff attorney anonymously reporting physicians prior to suing them) to file such a claim.

- Leads to difficulty in fully investigating the complaints. Anonymous reporting does not give an accused physician an adequate, fair opportunity to contest the accuracy of the reporting.

ACEP is strongly opposed to anonymous complaints made to state medical licensing boards from third parties not directly involved in the episode of care.
Anonymous Expert Physician Testimony for a State Medical Licensing Board

The primary responsibility and obligation of state medical boards is to protect consumers of health care by ensuring that all physicians are properly licensed and comply with various laws and regulations pertaining to the practice of medicine. Anonymous physician expert testimony is permitted by some state medical licensing boards. Such testimony does not provide the accused physician the ability to respond adequately to the accuracy of the testimony. While the courts have permitted anonymous testimony in rare cases of criminal litigation, it permits so only when there is a significant risk of harm to the individual or their family.

Therefore, the American College of Emergency Physicians (ACEP) endorses the following principles:

- State licensing boards should not accept anonymous testimony as expert opinions for or against a physician under review.
- ACEP will consider that any member who provides anonymous expert testimony for or against another physician shall have violated their professional ethical responsibility.
The American College of Emergency Physicians is a national not-for-profit professional organization that exists to support quality emergency medical care and to promote the interest of emergency physicians. The College is not organized to and may not play any role in the competitive decisions of its members or their employees, nor in any way restrict competition among members or potential members. Rather it serves as a forum for a free and open discussion of diverse opinions without in any way attempting to encourage or sanction any particular business practice.

The College provides a forum for exchange of ideas in a variety of settings including its annual meeting, educational programs, committee meetings, and Board meetings. The Board of Directors of the College recognizes the possibility that the College and its activities could be viewed by some as an opportunity for anti-competitive conduct. Therefore, the Board is promulgating this policy statement to clearly and unequivocally support the policy of competition served by the antitrust laws and to communicate the College's uncompromising policy to comply strictly in all respects with those laws.

While recognizing the importance of the principle of competition served by the antitrust laws, the College also recognizes the severity of the potential penalties that might be imposed on not only the College but its members as well in the event that certain conduct is found to violate the antitrust laws. Should the College or its members be involved in any violation of federal/state antitrust laws, such violation can involve both civil as well as criminal penalties that may include imprisonment for up to 3 years as well as fines up to $350,000 for individuals and up to $10,000,000 for the College plus attorney fees. In addition, damage claims awarded to private parties in a civil suit are tripled for antitrust violations. Given the severity of such penalties, the Board intends to take all necessary and proper measures to ensure that violations of the antitrust laws do not occur.

In order to ensure that the College and its members comply with the antitrust laws, the following principles will be observed:
• The American College of Emergency Physicians or any committee, section, chapter, or activity of the College shall not be used for the purpose of bringing about or attempting to bring about any understanding or agreement, written or oral, formal or informal, expressed or implied, among two or more members or other competitors with regard to prices or terms and conditions of contracts for services or products. Therefore, discussions and exchanges of information about such topics will not be permitted at College meetings or other activities.

• There will be no discussions discouraging or withholding patronage or services from, or encouraging exclusive dealing with any health care provider or group of health care providers, any supplier or purchaser or group of suppliers or purchasers of health care products or services, any actual or potential competitor or group of actual potential competitors, any patients or group of patients, or any private or governmental reimbursing.

• There will be no discussions about allocating or dividing geographic or service markets, customers, or patients.

• There will be no discussions about restricting, limiting, prohibiting, or sanctioning advertising or solicitation that is not false, misleading, deceptive, or directly competitive with College products or services.

• There will be no discussions about discouraging entry into or competition in any segment of the health care market.

• There will be no discussions about whether the practices of any member, actual or potential competitor, or other person are unethical or anti-competitive, unless the discussions or complaints follow the prescribed due process provisions of the College's bylaws.

• Certain activities of the College and its members are deemed protected from antitrust laws under the First Amendment right to petition government. The antitrust exemption for these activities, referred to as the Noerr-Pennington Doctrine, protects ethical and proper actions or discussions by members designed to influence: 1) legislation at the national, state, or local level; 2) regulatory or policy-making activities (as opposed to commercial activities) of a governmental body; or 3) decisions of judicial bodies. However, the exemption does not protect actions constituting a “sham” to cover anticompetitive conduct.

• Speakers at committees, educational meetings, or other business meetings of the College shall be informed that they must comply with the College's antitrust policy in the preparation and the presentation of their remarks. Meetings will follow a written agenda approved in advance by the College or its legal counsel.

• Meetings will follow a written agenda. Minutes will be prepared after the meeting to provide a concise summary of important matters discussed and actions taken or conclusions reached.

At informal discussions at the site of any College meeting all participants are expected to observe the same standards of personal conduct as are required of the College in its compliance.
POLICY STATEMENT

Appropriate and Safe Utilization of Helicopter Emergency Medical Services

Reaffirmed September 2018

Originally approved April 2011

As an adjunct to this policy, ACEP has prepared a Policy Resource and Education Paper (PREP) titled, “Appropriate and Safe Utilization of Helicopter Emergency Medical Services”

We believe:

That patients benefit from the appropriate utilization of Helicopter Emergency Medical Services (HEMS).

That EMS and regional healthcare systems must have and follow guidelines for HEMS utilization to facilitate proper patient selection and ensure clinical benefit. Clinical benefit may be provided by:

- Meaningfully shortening the time to delivery of definitive care to patients with time-sensitive medical conditions.
- Providing necessary specialized medical expertise or equipment to patients before and/or during transport.
- Providing transport to patients otherwise inaccessible by other means of transport.

That the decision to utilize HEMS is a medical decision, separate from the aviation determination whether a transport can safely be completed.

- Physicians with specialized training and experience in EMS and air medical transport must be integral to HEMS utilization decisions, including guideline development and HEMS quality improvement activities.
- Federal Aviation Administration approved Safety Management Systems must be developed, adopted, and adhered to by air medical operators when making decisions to accept and continue each and every HEMS transport.

That HEMS must be fully integrated within the local, regional, and state emergency health care system.

- HEMS programs cannot operate independent of the surrounding health care environment.
• The EMS and health care system must be involved in the determination of the number of HEMS assets necessary to provide appropriate coverage for their region. Excessive resources may lead to competitive practices that can impact utilization and ultimately affect safety. Inadequate resources will result in delayed receipt of definitive care.

We further believe that:
• National guidelines for appropriate utilization of HEMS must be developed. These guidelines should be national in scope yet allow for local, regional, and state implementation.
• A National HEMS Agenda for the Future should be developed to address HEMS utilization and availability, and to identify and support a research strategy for ongoing, evidence-based refinement of utilization guidelines.
The American College of Emergency Physicians (ACEP) believes that quality emergency care should be universally available and accessible to the public. For patients evaluated or treated in the emergency department (ED) who require transfer from the ED to another facility, ACEP endorses the following principles regarding patient transfer.

- The optimal health and well-being of the patient should be the principal goal of patient transfer.
- Emergency physicians, advance practice providers, and facility personnel should abide by applicable laws regarding patient transfer. All patients should be provided a medical screening examination (MSE) and stabilizing treatment within the capacity of the facility before transfer. If a competent patient requests transfer before the completion of the MSE and stabilizing treatment, these services should be offered to the patient and informed refusal documented.
- The transferring facility is responsible for informing the patient or responsible party of the risks and the benefits of transfer and document these. Before transfer, patient consent should be obtained and documented whenever possible.
- The medical facility’s policies and procedures and/or medical staff bylaws should identify the individuals responsible for and qualified to perform MSEs. The policies and procedures or bylaws must define who is responsible for accepting and transferring patients on behalf of the hospital. The examining physician at the transferring hospital will use his or her best judgment regarding the condition of the patient when determining the timing of transfer, mode of transportation, level of care provided during transfer, and the destination of the patient.
- The mode of transportation used for transfers should be at the discretion of the treating provider and based on the individual clinical situation, available options, needed equipment and patient preference. Options for transport include but are not limited to ambulance, air-transport and private vehicle. Regardless of the method of transfer, intravenous access may remain in place if deemed appropriate by the referring provider.
- Payment for transport should not be retrospectively denied by insurance companies.
Agreement to accept the patient in transfer should be obtained from a physician or responsible individual at the receiving hospital in advance of transfer. When a patient requires a higher level of care other than that provided or available at the transferring facility, a receiving facility with the capability and capacity to provide a higher level of care may not refuse any request for transfer.

All pertinent records and copies of imaging studies should accompany the patient to the receiving facility or be electronically transferred as soon as is practical.

When transfer of patients is part of a regional plan to provide optimal care at a specialized medical facility, written transfer protocols and interfacility agreements should be in place.

To ensure optimal patient care, nonhospital medical facilities should abide by transfer standards much the same as those outlined above. Laws and regulations relevant to the Emergency Medical Treatment and Labor Act (EMTALA) exist in many states. Physicians who participate in patient transfer decisions should be aware of applicable federal and state-specific transfer laws and regulations.

The Emergency Medical Treatment and Active Labor Act, as established under the Consolidated Omnibus Budget Reconciliation Act (COBRA) of 1985 (42 USC 1395 dd) and 42 CFR 489.24; 42 CFR 489.20 (EMTALA regulations).
Approved June 2018

Appropriate Use Criteria for Handheld/Pocket Ultrasound Devices

Technological advances have allowed miniaturization of ultrasound technology such that point-of-care ultrasound is available for use with modern tablets and smartphones. Since 2009, a multitude of products have become available in the U.S. market for use with both iOS and Android operating systems. These “pocket devices” target both the in-hospital and out-of-hospital markets. Some have the ability to store patient data, interface wirelessly with image archival systems, and insert information into electronic health records or electronic workflow solutions. They have demonstrated image quality comparable to conventional machines when used by trained physicians, and good concordance with CT imaging.¹⁻⁵ Now that accessibility to point-of-care ultrasound has dramatically increased, guidelines promoting responsible use of these systems are required.

The same applications that have been set as standard for point-of-care ultrasound practice apply to pocket devices. The American College of Emergency Physicians (ACEP) policy, “Ultrasound Guidelines: Emergency, Point-of-care, and Clinical Ultrasound Guidelines in Medicine” contains detailed descriptions regarding settings of use, scope of practice, training, credentialing, quality assurance, and reimbursement.⁶

1. Information Security and Workflow
   a) As with currently standard ultrasound machine types, tablet and smartphone ultrasound should be supervised and used only by qualified health professionals.⁶ At this time, some devices may only be purchased by licensed physicians.
   b) Equipment used in a clinical setting should be approved by the hospital, clinical department, medical group, or other institution.
      i) This includes both the tablet or phone and the transducer(s).
      ii) If a physician wishes to purchase a device using personal funds and intends to apply this device to his or her clinical environment (whether for education, diagnosis or both), he or she should discuss this with relevant hospital services including but not
Limited to information technology and security, bioengineering, legal and risk services and department administration.

iii) A health professional should not use personally-purchased devices in a clinical setting without approval from the above services, as this may violate patient safety including Health Insurance Portability and Accountability Act (HIPAA) compliance, and hospital information security practices or medicolegal processes.

c) Pocket devices should be designed to implement neatly into institutional workflow solutions and electronic health record systems. They should facilitate integration of images into the institution’s picture archiving and communication systems, or other relevant systems. They should enable provision of and access to documentation of examination findings in the electronic health record.

2. Bioeffects and Safety

a) All machines, including pocket devices, should display safety profiles including mechanical index and thermal index.

b) All health professionals using ultrasound should understand these basic safety principles.

c) Devices that generate heat should have mechanisms to advise the operator when overheating is an issue. Examinations should be stopped if a patient complains of discomfort from heat.

d) The transducers, tablets and smartphones should all follow Guidelines for Cleaning as proposed by ACEP. Transducers that attach to pocket devices should not be used in situations that require high level disinfection (eg, intraoral, endovaginal) unless otherwise specified by the company, as they may not be designed for invasive purposes or built to withstand high level disinfection agents. Purchasers should discuss with vendors the applications appropriate for these devices and ensure they meet FDA clearance.

3. Use in Clinical Practice

a) Emergency ultrasonography, and therefore many aspects of clinical ultrasonography, is a “separate entity distinct from the physical examination that adds anatomic, functional and physiologic information to the care of the acutely-ill patient.”

Ultrasound is a stand-alone diagnostic test that is not comparable to other bedside instruments that simply enhance the provider's own senses (eg, stethoscope auscultation amplifies auditory information already available to the provider). It converts high frequency inaudible sound waves into electrical impulses that produce clinically significant data surpassing what is obtainable by physical examination. Interpretation of this complex information requires substantial additional training to use accurately and effectively.

b) As such, examinations performed using a pocket device may be treated the same as examinations performed using a conventional machine, provided images obtained are of diagnostic quality.

c) Use of information from the pocket device that does not fulfill criteria for a diagnostic examination (eg, simply writing a narrative of the findings in the patient record without retaining images), should be in compliance with written policies of the institution or practice.

d) Examinations completed for diagnostic or procedural purposes using pocket devices should be performed or supervised by credentialed and privileged providers and should comply with the credentialing and privileging requirements of the department and institution.

e) Similar to examinations performed using standard point-of-care ultrasound machines, examinations performed using pocket devices should undergo similar documentation processes that reflect the nature of the exam and its relevant findings. Documentation as dictated by regulatory and payer entities may be more extensive, and examples can be found in the ACEP Emergency Ultrasound Standard Reporting Guidelines.

f) Prudent judgement regarding applications performed using pocket ultrasound for diagnostic purposes should be made. Examinations completed should be relevant to a patient’s chief complaint(s).
g) Pocket ultrasound devices may add value to the medical system by increasing availability and knowledge of clinical ultrasonography. Hospital-wide deployment of pocket ultrasound may:
   i) Improve departmental and extra-departmental resource utilization
   ii) Improve patient safety by reducing medical errors in decision-making, treatment and procedures
   iii) Improve communication and transfers of care
   iv) Avoid premature discharge and return visits
   v) Facilitate telemedicine and teleguidance
   vi) Improve education and point-of-care ultrasound performance using augmented reality and automated machine guidance

h) As such, examinations performed using pocket devices that are archived and documented appropriately should be eligible for billing and reimbursements similar to current practices using conventional compact or cart-based machines.9

i) Professional billing should not be affected by self-purchase of a device (if allowed by the institution) but technical fees may be affected.10 Consultation with the department, institution, hospital system or legal counsel may be advised.

References
Assignment of Benefits

The American College of Emergency Physicians (ACEP) believes that a valid assignment of benefits should be honored by all payers. Compliance with a valid assignment of benefits is in the best interest of the patient, the payer, and the medical provider for the fair and efficient payment of medical claims.
ACEP believes that
In emergency department (ED) patient-care areas, patients and staff have a reasonable expectation of privacy. Because audiovisual recordings made without explicit consent may compromise their privacy and confidentiality, such recordings should not be permitted, particularly when they contain personally identifiable information. Consent should be obtained prospectively from ED staff, patients, and from the surrogates of patients without decision making capacity, such as minors or those undergoing resuscitative procedures. Time-sensitive recordings of patients without decision-making capacity and no available surrogate may sometimes be made, but those making the recordings must later obtain patient or surrogate consent to retain or use those recordings. Emergency physicians (EPs) and physician organizations should promote the adoption of consistent national and local policies to protect ED patient privacy and confidentiality.

In addition, ACEP believes that
- Recording encompasses producing still images, audio files, or audiovisual materials. They can be made using both organizationally and personally owned equipment and devices including cellphones.
- Recording ED staff or patients should be a deliberate decision. Use of always-on recording devices, whether by hospital personnel, law enforcement officers, or other persons, should be regulated and restricted to areas in which patient care is not occurring and there is no reasonable expectations of privacy and confidentiality.
- Emergency medicine professional organizations should work within their states with other medical organizations, law enforcement, hospitals, patient advocacy groups, legislators and other public officials to generate legal restrictions to body camera use in the ED.
- Healthcare institutions should provide HIPAA-compliant methods to store and transmit healthcare-sensitive recordings securely.
- Healthcare organizations and institutions should recognize that HIPAA-compliant audiovisual materials may benefit patients. They should promote the creation and use of audiovisual educational materials to help patients understand and recall vital parts of their ED experience and discharge instructions.
• Healthcare organizations and institutions should recognize the growing value of and encourage the use of recordings for professional publication, education, research, and quality assurance/quality improvement when they are made with ethically and legally appropriate patient and staff safeguards. Images that cannot be linked to a patient, e.g., de-identified radiographic/MR/CT/ultrasound images, pathology specimens, or restricted areas of the body may not fall under these constraints.

• Clinicians recording patients in international settings should be guided by the same ethical norms as they are in their home country.

• Healthcare institutions and departments should establish protocols that include both procedures for obtaining consent to record and publish (print or electronic) images and appropriate disciplinary measures for staff who violate them.

• Healthcare institution security services may, with proper HIPAA safeguards, use audiovisual recordings to enhance patient and staff safety, including in hallways used for patient overflow. Use of privacy screens is encouraged. Only authorized personnel should have access to these recordings.

• EDs and institutions should publicly post their rules governing ED recordings, including a ban on surreptitious or unconsented recordings by any person.
More than one hundred Americans die daily in motor vehicle accidents, and many more are injured or severely disabled. Worldwide, the death toll is well over one million annually. Innovations in autonomous vehicle technology have the potential to drastically reduce transportation-related injuries while improving access to health care for vulnerable populations and reducing the cost and time spent on transportation.

Decades of analysis of conventional automobile crashes have led to incremental improvements in safety. Because the lessons learned from smart vehicle near-misses and incidents can be more readily analyzed and disseminated, the advent of these technologies will accelerate this quality improvement process. When fully mature, the technology piloting autonomous vehicles will operate with the encoded equivalent of centuries of human driving experience. Eventually, these transportation systems will be much safer than the vehicles of today.

Injuries involving self-driving cars have garnered public attention because of the novelty of the incidents and the technology involved. Incomplete reporting has the potential to sour public opinion and delay by years the advent of smart transportation systems. Unlike previous innovations such as seat belts and airbags, increased vehicle autonomy will be accompanied by a complex and inevitable shift in liability from drivers to product manufacturers and service providers, potentially endangering the development and widespread availability of this potentially life-saving technology.

Given the significant societal benefits of mature autonomous vehicle technology, the American College of Emergency Physicians (ACEP):

- Encourages a coordinated effort by advocacy groups, transportation companies, vehicle manufacturers, federal and state agencies, and the medical community to leverage autonomous vehicle technology to reduce the injury and death associated with transportation.
- Urges its members to provide a leadership role in defining public policy, developing guidelines and securing adequate funding for enhancement and implementation of autonomous transportation systems, as well as performing and evaluating outcomes research to determine the public health impact of this new technology.
• Supports the exploration of strategies to define and mitigate liabilities.
• Encourages state governments and local municipalities to actively oversee and promote the prudent use and fielding of appropriately tested autonomous driving systems on public roads.
• Applauds the innovative efforts of lawmakers and the National Highway Traffic Safety Administration to update the regulatory framework to facilitate the development of driverless technologies while maximizing public safety.
The American College of Emergency Physicians supports policies that endorse 24-hour a day availability of those hospital diagnostic and therapeutic services needed to prevent avoidable morbidity and mortality, in order to facilitate timely disposition of emergency department patients and to minimize hospital crowding.
Since 1986, EMTALA (The Emergency Medical Treatment and Labor Act) has required that anyone coming to an emergency department be seen and treated, regardless of their insurance status or ability to pay. Emergency departments and providers create a “safety net” for anyone in the nation in need of medical care and deserve our support. Unfortunately, the claims of physicians who provide emergency care for commercially insured services are often paid by health plans at rates that are substantially below the usual and customary value of these services. In the recent past, most plans based the allowed benefit for these services on the 70th or 80th percentile of usual and customary charges, but the database most often used for this purpose underrepresented these charges. In response to successful challenges to such flawed databases, some plans have established out-of-network benefit rates that are still substantially below usual and customary payments. Health plans know that emergency medical care must be provided for their enrollees no matter how poorly the plans pay for these services. The lack of a system to ensure fair benefit payments has allowed payers to underpay the fair value of emergency services, creating an imperative to preserve balance billing. Balance billing ensures the ability to provide patient care services where there are no enforced laws or regulations requiring health plans to pay appropriate benefits for emergency care claims at rates sufficient to maintain the financial viability of the nation’s emergency care system.

1 As determined by the New York Attorney General.
Policy Statement

Bloodborne Pathogens in Emergency Medicine

Approved June 2017

Human immunodeficiency virus (HIV), hepatitis B virus (HBV), hepatitis C virus (HCV), and other bloodborne pathogens present emergency healthcare personnel with the two-fold challenge of 1) ensuring that all emergency department (ED) patients have adequate access to care and treatment irrespective of their infectious disease status, and 2) preventing transmission of bloodborne pathogens to healthcare personnel and other ED patients.

The American College of Emergency Physicians (ACEP) endorses the following principles and recommendations relating to the care of patients seeking emergency care and ED healthcare personnel who provide clinical care:

Patients

- All ED patients should receive appropriate emergency care regardless of risk factors for acquiring or known history of having a bloodborne infection (eg, HIV, HBV, HCV).

- Mandatory HIV, HBV, or HCV testing should not be a condition for receiving emergency care, although testing for HIV, HBV, or HCV should be considered when clinically indicated. Routine HIV screening of adults, including pregnant women, is encouraged and may be undertaken in the ED when feasible. Routine HCV screening of high-risk ED patient populations (eg, injection drug use, HIV) and one-time HCV screening for adults born from 1945 through 1965 is likewise encouraged when feasible.

- Patients with a bloodborne infection have the right to confidentiality and privacy. However, ED healthcare personnel should be allowed, without risk of liability, to exercise their professional discretion to confidentially inform an identified and unsuspecting third party at risk for infection from the index patient in accordance with established protocols with local health departments.
In addition to testing based on clinical suspicion for infection, rapid HIV, HBV, and HCV testing, post-exposure prophylaxis (when indicated) and appropriate follow-up should be discussed with victims of sexual assault at such time as the treating physician believes that such a discussion would be clinically appropriate.

**ED Healthcare Personnel**

- ED healthcare personnel should adhere to standard precautions and other established infection prevention practices when providing patient care to prevent the transmission of bloodborne pathogens.

- As an effective vaccine exists to protect healthcare personnel against HBV, all unvaccinated emergency healthcare personnel and/or those who cannot document previous HBV vaccination should receive a 3-dose series of HBV vaccine, unless medically contraindicated, and should be tested for immunity after vaccination to document immunity.

- ED healthcare personnel who have been exposed to potentially infectious patient blood or body fluid should receive access to immediate medical care, counseling, and post-exposure prophylaxis (when indicated), and follow-up. Rapid testing of the source patient with HIV, HBV, and HCV infection with or without consent is strongly supported to guide timely decision-making regarding healthcare personnel post-exposure prophylaxis.

- ED healthcare personnel infected with a bloodborne pathogen as a result of an occupational exposure are encouraged to seek expert ongoing care and advice regarding their disease and its relation to their practice of emergency medicine. Those who are unable to perform the duties of their specialty as a consequence should be considered disabled for the purposes of disability compensation/insurance in accordance with the American Disabilities Act (ADA).

**ED Healthcare Personnel with a Pre-Existing History of a Chronic Bloodborne Infection**

- Mandatory HIV, HBV, and HCV testing should not be a condition of employment for ED healthcare personnel.

- ED healthcare personnel have an ethical obligation to know their status with respect to HIV, HBV, and HCV, particularly if their scope of their practice includes exposure-prone procedures such as emergency thoracotomy, internal cardiac massage, or deep suturing to arrest hemorrhage.

- ED healthcare personnel should not be required to disclose their HIV or HCV status to employers unless their job performance is impacted.

- ED healthcare personnel with a chronic bloodborne infection are strongly encouraged to seek expert ongoing care and advice regarding their disease.

- ED healthcare personnel with a chronic bloodborne infection should not be:
  - Precluded from performing any medical services based on their bloodborne disease status alone
  - Required to inform patients of their bloodborne disease status unless the patient is at risk by exposure to the healthcare personnel’s blood or body fluids
- Required to obtain informed consent before the delivery of emergency services

- ED healthcare personnel with significant circulating HIV, HBV, or HCV viral burden should review established recommendations on caring for patients from the Centers for Disease Control and Prevention (CDC), Society for Healthcare Epidemiology of America (SHEA), and other professional organizations.

- Decisions to restrict the practice of healthcare personnel with a chronic bloodborne infection should be individualized and based on uniform and objective performance standards for competence, ability to perform routine duties, and compliance with established recommendations from the CDC, SHEA, and other professional organizations, not on the presence of a bloodborne infection alone.
Optimal utilization of the emergency department (ED) includes the timely evaluation, management, and stabilization of all patients. Once admitted, patient care is most effectively and safely delivered on inpatient units. Boarding of admitted patients in the ED represents a failure of inpatient bed management and contributes to lower quality of care, decreased patient safety, reduced timeliness of care, and reduced patient satisfaction. Additionally, it directly contributes to ED crowding due to the resultant loss of bed and resource capacity. As ED boarding is a hospital-wide problem, ED leadership, hospital administrators, EMS directors, community leaders, state and federal officials, hospital regulators and accrediting bodies must work together to find solutions to this problem. In order for the ED to continue to provide accessible and high quality patient care, the American College of Emergency Physicians (ACEP) believes that:

• Hospitals bear the responsibility of ensuring the prompt transfer of admitted patients to inpatient units as soon as the disposition decision by the treating emergency physician has been made. Additionally, in the event of ED boarding, hospitals must have established over-capacity contingency plans in place.

• If transfer of admitted patients to inpatient units is delayed, the hospital must provide the supplemental nursing staff necessary to care for the patients boarded in the ED.

• The care of patients boarding in the ED should be governed by the principles outlined in the ACEP policy statement ‘Responsibility for Admitted Patients’ (https://www.acep.org/Clinical-Practice-Management/Responsibility-for-Admitted-Patients/).
• In the event that the number of patients needing evaluation or treatment in an ED is equal to or exceeds the ED’s treatment space capacity, admitted patients should be promptly distributed to inpatient units regardless of inpatient bed availability, for example, to inpatient hallways.

• Hospitals should have staffing plans in place that can mobilize sufficient health care and support personnel to meet increased patient needs.

• Hospitals should develop appropriate mechanisms to facilitate availability of inpatient beds, nursing staff, and support personnel to meet the increased patient needs in the event of ED boarding.

• Emergency physicians and emergency medicine leadership should be involved in the hospital-wide efforts aimed at monitoring and improving inpatient resource utilization.

• Nurse staffing patterns applicable to other specialized areas/units of the hospital should apply equally to the boarded ED patients to assure that there is a consistent standard of care within the organization. These staffing patterns must not degrade the ability of the ED staff to provide emergency care and must be consistent with established guidelines, such as the Emergency Nurses Association (ENA) position statement ‘Staffing and Productivity in the Emergency Department’ (https://www.ena.org/docs/default-source/resource-library/practice-resources/position-statements/staffingandproductivityemergencydepartment.pdf?sfvrsn=e57dcf13_6)

• Hospital diversion, as a temporary solution to ED boarding, should only be instituted if internal resources have been exhausted and outside community facilities have resources available to meet the needs of diverted patients. Additionally, all mechanisms for diversion must be consistent with ACEP policy on ambulance diversion.

• Hospital regulatory and accrediting bodies should mandate standards for prompt transfer of admitted patients from the ED to inpatient units.

• Hospitals should have established protocols and procedures related to the expeditious transfer of boarded patients to in-network facilities with acceptable, available inpatient beds when none are available at the hospital of origin.
The problem of boarding emergency department (ED) patients is multifactorial with causes that span the entire health care delivery system. Boarding is a major patient safety issue. To optimize patient care, it is critical to reduce the boarding of pediatric patients awaiting inpatient bed placement as well as the overall length of stay of patients treated and discharged. Eliminating or reducing boarding of admitted patients has multiple benefits including:

- Improved patient outcomes
- Improved patient and family experience of care
- Reduced treatment of ED patients in non-patient care areas such as ED hallways
- Reduced number of patients leaving prior to evaluation or completion of medical treatment
- Increased operational efficiency in the ED
- Improved ED capacity to manage surges in demand
- Enhanced job satisfaction for ED providers and staff
- Shorter hospital length-of-stay
- Lower costs for an episode of care

Approaches used to achieve these goals include:

- Creating departmental metric goals for the components of ED length of stay;
- Constructing an action plan to move the metrics from baseline to target;
- Identifying and addressing frequent obstacles to efficient care delivery both inside and outside of the ED; and
- Changing inefficient processes both within the ED and in inpatient capacity management.

Most EDs are running at or above perceived maximum capacity on a daily basis. Although ED personnel are well trained to respond to unexpected major disasters, many EDs simply do not have the resources to surge beyond their already overtaxed environment. Operations must be structured to maximize efficiency and mitigate prolonged ED stays.

Although there is no universally accepted gauge for process improvement success, the decline of the left without being seen (LWBS) rate has shown to be a positive indicator. As most pediatric emergencies present to general EDs, specific
tools that shorten pediatric length of stay within the greater milieu should be utilized. The American College of Emergency Physicians supports the definition and monitoring of the following metrics for pediatric patients for the purpose of creating and gauging operations for improvement:

- Door to bed
- Door to first provider
- ED arrival to ED departure for patients treated and discharged
- ED arrival to ED departure for patients treated and admitted
- Admit decision to ED departure for admitted patients

The American College of Emergency Physicians supports previously identified processes as safe and efficient methods to achieve a reduction in overall patient length of stay:

- Advanced triage protocols should be implemented with other proven strategies such as a provider in triage, utilization of medical scribing and/or dictation services within the Electronic Medical Record and nursing driven order sets.
- Immediate bedding.
- Quick registration.
- Bedside registration for secondary demographic information.
- Electronic patient tracking systems.
- Triaging pediatric patients with attention to physiologic identifiers of severity of illness, including history of poor color, decreased activity, underlying disease or chronic illness, and prematurity with complications, and upgrading triage category appropriately.
- Utilizing pulse oximetry in triage to identify hypoxia at triage in children with respiratory symptoms.
- “Fast track” of appropriate pediatric patients, which reduces length of stay without impact on outcome.
- Team approach to family-centered care.
- Activating a specific pediatric team within general EDs during peak hours.

Recognizing that a major contributor to boarding admitted pediatric patients in the ED is the delay in transfer of care and placement to inpatient units after the decision to admit, hospital and inpatient processes must be improved to speed transfer of admitted patients out of the ED. A number of high-impact solutions have been developed to achieve these goals.1

- Active bed management--A hospital bed director manages all inpatient beds to coordinate and match ED admissions.
- Coordination of elective surgeries--Elective surgery times should be matched to available inpatient beds by smoothing schedule to include all days of the week and distributing intensive procedures throughout the week.
- Early inpatient discharges--Effort to shift discharges earlier in the day with practices such as discharge lounges, dedicated discharge teams, and policy shifts to increase availability of inpatient beds
- Instituting a hospital-wide2 full capacity protocol to facilitate the admission of pediatric patients from the ED including Inpatient hallway boarding; Prompt transfer of admitted patients out of the ED even if to an inpatient hallway markedly reduces time from decision to admit to leaving the ED and is preferred by patients and families
- Given boarding patients typically have their care handed off more often, utilizing a standardized handoff (such as IPASS) should be done to ensure a safe and quality driven transfer of care.

References
2. ibid
As with environmental disasters and other crisis events, pandemic may exceed people’s usual coping skills and capacity which, in turn, may lead to problems with anxiety, depression, increased use of substances, as well as exacerbation of underlying psychiatric disorders. Factors including, but not limited to, social and physical isolation, uncertainty, fear, evolving facts, changes in how individuals access outpatient care and public health recommendations contribute to this stress. This impacts people with and without pre-existing psychiatric illnesses and can contribute to a number of challenges for our already taxed emergency and crisis healthcare system.

The most severely ill people with psychiatric illness have high rates of baseline medical comorbidity, reduced access to primary care medical resources, and may lack resources to participate in telehealth services. As a result, this group may have elevated vulnerability to COVID and have limitations in accessing services other than emergency and crisis settings.1

For care of the behavioral health patient with suspected or confirmed COVID-19:

1. Encourage preparedness by supporting education and training on the treatment of psychiatric disorders and best-practices for the care of the behavioral health patient.
2. Staff must have access to appropriate, adequate personal protective equipment (PPE).
3. Encourage the use of existing, available behavioral health crisis services to mitigate unnecessary visits to the emergency department for psychiatric emergencies or for diverting people from psychiatric hospitals whenever possible.
4. Support medical screening via telehealth/telephonic and clinical pre-admission screenings and assessments by qualified, licensed
professionals. Additionally, we advocate for expanded use of telehealth, including prescribing of controlled substances for opioid use disorder via telemedicine, for patient and provider safety in line with infectious disease recommendations (i.e. social distancing). Encourage novel use of telehealth in high-risk environments for diversion and mitigation of unnecessary ED visits.

5. Recognize that patients who present with psychiatric complaints may also have co-occurring medical disorders that should have proper medical evaluation. Use pre-existing, evidence-based recommendations and screening algorithms in order to perform appropriate and directed medical evaluations. Encourage providers to identify alternate methods and modalities to make those assessments in the current COVID environment.

6. Understand that people will present in acute psychiatric crisis who are at risk of, have symptoms consistent with or have tested positive for COVID-19, who will not meet medical admission criteria but will meet criteria for further psychiatric care. Mental health and substance use care, based on the needs of the individual, must remain available.

7. Discourage the use of restraints while keeping people in the least restrictive setting possible that corresponds to their condition or presenting symptoms.

8. Ensure that medical personnel are evaluating for signs of domestic violence in children, partners and spouses, the elderly, those with intellectual and developmental disabilities, and other vulnerable populations, as implementation of social distancing and home-based self-quarantine could increase those risks.

9. Encourage staff to formulate aftercare services that are based on existing resources and partnerships in the community.

10. Provide individuals at risk of suicide with local and national resources of people to talk to if they are feeling suicidal (local crisis call center number, National Suicide Prevention Lifeline, Trans LifeLine, The Trevor Project, and Crisis Text Line).

11. Encourage the creation and use of Psychiatric Advanced Directives by patients, wherever local jurisdictions permit, that will help provide treatment guidance for providers by patients before their symptoms worsens to the point of impairment in psychiatric medical decision making.

12. Encourage and promote self-care amongst those providing care to our patients and their families. Acknowledge that healthcare workers will be committed to assisting all shortages/vacancies during these times of crisis, and that it is just as important to maintain one’s individual health and wellness for the overall stability of the patients and the care delivery system. In addition to using one’s own internal coping skills and resources, staff should be made aware of all other local, state, and regional options for care.

13. Ensure that there is adequate funding, governmental, non-governmental and private, to support all activities noted above and ensure that all insurance agencies, public and private, provide appropriate and reasonable reimbursement for the care and treatment of patients with behavioral emergencies.

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Emergency physicians are often called on to care for patients for whom involuntary commitment may be a consideration. Civil commitment, the term used to describe the only non-criminal process by which the law allows individuals to be detained and their freedom of movement restricted, is applied to persons who, because of psychiatric illness or another disease, pose a danger to themselves or others. The laws delineating and governing this process are state laws, but federal regulations and oversight may also apply.

Commitment involves an infringement of civil liberties and may create special concerns for emergency department personnel. When participating in commitment procedures, the emergency physician should consider the following:

- Aspects of the process of commitment, including relevant laws, regulations, institutional policies, documentation, and patient rights.
- Performing an appropriate history and physical examination with appropriate, relevant ancillary diagnostic procedures, and with attention not only to the psychiatric evaluation but also to the possibility of other causative underlying medical problems.
- The patient's right to confidentiality and privacy.

ACEP supports the use of written department guidelines or policies addressing the commitment of emergency patients. ACEP further recognizes the importance of psychiatric and other mental health care professionals in the evaluation of patients that may be in need of commitment, and strongly supports access for patients to appropriate mental health consultation.
Clinical Emergency Data Registry
Quality Measures

1. ACEP is sensitive to the needs of its members and continues to safeguard member interests.

2. Emergency department physicians and practice groups should continue to be the primary customers of the Clinical Emergency Data Registry (CEDR). However, other business relationships with hospitals have many benefits.

3. The decision as to who bears the cost of CEDR participation (ie, ED group, hospital, or shared) is at the discretion of the parties involved. However, use of CEDR data must be delineated in the contract. For example, if only the ED group is contracted with CEDR, the hospital must not be allowed to use the data for its own purposes without also participating in CEDR.

4. ED Practice Group Autonomy:
   a. CEDR data should be used strictly in good faith to support collaboration and the highest quality patient-centric care.

   b. Quality measure selection and CMS ED physician practice reporting must be controlled directly by the respective ED group or, in the case of hospital employed physicians, with physician input and mutual agreement.

   c. Hospitals that jointly (with ED group) or independently participate in CEDR may use the data for insight into quality metrics, performance, and other reasonable purposes, such as process improvement activities. However, CEDR data must not be used by hospitals to disparage, penalize, or terminate individual physicians or groups or be used to influence contract negotiations with ED groups.
The American College of Emergency Physicians (ACEP) believes that emergency medicine should provide the highest quality of patient care and service based on current research and available resources. While clinical practice guidelines do not represent the standard of care and do not supersede individual clinician judgment, they are vital adjuncts to decision making. Guidelines emanating from organizations including insurance entities, governmental agencies, and other medical societies may affect emergency medicine patient care. Ideally, any guidelines directly applicable to emergency medicine practice should originate from emergency medicine physicians. However, when developed by an outside organization, guidelines related to the practice of emergency medicine should be developed with significant emergency physician collaboration and implemented with emergency physician oversight.
Clinical Pharmacist Services in the Emergency Department

The emergency department (ED) is a complex environment presenting unique challenges for medication selection, dosing, administration, and monitoring. In particular, caring for high-risk populations such as the critically ill, geriatric patients, pediatric patients, those with limited healthcare access, and those with multiple comorbidities often requires the use of high-risk medications and the need for time-sensitive medication decisions.

The American College of Emergency Physicians (ACEP) believes that pharmacists serve a critical role in ensuring efficient, safe, and effective medication use in the ED and advocates for health systems to support dedicated roles for pharmacists within the ED. The emergency medicine pharmacist should serve as a well-integrated member of the ED multidisciplinary team who actively participates in patient care decisions including resuscitations, transitions of care, and medication reconciliation to optimize pharmacotherapy for ED patients. The exact delivery method for these services can vary among institution depending on size, financial resources, presence of academic programs, and other factors.

ACEP encourages emergency medicine rotations for pharmacy residents and clinical research regarding pharmacist access in the ED.
Continuing medical education (CME) is required for maintenance of board certification by the American Board of Emergency Medicine (ABEM) and the American Osteopathic Board of Emergency Medicine (AOBEM). The American College of Emergency Physicians (ACEP) believes that continuous board certification demonstrates comprehensive training, skills, and current understanding in the practice of emergency medicine. CME course work is increasingly being mandated for licensure, certification, and privileging by states, regulatory agencies, and hospitals. Some examples include CME for stroke center certification, trauma center certification, and sedation privileges among many others.

Emergency physicians practice in a variety of emergency department settings and care for patients with a wide range of conditions. The aforementioned educational courses have value; but by requiring a significant and increasing number of these CME courses, physicians may have reduced education time to remain current in other clinical areas more relevant to their practice in emergency medicine. Therefore, ACEP, in supporting high-quality, safe, and efficient emergency care for all patients, believes that CME requirements as a part of maintenance of board certification should be self-determined by the specialty organization and by practicing emergency physicians to reflect their practice environments. Peer-identified educational opportunities may also supplement an individual practitioner’s CME choices. This will have a greater benefit than the imposition of general CME requirements.
Contents

I. Principles of Ethics for Emergency Physicians

II. Ethics in Emergency Medicine: An Overview

A. Ethical Foundations of Emergency Medicine
   1. Moral pluralism
   2. Moral challenges of emergency physicians
   3. Virtues in emergency medicine

B. The Emergency Physician-Patient Relationship
   1. Beneficence
   2. Nonmaleficence
   3. Respect for patient autonomy
   4. Justice

C. The Emergency Physician’s Relationships with Other Professionals
   1. Relationships with other physicians
   2. Relationships with nurses and paramedical personnel
   3. Impaired or incompetent physicians
   4. Crimes of Moral Turpitude
   5. Relationships with business and administration
   6. Relationships with students, trainees, and other learners
   7. Relationships with the legal system as an expert witness
   8. Relationships with the research community

D. The Emergency Physician’s Relationships with Society
   1. The emergency physician and society
   2. Resource allocation and health care access: problems of justice
   3. Central tenets of the emergency physician’s relationship with society:
      a. Access to emergency medical care is a fundamental right
      b. Adequate in-hospital and outpatient resources must be available to protect emergency patient interests
      c. Emergency physicians should promote prudent resource stewardship without compromising quality
      d. The duty to respond to out-of-hospital emergencies and disasters
      e. The duty to oppose violence
      f. The duty to promote the public health
III. A Compendium of ACEP Policy Statements on Ethical Issues

A. ACEP Business Arrangements
B. Advertising and Publicity of Emergency Medical Care
C. Animal Use in Research
D. Antitrust
E. Civil Commitment
F. Collective Bargaining, Work Stoppages, and Slowdowns
G. College Board Member and Officer Expert Testimony
H. Commercial Filming of Patients in the Emergency Department
I. Confidentiality of Patient Information
J. Conflict of Interest
K. Conflicts of Interest in Biomedical Research
L. Cultural Awareness and Emergency Care
M. Delivery of Care to Undocumented Persons
N. Disclosure of Medical Errors
O. Domestic Family Violence
P. Electronic Prescription Drug Monitoring Programs
Q. Emergency Physician Contractual Relationships
R. Emergency Physician Rights and Responsibilities
S. Emergency Physician Stewardship of Finite Resources
T. Emergency Physicians’ Patient Care Responsibilities Outside the Emergency Department
U. EMTALA and On-call Responsibility for Emergency Department Patients
V. Ethical Issue at the End-of-Life
W. Ethical Issues of Resuscitation
X. Ethical Use of Telemedicine in Emergency Care
Y. Expert Witness Guidelines for the Specialty of Emergency Medicine
Z. Fictitious Patients
AA. Gifts to Emergency Physicians from Industry
BB. Guidelines for Emergency Physicians on the Interpretation of Physician Orders for Life-Sustaining Treatment (POLST)
CC. Law Enforcement Information Gathering in the Emergency Department
DD. Medical Practice Review and the Practice of Medicine
EE. Nonbeneficial (“Futile”) Emergency Medical Interventions
FF. Non-Discrimination and Harassment
GG. Observers in Emergency Medical Settings
HH. Optimizing the Treatment of Pain in the Emergency Department
II. Patient-and Family-Centered Care and the Role of the Emergency Physician Providing Care to a Child in the Emergency Department
JJ. Patient Autonomy and Destination Factors in Emergency Medical Services (EM) and EMS-Affiliated Mobile Integrated Healthcare/Community Paramedicine Programs
KK. Physician Reporting of Potentially Impaired Drivers
LL. Recording Devices in the Emergency Department
MM. Separation of Children from Family/Guardians
NN. Universal Health Care Coverage
OO. Use of Patient Restraints
PP. Use of Social Media by Emergency Physicians
I. PRINCIPLES OF ETHICS FOR EMERGENCY PHYSICIANS

The basic professional obligation of beneficent service to humanity is expressed in various physicians' oaths and codes of ethics. In addition to this general obligation, emergency physicians accept specific ethical obligations that arise out of the unique features of emergency medical practice. The principles listed below express fundamental moral responsibilities of emergency physicians.

1. Emergency physicians shall embrace patient welfare as their primary professional responsibility.
2. Emergency physicians shall respond promptly and expertly, without prejudice or partiality, to the need for emergency medical care.
3. Emergency physicians shall respect the rights and strive to protect the best interests of their patients, particularly the most vulnerable and those with impaired decision-making capacity.
4. Emergency physicians shall communicate truthfully with patients and secure their informed consent for treatment, unless the urgency of the patient's condition demands an immediate response or another established exception to obtaining informed consent applies.
5. Emergency physicians shall respect patient privacy and disclose confidential information only with consent of the patient or when required by an overriding duty such as the duty to protect others or to obey the law.
6. Emergency physicians shall deal fairly and honestly with colleagues and take appropriate action to protect patients from health care providers who are impaired or incompetent, or who engage in fraud or deception.
7. Emergency physicians shall work cooperatively with others who care for, and about, emergency patients.
8. Emergency physicians shall engage in ongoing study to maintain the knowledge and skills necessary to provide high quality care for emergency patients.
9. Emergency physicians shall act as responsible stewards of the health care resources entrusted to them.
10. Emergency physicians shall support societal efforts to improve public health and safety, reduce the effects of injury and illness, and secure access to emergency and other basic health care for all.

II. ETHICS IN EMERGENCY MEDICINE: AN OVERVIEW

A. Ethical Foundations of Emergency Medicine

Although professional responsibilities have been a concern of physicians since antiquity, recent years have seen dramatic growth of both professional and societal attention to moral issues in health care. This increased interest in medical ethics is a result of multiple factors, including technological advances, the medicalization of societal ills, the growing sophistication of patients, efforts to protect disadvantaged groups, and the persistently rising costs of health care. All of these factors contribute to the significance, the complexity, and the urgency of moral questions in contemporary emergency medicine.

1. Moral pluralism

Emergency physicians can utilize a variety of sources for ethical guidance, including professional oaths and codes of ethics, cultural values, social norms embodied in the law, religious and philosophical moral traditions, clinical experience, practical reasoning skills, and professional role models. All of these sources claim moral authority, and together they can inspire physicians to lead rich and committed moral lives. Problems arise, however, when different sources of moral guidance come into conflict. Numerous attempts have been made to
propose and defend an overarching moral theory able to assess and prioritize moral claims from all of their various sources. Lacking agreement on the primacy of any one of these theories, however, we are left with multiple sources of moral guidance. The goal of bioethics is to help us understand, interpret, and weigh competing moral values as we seek reasoned and defensible solutions to moral problems encountered in health care.

2. Moral challenges of emergency physicians

The unique setting and goals of emergency medicine give rise to a number of distinctive moral challenges, including the following:

a. Patients often arrive at the emergency department with acute illnesses or injuries that require immediate care. In these emergent situations, emergency physicians have little time to gather additional data, consult with others, or deliberate about alternative treatments. Instead, there is a presumption for quick action guided by predetermined treatment protocols.

b. Patients in the emergency department often are unable to participate in decisions regarding their health care because of acute changes in their mental state. When patients lack decision-making capacity, emergency physicians cannot secure their informed consent to treatment.

c. Emergency physicians typically have had no prior relationship with their patients in the emergency department. Patients often arrive in the emergency department unscheduled, in crisis, and sometimes against their will. Thus, emergency physicians cannot rely on earned trust or on prior knowledge of the patient's condition, values, or wishes regarding medical treatment. The patient's willingness to seek emergency care and to trust the physician is based on institutional and professional assurances rather than on an established personal relationship.

d. Emergency physicians typically practice in an institutional setting, the hospital emergency department, and in close working relationships with other physicians, nurses, emergency medical technicians, and other health care professionals. Thus, emergency physicians must understand and respect institutional regulations and inter-professional norms of conduct.

e. In the United States, emergency physicians have been given a unique social role and responsibility to act as health care providers of last resort for many patients who have no other ready access to care.

f. Emergency physicians have a societal duty to render emergency aid outside their normal health care setting when such intervention may save life or limb.

g. By virtue of their broad expertise and training, emergency physicians are expected to be a resource for the community in out-of-hospital care, disaster management, toxicology, cardiopulmonary resuscitation, public health, injury control, and related areas.

All of these special circumstances shape the moral dimensions of emergency medical practice.

3. Virtues in emergency medicine

As noted above, the emergency department is a unique practice environment with distinctive moral challenges. To respond appropriately to these moral challenges, emergency physicians need knowledge of moral concepts and principles and moral reasoning skills. Of equal importance, however, are morally valuable attitudes, character traits, and dispositions, identified in ethical theory as virtues. The virtuous person is motivated to act in accordance with his or her moral beliefs and ideals, and he or she serves as a role model for others. It is therefore important to identify and promote the moral virtues needed by emergency physicians. Fostering these virtues can be a kind of moral vaccination against the ethical pitfalls inherent in emergency
medical practice. Two timeless virtues of Western thought have essential roles in emergency medicine today: courage and justice.

_Courage_ is the ability to carry out one’s obligations despite personal risk or danger. The courageous physician advocates for patients against financial gatekeepers, demanding employers, interrogating police, inexperienced trainees, dismissive consultants, unconcerned families, and inquiring reporters, among others. Emergency physicians exhibit courage when they assume personal risk to provide steadfast care for all emergency patients, including those who are agitated, violent, infectious, and the like.

_Justice_ or fairness is the disposition to give each person what is due to him or her. Justice helps emergency physicians shepherd resources, make appropriate triage decisions, and employ therapeutic parsimony, refusing marginally beneficial care to some while guaranteeing a basic level of care for all others.

Additional virtues important to the practice of emergency medicine are _vigilance_, _impartiality_, _trustworthiness_, and _resilience_.

_Vigilance_ is perhaps the virtue most emblematic of emergency medicine. In no other specialty do physicians provide immediate assistance, at all times, for patients across the entire spectrum of medical conditions. Emergency physicians must be alert and prepared to meet unpredictable and uncontrollable demands, despite the circadian disharmony that threatens personal wellness.

The virtuous emergency physician practices _impartiality_ by giving emergency patients an unconditional positive regard and treating them in an unbiased, unprejudiced way. Impartiality is most important in emergency medicine, since many emergency patients are poor, intoxicated, or have poor hygiene, little education, or value systems at odds with that of the physician. Emergency physicians must treat alleged perpetrators of violent crime with the same regard as victims and must resist the temptation to use disparaging remarks and gallows humor to ridicule patients or colleagues. Emergency physicians must be tolerant of people of different races, creeds, customs, habits, and lifestyle preferences.

Another essential virtue of emergency physicians is _trustworthiness_. Sick and vulnerable emergency patients are in a dependent relationship; they must rely on emergency physicians to protect their interests through competence, informed consent, truthfulness, and the maintenance of confidentiality. Emergency physician clinical investigators must also be trustworthy, so that patient-subjects can trust they will not be exploited for power, profit, or prestige.

Finally, emergency physicians require the virtue of _resilience_ in order to remain composed, flexible, and competent in the midst of clinical chaos. A tired, overstressed emergency department staff requires elasticity, optimism, and cooperation in order to stave off cynicism, resignation, disillusionment, numbing and professional burnout. Resilience enables emergency physicians to meet the challenges of difficult situations and to encourage others to do so also. Resilience facilitates one’s ability to recover undaunted from change or misfortune. It enables professionals to respond calmly to the challenges or insults of angry patients, bereft families, or disgruntled coworkers. Resilient persons are hardy, curious, purposeful, and adaptable; they trust in their own power to influence the course of events. Maintaining flexibility and coping with the typical circadian disharmony of emergency work is difficult, but the virtue of resilience, an appropriate sense of humor, and an unsinkable optimism can keep team spirit afloat even in the harshest emergency department environment.
B. The Emergency Physician-Patient Relationship

The physician-patient relationship is the moral center of medicine and the defining element in clinical ethics. The unique nature of emergency medical practice and the diversity of emergency patients pose special moral challenges, as noted above. Broad moral principles can nevertheless help to describe and categorize the emergency physician's fundamental ethical duties. This section will rely on a prominent principle-based approach to bioethical theory to describe emergency physician duties of beneficence, nonmaleficence, respect for autonomy, and justice.

1. Beneficence

Physicians assume a fundamental duty to serve the best interests of their patients by treating or preventing disease or injury and by informing patients about their conditions. Emergency physicians respond promptly to acute illnesses and injuries in order to prevent or minimize pain and suffering, loss of function, and loss of life. In pursuing these goals, emergency physicians serve the principle of beneficence, that is, they act for the benefit of their patients.

To secure the benefits of health care, patients freely disclose sensitive personal information to their physicians and allow physicians access to their bodies for examination and treatment. Patients retain a strong interest, however, in protecting personal information from unauthorized disclosure and in preventing unnecessary intrusions on their physical privacy. Emergency physicians also respect the principle of beneficence, therefore, by protecting the privacy of their patients and the confidentiality of patient information. Personal information may only be disclosed when such disclosure is necessary to carry out a stronger conflicting duty, such as a duty to protect an identifiable third party from serious harm or to comply with a just law.

2. Nonmaleficence

At least as fundamental as the duty to benefit patients is the corresponding duty to refrain from inflicting harm. This duty, called the duty of nonmaleficence, is central to maintaining the emergency physician's integrity and the patient's trust. In contemporary emergency medical care, the potential for significant patient benefit is often inescapably linked with the potential for significant complications, side effects, or other harms. Emergency physicians cannot, therefore, avoid inflicting harms, but they can respect the principle of nonmaleficence by not initiating treatments likely to cause more harm than benefit, and by seeking always to maximize the benefits of treatment and to minimize the risk of harm. In order to protect patients from avoidable harm, physicians who lack appropriate training and experience in emergency medicine should not misrepresent themselves as emergency physicians and should not practice without supervision in the emergency department or prehospital setting.

3. Respect for patient autonomy

Adult patients with decision-making capacity have a right to accept or refuse recommended health care, and physicians have a concomitant duty to respect their choices. This right is grounded in the moral principle of respect for patient autonomy and is recognized in the legal doctrine of informed consent. According to this doctrine, physicians must inform the patient with decision-making capacity about the nature of his or her medical condition, treatment alternatives, and their expected consequences, and then obtain the patient’s voluntary consent to treatment. If the patient lacks decision-making capacity, emergency physicians also should respect medically reasonable decisions about the patient's treatment made by the appropriate
surrogate decision maker. Emergency physicians should be expert in the determination of decision-making capacity and the identification of appropriate surrogate decision makers.

Emergency physicians may treat without securing informed consent when immediate intervention is necessary to prevent death or serious harm to the patient, when the patient lacks decision-making capacity, and when no one legally authorized to consent on behalf of the patient is available. These are, however, limited exceptions to the duty to obtain informed consent. When the initiation of treatment can be delayed without serious harm, informed consent must be obtained. Even if all the information needed for an informed consent cannot be provided, emergency physicians should, to whatever extent time allows, inform the patient (or, if the patient lacks capacity, a surrogate) about the treatment they are providing, and may not violate the explicit refusal of treatment of a patient with decision-making capacity. In some cases, for personal and cultural reasons, patients ask that information be given to family or friends and that these third parties be allowed to make treatment choices for the patient. Patients may, if they wish, waive their right to informed consent or delegate decision-making authority for their care to others. Other exceptions to the duty to obtain informed consent apply when treatment is necessary to protect the public health and in a limited number of emergency medicine research protocols where obtaining consent is not feasible, provided that these research protocols satisfy the requirements of federal research regulations and are approved by appropriate review bodies.

To choose and act autonomously, patients must receive accurate information about their medical conditions and treatment options. Emergency physicians must therefore relay sufficient information to patients to enable them to make an informed choice among various diagnostic and treatment options. Emergency physicians, when speaking to patients and families, must not overstate their experience or abilities, or those of their colleagues or institution. They must not overstate the potential benefits or success rates of the proposed treatment or research.

Significant moral issues may arise in the care of terminally ill patients. Emergency physicians should, for example, be willing to respect a terminally ill patient's wish to forgo life-prolonging treatment, as expressed in a living will or by appropriate surrogate decision-maker. Emergency physicians should also honor patient treatment preferences expressed in Do Not Attempt Resuscitation (DNAR) orders, Physician Orders for Life-Sustaining Treatment (POLST) and other end of life orders Emergency physicians should understand established criteria for the determination of death and should be prepared to assist families in decisions regarding the potential donation of a patient's organs and tissues.

4. Justice

In a broad sense, acting justly can be understood as acting with impartiality or fairness. In this sense, emergency physicians have a duty of justice to provide care to patients regardless of race, color, creed, gender, nationality, or other irrelevant properties. In a more specific sense, justice refers to the equitable distribution of benefits and burdens within a community or society. In the United States, public policy has established a limited right of patients to receive evaluation and stabilizing treatment for emergency medical conditions in hospital emergency departments. This policy indirectly ascribes to emergency physicians a social responsibility to provide necessary emergency care to all patients, regardless of ability to pay. As noted in the Principles of Ethics for Emergency Physicians listed above, emergency physicians also have a duty in justice to act as responsible stewards of the health care resources entrusted to them. In carrying out this duty, as, for example, in making triage decisions, emergency physicians must make careful judgments about the appropriate allocation of resources to maximize benefits, minimize harms, and respect the rights of their patients.
C. The Emergency Physician’s Relationships with Other Professionals

The practice of emergency medicine requires multidisciplinary cooperation and teamwork. Emergency physicians interact closely with a wide variety of other health care professionals, including emergency nurses, emergency medical technicians, and physicians from other specialties. General ethical principles governing these interactions include honesty, respect, appreciation of other professionals’ perspectives and needs, and an overriding duty to maximize patient benefit.

1. Relationships with other physicians

Emergency physicians must interact with other physicians to achieve their primary goal of benefitting patients. Channels of communication between health care providers must remain open to optimize patient outcomes. Communication may, however, be delayed when a sick patient requires immediate and definitive intervention before discussion with other physicians can take place. When practical, emergency physicians should cooperate with the patient’s primary care physician to provide continuity of care that satisfies the needs of the patient and minimizes burdens to other providers. Emergency physicians should support the development and implementation of systems that facilitate communications with primary care providers, consultants, and others involved in patient care.

On-call physicians, like emergency physicians, are morally obligated to provide timely and appropriate medical care. Emergency physicians should strive to treat consultants fairly and to make care as efficient as possible. In choosing consultants, emergency physicians may be guided by the preference of both the primary care physician and the patient and by institutional protocols. If multiple physicians work in the emergency department, each patient should have a clearly identified physician who is responsible for his or her care. Transfer of this responsibility should be clear to the patient, family, and staff involved and should be clearly documented in the patient's medical record. When a patient is discharged from the emergency department, there must be a clear transfer of responsibility to the admitting or follow-up physician. This transfer must be clearly communicated to the patient or to the patient’s surrogate decision-maker.

Contractual relationships between an emergency physician and an emergency physician group should be fair to all parties involved. Emergency medicine business practices must be transparently ethical, and compensation should take into account both clinical and administrative services rendered by the physician. Disagreements arising from contractual arrangements should be arbitrated appropriately using a due process approach, whenever possible. Physicians with disabilities, injuries, or certain infections, such as HIV, may practice emergency medicine if their conditions do not inhibit proper performance or constitute a threat of harm to patients or others.

2. Relationships with nurses and paramedical personnel

Although emergency physicians assume primary responsibility for patient welfare, emergency medicine is a team effort. For all of their patients, physicians must coordinate the efforts of nurses and support staff. To make the most effective use of the specific skills and expertise of emergency physicians, nurses, and other support staff, all should participate in the design and execution of emergency department care systems and protocols.

In the out-of-hospital setting, emergency medical technicians of all levels rely on and rightfully
expect the cooperation and guidance of emergency physicians with whom they work. Base station command physicians and other emergency providers should strive to work harmoniously with prehospital personnel to optimize care for the patient. Patient-centered, nonjudgmental, open communication is an important part of ethical medical command. Hospital and prehospital providers must respect patient confidentiality and the dignity of all personnel involved.

While emergency physicians may have greater expertise in scientific and technical matters, they share equal expertise with other health care workers with regard to moral judgment. Physicians should encourage involvement of other providers and staff when difficult moral issues arise.

3. Impaired or incompetent physicians

The principle of nonmaleficence dictates that patients be protected from physicians who are incompetent or impaired. Emergency physicians should strive for technical and moral excellence and should refrain from fraud or deception. When any physician is found deficient in competence or character through an appropriate peer review process, it is morally imperative to protect patients and to assist that physician in addressing and, if possible, overcoming such deficiencies. Corrective action may include internal discipline or remedial training. To provide adequate protection for their patients, health care institutions should require appropriate remediation before the impaired physician returns to practice.

Whenever an emergency physician believes that a colleague or consulting physician is incompetent or impaired by drugs, alcohol, or psychiatric or medical conditions, he or she should report the impaired physician to the appropriate institutional and regulatory authorities. This should be done with discretion and sensitivity, and with a clear intention to help the impaired physician progress toward treatment and recovery. Physicians who conscientiously fulfill this responsibility should be protected from adverse political, legal, or financial consequences.

4. Crimes of Moral Turpitude

Emergency physicians, as respected members of society, shall not commit felonies involving crimes of moral turpitude.

5. Relationships with business and administration

Emergency physicians should be advocates for emergency medical care as a fundamental right. Cost-effective and efficient care is important so that resources are available to provide care when it is needed. Cooperation with persons whose expertise is in the management and administration of health care systems is essential for provision of efficient care. A central role of physicians is to keep patient interests paramount in administrative and business decisions.

Incentives from businesses, including for-profit and not-for-profit health care organizations and biomedical drug and equipment manufacturers, should not unduly influence patient-centered clinical judgment. Gatekeeping activities that threaten patient safety are unethical, as are clauses that prevent physicians from informing patients about reasonable treatment alternatives. Physicians should not accept inappropriate gifts, trips, or other items from pharmaceutical or medical equipment companies or their representatives.
6. Relationships with students, trainees, and other learners

Emergency physicians practicing in academic settings have important moral responsibilities to medical students, trainees, out-of-hospital care personnel, and learners of all types. Learners depend on their clinical supervisors and professors to teach them both the moral and technical aspects of emergency medical practice. In addition to providing explicit instruction, practicing emergency physicians should serve as role models for ethical behavior in their relationships with patients, students, trainees, research subjects, and other health care professionals.

Emergency medicine residents, medical students, and other health care professionals in training must not be mistreated, abused, or coerced for faculty self-interest. Teaching physicians must fulfill their obligation to teach and provide appropriate levels of supervision for students under their tutelage. Performance evaluations and letters of recommendation require a careful assessment of the learners’ strengths and weaknesses. Such evaluations must be accurate and clearly identify those individuals who may jeopardize patient care. Patient interests should not be compromised in the education process, and patients may participate in educational or research activities with their informed consent. Emergency medicine residents must strive to master the discipline of emergency medicine, including understanding and accepting their moral duties to patients, the profession, and society.

7. Relationships with the legal system as an expert witness

Expert witnesses are called on to assess the appropriateness of care provided by emergency physicians in matters of alleged medical malpractice and peer review. To assure that unbiased expert witness testimony is available to courts and panels that determine the applicable standard of care, the American College of Emergency Physicians (ACEP) encourages emergency physicians with sufficient expertise to testify in these venues. ACEP believes that these expert witnesses, at a minimum, should be emergency physicians who are certified in emergency medicine by the American Board of Emergency Medicine (ABEM), the American Osteopathic Board of Emergency Medicine (AOBEM), or, in pediatric emergency medicine, by the American Board of Pediatrics (ABP), and who have been actively practicing clinical emergency medicine for at least three years prior to the date of the incident under review.

As an expert witness, the physician has a clear ethical responsibility to be objective, truthful, and impartial, evaluating cases on the basis of generally accepted practice standards. It is unethical to overstate one’s opinions or credentials, to misrepresent maloccurence as malpractice, to provide false testimony, or to use the name of the College as prima facie evidence of expertise.

While reasonable compensation for a physician’s time is ethically acceptable, physicians should not provide expert testimony solely for financial gain lest this unduly influence their testimony.

8. Relationships with the research community

The emergency physician researcher should abide by basic moral and legal principles contained in federal, institutional, and professional guidelines that govern human and animal research. Basic ethical requirements for research studies include appropriate study goals, scientifically valid design, appropriate informed consent, confidentiality of records, and minimization of risks to subjects. Approval from appropriate institutional review boards is required, but it remains the responsibility of the investigator to protect the rights and welfare of patient-subjects. Federal regulations allow institutional review boards to grant a limited waiver of informed consent in specific emergency medicine research studies, where multiple additional protections for patient-
subjects are provided. It is imperative that data be collected carefully, interpreted correctly, and
reported accurately; research misconduct and fraud are grounds for disciplinary action and loss
of funding. Emergency physician investigators should follow responsible authorship practices;
for example, all co-authors should actively participate in the study, including literature review,
study design, data collection, data analysis, and manuscript preparation.

D. The Emergency Physician’s Relationships with Society

1. The emergency physician and society

The emergency physician owes duties not only to his or her patients, but also to the society in
which the physician and patients dwell. Though the emergency physician's duty to the patient is
primary, it is not absolute. Emergency physician duties to the general public inform decision-
making on a daily basis; for example, the emergency physician has duties to allocate resources
justly, oppose violence, and promote the public health that sometimes transcend duties to
individual patients. To fulfill demands of equity and justice, society may place limits on the
authority of the physician to satisfy an individual patient's interests. Emergency physicians
should be active in legislative, regulatory, institutional, and educational pursuits that promote
patient safety and quality emergency care.

2. Resource allocation and health care access: problems of justice

Both society and individual emergency physicians confront questions of justice in deciding how
to distribute the benefits of health care and the burdens of financing that care among the various
members of the society. Emergency physicians routinely address these issues when they assign
order of priority for treatment and choose appropriate diagnostic and treatment resources. In
making these judgments, emergency physicians must attempt to reconcile the goals of equitable
access to health care and just allocation of health care with the increasing scarcity of resources
and the need for cost containment.

3. Central tenets of the emergency physician’s relationship with society

a. Access to emergency medical care is a fundamental right

As noted above, US public policy, as articulated in the federal Emergency Medical
Treatment and Active Labor Act (EMTALA), has established access to quality emergency
treatment as an individual right that should be available to all who seek and require it.
Recognizing that emergency care makes a substantial contribution to personal well-being,
emergency physicians endorse this right and support universal access to emergency care.
Denial of emergency care or delay in providing emergency services on the basis of race,
religion, sexual orientation, gender identity, ethnic background, social status, type of illness
or injury, or ability to pay is unethical. Emergency physicians should act as advocates for the
health needs of indigent patients, assisting them in finding appropriate care. Insurers,
including managed care organizations, must support insured patients' access to emergency
medical care for what a prudent layperson would reasonably perceive as an emergency
medical condition. Society, through its political process, must adequately fund emergency
care for all who need it.

Decisions to limit access to care may be made only when the resources of the emergency
department are depleted. If crowding limits access to care, that limit must be applied
equitably, unless the hospital has a unique community resource such as a trauma center, in which case the selection of a special category of patient may be acceptable.

Prehospital care is an essential societal good that emergency physicians, in conjunction with government, industry, and insurers must continue to make available to all members of society. Emergency medical technicians or paramedics should provide assessment of out-of-hospital patients in a timely fashion. Decisions concerning transport to a medical facility should be made on the basis of medical necessity, patient preference, and the capacity of the facility to deal with the medical problem.

b. Adequate in-hospital and outpatient resources must be available to protect emergency patient interests

Patients requiring hospitalization for further care should not be denied access to an appropriate medical facility on the basis of financial considerations. Transfer to an appropriate accepting medical facility for financial reasons may be effected if a) the patient provides consent and b) there is no undue risk to the patient. Admission or transfer decisions should be made on the basis of a patient's best interest.

It is unethical for an emergency physician to participate in the transfer of an emergency patient to another medical facility unless the medical benefits reasonably expected from the provision of appropriate medical treatment at another medical facility outweigh the risks of the transfer or unless a competent patient, or a legally responsible person acting on the patient's behalf, gives informed consent for the transfer. Emergency physicians should be knowledgeable about applicable federal and state laws regarding the transfer of patients between health care facilities.

Although the care and disposition of the patient are primarily the responsibility of the emergency physician, on-call consultants should share equitably in the care of indigent patients. This may include an on-site evaluation by the consultant if requested by the emergency physician.

For patients who do not require immediate hospitalization but need medical follow-up, adequate outpatient medical resources should be available both to continue proper treatment of the patient's medical condition and to prevent the development of subsequent foreseeable emergencies resulting from the original medical problem.

c. Emergency physicians should promote prudent resource stewardship without compromising quality

Emergency physicians have an obligation to ensure that quality care is provided to all patients presenting to the emergency department for treatment. Participation in quality assurance activities and peer review are important for assuring that patterns of inadequate care are detected and remedied. Participation in continuing education activities, including the development of scientifically-based practice guidelines, assists the emergency physician in providing quality care.

Emergency physicians should employ health care resources, including new technologies, on the basis of individual patient needs and the appropriateness of the therapy as documented by medical literature. Diagnostic and therapeutic decisions should be made on the basis of potential risks and benefits of alternative treatments versus no treatment. Emergency
physicians have an obligation to diagnose and treat patients in a cost-effective manner and must be knowledgeable about cost-effective strategies; but they should not allow cost containment to impede proper medical treatment of the patient.

The limitation of health care expenditures is a societal decision that should ideally be made in the political arena and not at the bedside for individual patients. Lacking societal consensus on allocation issues, however, emergency physicians must keep the patient's interest as a primary concern while recognizing that medically non-beneficial testing or treatment is not morally required. Thus, the emergency physician has dual obligations to allocate resources prudently while honoring the primacy of patient's best medical interests.

d. The duty to respond to out-of-hospital emergencies and disasters

Because of their unique expertise, emergency physicians have an ethical duty to respond to emergencies in the community and offer assistance. This responsibility is buttressed by applicable Good Samaritan statutes that protect health care professionals from legal liability for good-faith efforts to render emergency medical treatment. Physicians should not disrupt out-of-hospital personnel who are under base station medical control and direction.

In a situation where the resources of a health care facility are overwhelmed by epidemic illness, mass casualties, or the victims of a natural or manmade disaster, the prudent emergency physician must make important triage decisions to benefit the greatest number of potential survivors. When the numbers of patients and severity of their injuries overpower existing resources, triage decisions should classify patients according to both their need and their likelihood of survival. The overriding principle should be to focus health care resources on those patients most likely to benefit, who have a reasonable probability of survival. Those patients with fatal injuries and those with minor injuries should be made as comfortable as possible while they await further medical assistance and treatment.

e. The duty to oppose violence

Serving as a societal resource, emergency physicians have obligations to protect themselves, staff, and patients from violence and to teach EMS personnel under their supervision to do likewise. Hospitals have a duty to provide adequate numbers of trained security personnel to assure a safe environment. Ensuring safety may mean that patients who present a high risk of violence will lose some autonomy as they are restrained physically or chemically. Emergency physicians never should resort to restraints or medication for punitive or vindictive reasons. Restraints are indicated only when there is a reasonable possibility that patients will harm themselves or others. The need for restraint of emergency department patients should frequently be reevaluated.

The emergency physician has an ethical duty to diagnose, treat, and properly refer suspected victims of abuse and neglect, including domestic partners, minors, and dependent adults, and to report domestic violence to appropriate authorities as required or permitted or required by law.

f. The duty to promote the public health

Emergency physicians advocate for the public health in many ways, including the provision of basic health care for many uninsured patients. As a safety net both for patients who lack other resources of care and for victims of disaster, emergency departments provide needed
care and assistance to many of the most vulnerable members of society. In times of disaster, pandemic, and other public health emergencies, emergency departments serve as a vanguard of preparedness against a constellation of medical and social ills.

Emergency physicians have first-hand knowledge of the grave harms caused by firearms, motor vehicles, alcohol, and other causes of preventable illness and injury. Inspired by this knowledge, emergency physicians should participate in efforts to educate others about the potential of well-designed laws, programs, and policies to improve the overall health and safety of the public.

CONCLUSION

Serving patients effectively requires both scientific and technical competence, knowledge of what can be done, and moral competence, knowledge of what should be done. The technical emphasis of emergency medicine must be accompanied by a corresponding emphasis on character and careful moral reasoning, as emergency physicians increasingly confront difficult moral questions in clinical practice.

In the face of future uncertainties and challenges, ethics will remain central to the clinical practice of quality emergency medicine. Both technical and moral expertise can and should be nurtured through advanced preparation and training. The time and information constraints inherent in emergency practice make reflection on fundamental ethical principles and values challenging. This Code is offered both for thoughtful consideration and as a resource when issues arise in clinical practice. The principles of emergency medical ethics identified herein may serve as a guide for practitioners and students of this developing art. Through the process of moral reflection and deliberation, emergency physicians can make difficult and time-sensitive decisions based on a sound moral framework that respects and benefits patients, professionals, and society.

III. A COMPREHEND OF ACEP POLICY STATEMENTS ON ETHICAL ISSUES

The policy statements listed in the Compendium section of the table of contents of this policy are available on ACEP's web site (http://www.acep.org).
The American College of Emergency Physicians recognizes that situations may arise in which groups of individuals choose to withhold services, thereby affecting health care delivery. The College believes that it is the duty of emergency physicians to work for the continuous availability of emergency medical care should a work stoppage occur.

ACEP believes emergency physicians functioning as employees may participate in collective bargaining units. Such units should only include physicians, as non-physicians may follow other ethical codes. Non-employee physicians may participate in collective bargaining units to the extent allowed by law.

Medical professionals who choose to use a work stoppage or collective bargaining should never use collective action that could delay or deny access to emergency care.

ACEP members should anticipate problems that may arise from a work stoppage or other collective bargaining activities by any health care personnel and seek cooperation of other health professionals to ensure the timely provision of emergency medical care under all conditions.
Board members and Council officers of the American College of Emergency Physicians (ACEP) shall not provide expert testimony in professional liability litigation during his or her term in office. Leadership positions in ACEP will not be used as prima-facie evidence of expertise in emergency medicine. Alleged violations of this policy will be addressed through the “Procedures for Addressing Charges of Ethical Violations and Other Misconduct.”

Nothing in this policy shall prohibit the Board of Directors as a whole from directing the College to provide support to a member. In addition, ACEP presidents may authorize amicus briefs that clarify disputed facts or provide the emergency medicine perspective on behalf of ACEP members in professional liability litigation.

A Board member or Council officer who is involved in litigation as an expert witness at the time of adoption of this policy or upon his or her election and who wishes to continue in that role shall present the reasons to the Board for continuing to serve as an expert witness. The Board will determine by a simple majority vote whether the reasons provided justify the granting of an exception to this policy.

* ACEP, based on pronouncements by the US Supreme Court, is at risk of incurring liability as an entity whenever an individual causes injury or damage while even only appearing to be representing the College. The Supreme Court has imposed “strict liability” upon nonprofit membership organizations, such as the College, under this “apparent authority” principle even when the organization did not authorize the individual’s conduct, did not benefit from it, and indeed did not even know about it.

It behooves the College to assure that its individual Board members and Council officers not be regarded as representatives of the College in presenting expert testimony in professional liability litigation, lest any untoward liability ramifications of that testimony redound to the College.
Commercial Filming of Patients in the Emergency Department

The American College of Emergency Physicians (ACEP) believes that the commercial filming of patients or staff may be done only if patients and staff give fully informed consent prior to filming.

Because commercial filming cannot benefit a patient medically and may compromise both their privacy and confidentiality, filming should not commence unless and until a patient with full unencumbered decision making capacity can explicitly consent or, if institutional policies permit surrogate consent for commercial filming, that consent is given. Patients who do consent should have the right to rescind their consent up until a reasonable time before broadcast to the public.

Hospitals should develop and implement policies to regulate commercial filming that are approved by hospital governing bodies. Policies for filming should be approved by hospital ethics committees (or their representatives), which should ideally include physicians and community members. Departmental leaders should also be required to approve requests for such activities.
Compensated Time for Faculty Academic Administration and Teaching Involvement

Emergency medicine is unique in that it provides 24-hour clinical care for a diverse range of high-acuity, life-threatening illnesses and requires direct, continuous, on-site faculty supervision of residents. Because a substantial portion of residency education consequently occurs outside the domain of regular clinical shifts, protection of core faculty educational time is essential. Core faculty have been defined as those faculty who work clinically and devote the majority of their professional efforts to emergency medicine graduate medical education (GME).1 Program leadership and core faculty are critical to the success of the training missions of emergency medicine residency and fellowship programs. Core faculty require compensated time to engage in necessary residency education, administration, and scholarly activities outside of the clinical environment; without protected time for core faculty to accomplish this, the quality of emergency medicine residency training and clinical care may decline. At a minimum, all emergency medicine core faculty should be allocated protected time per the 2017 Accreditation Council for Graduate Medical Education (ACGME) Emergency Medicine Common Program Requirements: emergency medicine core faculty clinical hours should be limited to no more than 28 hours per week or 1344 hours per year, whichever is fewer.1

Compensation Arrangements for Emergency Physicians

The American College of Emergency Physicians supports the following general principles for compensation arrangements for emergency physicians.

- ACEP recognizes that emergency physicians practice under a variety of compensation arrangements, e.g., independent contractor, fee for service, salary, hourly compensation, percentage of gross or net billing, or a combination of these.
- ACEP recognizes that quality emergency medical care is provided by physicians under different methods of compensation. Specific arrangements may also include performance incentives based on measures such as productivity, patient experience, and other measurable variables.
- ACEP recommends that emergency physicians receive timely feedback on any performance-based measures used to determine compensation.
- Regardless of the compensation method or practice arrangement, emergency physicians are entitled to fair and equitable compensation, taking into account their experience and added value to the practice, market conditions, and other appropriate circumstances.
- Emergency physicians should understand their employment agreements and should consider obtaining review by legal counsel prior to signing a contract.
- Exploitation of emergency physicians by other emergency physicians or health care entities is improper. ACEP strongly urges each emergency physician to carefully evaluate any health care delivery system or arrangement that might unfairly profit from the professional services of the emergency physician.

POLICY STATEMENT

Confidentiality of Patient Information

Approved January 2017

Revised with current title
January 2017


Originally approved titled
“Patient Confidentiality”
January 1994

As an adjunct to this policy, ACEP has prepared a Policy Resource and Education Paper (PREP) titled, “From Hippocrates to HIPAA: Privacy and Confidentiality in Emergency Medicine”

The American College of Emergency Physicians believes that all physicians have an ethical and legal duty to guard and respect the confidential nature of the personal information conveyed during the patient-physician encounter. Emergency Physicians implicitly promise to preserve confidentiality of patient information, a promise that in turn promotes patients' autonomy, and trust in their Emergency Physicians.

ACEP believes confidentiality of patient information is an important but not absolute principle. Confidential patient information may be disclosed when patients or their legal surrogates agree to disclosure, when mandated by law, or when there exist overriding and compelling grounds for disclosure, such as the prevention of substantial harm to identifiable other persons.

Certain other situations may require individual assessment of clinical circumstances, patient wishes, state and federal laws, and public health requirements. Specific problem areas include but are not limited to cases involving minors, drug testing, employee health, perpetrators and victims of violent crimes, medical records, the media, and communicable and sexually transmitted diseases. In such cases not directly addressed by the law, individualized assessment and management, based on these principles of confidentiality of patient information, constitute best practice.
Conflict of Interest

Officers, Directors, Committee Chairs and Members, Section Chairs, Task Force Chairs, Annals Editor, staff, and others acting on behalf of the College have a fiduciary duty to the College, including the duties of loyalty, diligence, and confidentiality.

Those in positions of responsibility must act in utmost good faith on behalf of the College. In accepting their positions, they promise to give the College the benefit of their work and best judgment. They should exercise the powers conferred solely in the interest of the College and should not use their role or position for their own personal interest or that of any other organization or entity. Even the perception of conflict can potentially compromise the confidence and trust of ACEP members and the public in the stewardship of its leaders.

Conflicts of interest arise when participants in positions of responsibility have personal, financial, business, or professional interests or responsibilities that may interfere with their duties on behalf of ACEP. The immediacy and seriousness of various conflicts of interest situations may vary. Of basic importance is the degree to which the interest would tend one toward bias or pre-disposition on an issue or otherwise compromise the interests of the College.

A conditional, qualified, or potential conflict of interest can arise when the outside interest is not substantial or does not relate significantly to any contemplated action of the College. For example, a person might hold a minor financial interest in a company wishing to do business with the College. Disclosure is ordinarily sufficient to deal with this type of potential conflict of interest, provided that there is no expectation that one's duty to the College would be affected.

Direct conflicts of interest arise, for example, when an individual engages in a personal transaction with the College or holds a material interest or position of responsibility in an organization involved in a specific transaction with the College or that may have interests at variance or in competition with the College. The appropriate and necessary course of action in such cases is to disclose the conflict and recuse oneself, during the deliberations and the vote on the issue.
In rare circumstances, an individual may have such a serious, ongoing, and irreconcilable conflict, where the relationship to an outside organization so seriously impedes one's ability to carry out the fiduciary responsibility to the College, that resignation from the position with the College or the conflicting entity is appropriate.

Dealing effectively with actual, perceived, or potential conflicts of interest is a shared responsibility of the individual and the organization. The individual and organizational roles and responsibilities with regard to conflicts of interest follow.

A. General

1. All individuals who serve in positions of responsibility within the College need not only to avoid conflicts of interest, but also to avoid the appearance of a conflict of interest. This responsibility pertains to Officers, Directors, Committee Chairs and Members, Section Chairs, Task Force Chairs, Annals Editor and the Executive Director (hereinafter collectively “Key Leaders”) and other elected or appointed leaders, and staff. Decisions on behalf of the College must be based solely on the interest of the College and its membership. Decisions must not be influenced by desire for personal profit, loyalty to other organizations, or other extraneous considerations.

2. Key Leaders shall annually sign a statement acknowledging their fiduciary responsibility to the College and pledge to avoid conflicts of interest or the appearance of conflicts of interest. The issue of conflicts of interest with regard to the remainder of the staff shall be the responsibility of the Executive Director. The issue of conflicts of interest with regard to Section and Task Force Members who participate in the development of policy and resources on behalf of the Colleges shall be the responsibility of the Section and Task Force Chairs with the ultimate determination made by the College President as to Section and Task Force Members to be designated as Key Leaders for the purpose of this policy and the related disclosures, acknowledgements, pledges and statements.

3. Key Leaders shall annually complete a form designated by the ACEP Board of Directors that includes the disclosure of pertinent financial and career-related information and shall update that information as necessary to continuously keep it current and active.

4. Key Leaders shall annually sign a statement acknowledging that they may have access to confidential information and pledge to protect the confidentiality of that information.

5. Officers, Board Members, the Executive Director, and the General Counsel shall annually pledge to clarify their position when speaking on their own behalf as opposed to speaking on behalf of the
membership as a whole, or as an officer or member of the Board of Directors or senior staff member.

6. Officers, Board Members, the Executive Director, the General Counsel or their designees will periodically review the conflict of interest disclosure statements submitted to the College to be aware of potential conflicts that may arise with others.

7. When an Officer, Board Member, the Executive Director, or General Counsel believes that an individual has a conflict of interest that has not been properly recognized or resolved, the Officer, Board Member, Executive Director, or General Counsel will raise that issue and seek proper resolution.

8. Any member may raise the issue of conflict of interest by bringing it to the attention of the Board of Directors through the President or the Executive Director. The final resolution of any conflict of interest shall rest with the Board of Directors.

B. Disclosure Form

1. Key Leaders shall annually complete a form that discloses the following:

a. Positions of leadership in other organizations, chapters, commissions, groups, coalitions, agencies, and entities – eg, board of directors, committees, spokesperson role. Include a brief description of the nature and purposes of the organization or entity.

b. Positions of employment, including the nature of the business of the employer, the position held, and a description of the daily responsibilities of the employment.

c. Direct financial interest (other than a less than 1% interest in a publicly traded company) or positions of responsibility in any entity:

i. From which ACEP obtains substantial amounts of goods or services;

ii. That provides services that substantially compete with ACEP; and

iii. That provides goods or services in support of the practice of emergency medicine (e.g. physician practice management company, billing company, physician placement company, book publisher, medical supply company, malpractice insurance company).
d. Industry-sponsored research support within the preceding twenty-four (24) months.

e. Speaking fees from non-academic entities during the preceding twenty-four (24) months.

f. The receipt of any unusual gifts or favors from an outside entity or person, or the expectation that a future gift or favor will be received in return for a specific action, position, or viewpoint taken in regards to ACEP or its products.

g. Any other interest the Key Leader believes may create a conflict with the fiduciary duty to ACEP or that may create the appearance of a conflict of interest.

2. Except as provided in Section 4 below, completed disclosure forms shall be submitted to the President and the Executive Director no later than sixty (60) days prior to commencement of the annual meeting of ACEP’s Council. For Officers and Board Members newly elected during a meeting of ACEP’s Council, the forms shall be submitted no later than thirty (30) days following their election if they were not previously submitted. Any Key Leader who has not submitted a completed disclosure form by the applicable deadline will be ineligible to participate in those specific College activities for which they have been appointed or elected until their completed disclosure forms have been received and reviewed as set forth in this policy.

3. Information disclosed by Officers, Board Members, and the Executive Director pursuant to this policy will be placed in the General Reference Notebook available at each Board meeting for review by Officers and Board Members. Committee, Section, and Task Force Chairs will have access to the disclosure forms of the members of the entity they chair. In addition, any ACEP member may request a copy of a Key Leader’s disclosure form upon written request to the ACEP President.

4. Completed disclosure forms required from Section and Task Force Members will be submitted to the relevant Section or Task Force Chair and the Executive Director within thirty (30) days of appointment or assignment.

5. ACEP may disclose to its members and the public the disclosure forms of its Officers, Board Members, Annals Editor, and the Executive Director.

C. Additional Rules of Conduct

1. Prior to participating in any deliberation or vote on an issue in which they may have a conflict, Key Leaders shall disclose the existence of any actual or possible interest or concern of:
a. The individual;

b. A member of that individual’s immediate family; or

c. Any party, group, or organization to which the individual has allegiance that can cause ACEP to be legally or otherwise vulnerable to criticism, embarrassment or litigation.

2. After disclosure of the interest or concern that could result in a conflict of interest as defined in this policy and all material facts, the individual shall leave the Board, Committee, Section, or Task Force meeting while the determination of a conflict of interest is discussed and voted upon. The remaining Board, Committee, Section, or Task Force members shall decide by majority vote if a conflict of interest exists. If a conflict of interest is determined to exist, the individual having the conflict shall retire from the room in which the Board, Committee, Section, or Task Force is meeting and shall not participate in the deliberation or decision regarding the matter under consideration. However, that individual shall provide the Board, Committee, Section, or Task Force with any and all relevant information requested.

3. The minutes of the Board, Committee, Section, or Task Force meeting shall contain:

a. The name of the individual who disclosed or otherwise was found to have an interest or concern in connection with an actual or possible conflict of interest, the nature of the interest, any action taken to determine whether a conflict of interest was present, and the Board’s, Committee’s, Section’s, or Task Force’s decision as to whether a conflict of interest existed;

b. The extent of such individual’s participation in the relevant Board, Committee, Section, or Task Force meeting on matters related to the possible conflict of interest; and

c. The names of the individuals who were present for discussion and votes relating to the action, policy, or arrangement in question, the content of the discussion including alternatives to the proposed action, policy, or arrangement, and a record of any votes taken in connection therewith.
POLICY STATEMENT

Conflicts of Interest in Biomedical Research

Research is essential to enhancing emergency care for patients through new and improved diagnostic and therapeutic modalities. Various issues may present conflicts of interest in biomedical research, including financial interests, incentives, gifts, philanthropies, honoraria, opportunities, or other conflicts of interest. Such conflicts of interest may jeopardize investigators’ basic responsibilities to protect patient safety and to maintain research integrity. To limit potential conflicts of interest in research and to protect and encourage the valuable endeavors of emergency medicine research, the American College of Emergency Physicians (ACEP) endorses the following guidelines:

1. Investigators must avoid conflicts of interest that have the potential to affect adversely the rights or welfare of patient subjects or to compromise the integrity, objectivity, or scientific value of their research.

2. Investigators should disclose any and all significant financial relationships that they or their immediate family members have with sponsors. Such relationships should be disclosed to the investigator’s employing institution, to any institutional conflict of interest (COI) or institutional review board (IRB) that reviews the investigator’s research proposal, to any audience to which the research is presented, to any journal to which the research is submitted for publication, and to potential research subjects as part of the informed consent process.

3. Investigators must not allow investments in, or financial reimbursement from, companies sponsoring their research to jeopardize rights of patient subjects, or compromise the integrity of the research results.

4. Financial compensation to investigators should be at fair market value for their efforts and expenses.

5. Investigators should establish agreements with industry sponsors in writing before initiating the investigation. Such agreements should clearly give researchers primary authority for data collection, analysis, writing, and reporting of the research. Investigators should retain academic freedom to publish both positive and negative results of the research.

6. If disagreements arise regarding the ethical conduct of research, guidance may be sought through local COI committees, IRBs, ethics committees, or established ACEP channels.
Considerations for Emergency Physicians in Pre-retirement Years

The American College of Emergency Physicians recognizes that an increasing percentage of its members are entering retirement or pre-retirement years. In an effort to enhance and prolong the careers of emergency physicians in the latter stages of their professional lives, to ensure patient safety, to promote continued membership and participation in the College, and to facilitate the transition of emergency physicians from active practice to semi- or full retirement, the following guidelines are offered:

- Physicians and physician groups are encouraged to be mindful of the limitations that may accompany the aging process. In compliance with age discrimination laws, appropriate policies to evaluate and, to the extent possible, accommodate specific limitations can provide the senior physician with a supportive environment in which to deliver quality care.

- As may be feasible or appropriate, a variety of work load modifications can be implemented:
  - Consider minimizing or eliminating assignments to rotating, late evening or night shifts as a means of minimizing circadian stress.
  - Encourage older providers to work more day shifts on weekends in exchange for night shift assignments.
  - Follow scientifically-based scheduling recommendations when possible. This may include consistently scheduling senior physicians to a single shift segment of the day/night cycle to preserve a period of core sleep, or scheduling clockwise rotations (morning, afternoon and night) to minimize circadian disruption.
  - Consider scheduling additional time off for recovery after night shifts.
  - When possible, shorten shifts to periods of eight to ten hours or less, and schedule fewer consecutive clinical shifts.
  - When possible, adopt scheduling strategies that best match patient volume and acuity to the work pace of the senior physician.
  - When possible, allow those senior physicians who are willing to exchange clinical responsibilities for administrative or teaching duties to obtain the requisite training to do so.
As medical professionals in the American College of Emergency Physicians (ACEP), it is our duty to care for and protect any child who seeks care in the Emergency Department.

The acceptance of corporal punishment of children in our society arose from the notion that physical reprimand with the intent to cause pain was distinct from physical abuse. This ranged from a light spanking with a hand, to use of various instruments such as paddles or belts, to brutal beatings. Recent literature on corporal punishment has emphasized the short and long term negative impact on most children.

ACEP does not support and encourages reporting of corporal punishment actions leading to significant physical or emotional injury to a child to the state’s appropriate child welfare and protective services.

Furthermore, ACEP disapproves of the use of any form of corporal punishment as a method of disciplining children.

ACEP recommends parental education regarding the potential negative effects of corporal punishment and the use of alternative techniques for instruction and reprimand.
The American College of Emergency Physicians (ACEP) supports the coverage of all administered medications for patients under observation status without having to apply for reimbursement. ACEP also supports a goal that patient out-of-pocket expenses for observation be no greater than the cost to the patient for inpatient services.
Our emergency care team is the front line in this crisis at a time when identifying those who may have COVID-19 is very challenging. Given the guidance from the CDC that droplet precautions recommend use of a face mask or surgical mask, ACEP believes that healthcare personnel in the emergency department (ED) and emergency medical services (EMS) should consider wearing a face mask or surgical mask during their entire shift if they are providing patient care, unless the mask becomes soiled and needs replacement. In order to preserve PPE, until the current shortages are reduced, healthcare personnel in the ED and EMS should consider wearing the same mask for the entire shift. We also understand that close contact during procedures or processes (including a physical examination) that generate potentially infectious aerosols requires a higher level of PPE that includes an N95 respirator.
Global penetrance of COVID-19 has placed significant stress on the ability to produce and supply appropriate PPE to health care workers. Additionally, the risk pool of known and unknown disease in our communities has greatly challenged our ability to reliably determine patients who are at low risk. For these reasons, ACEP has and will continue to support the use of surgical masks with proper eyewear and other protective equipment for physicians and other individuals caring for patients, regardless of their complaint. Processes and procedures that create higher risk, such as close contact and aerosolizing procedures, require full PPE, including N95s.

Because the inadequate PPE supply increases the risk to our physicians, they have taken to buying their own PPE or utilizing donations from other industries. ACEP urges hospitals and other health care facilities to allow physicians to use their donated or self-purchased PPE.
Crowding occurs when the identified need for emergency services exceeds available resources for patient care in the emergency department (ED), hospital, or both.

The causes of crowding are multifactorial and span the entire health care delivery system. Research has shown continued growth in ED visits, which has outpaced population growth. Current trends show increasing patient acuity, requiring more complex evaluation and treatment plans that increase ED care delivery times as well as inpatient lengths of stay. The resultant strain on hospital inpatient bed capacity creates downstream pressure to board admitted patients* in the ED. These factors exacerbate crowding by utilizing limited ED resources including beds, nursing care, and access to support services such as radiology, laboratory and environmental services. Evidence has shown an increase in morbidity and mortality due to boarding.

Results of crowding include:
- Treatment of patients in areas not designated for treatment, such as hallways, resulting in a loss of privacy for patients and families.
- Treatment of boarded patients, including mental health and ICU patients, by ED nurses.
- Increased morbidity and mortality for both boarded and ED patients.
- Increased disability in older patients who are discharged to facilities rather than admitted.
- Increased length of stay for admitted patients.
- Decreased patient satisfaction for hospitalized and ED patients.
- Diminished ED staff satisfaction and employee engagement.
- Significant delay in evaluation and treatment of emergency patients.
- Patients leaving prior to completion of medical treatment.
- Increased ambulance diversion time.
- Increased stress for behavioral health patients due to a lack of facilities or privacy that are a necessary component of emergency psychiatric care.
- Increased costs for care delivery.
- Reputation damage for the entire institution.

It is the responsibility of hospital leadership and care providers to quantifiably measure, analyze, and address identifiable and recurrent causes of crowding (such as the predictable saturation of inpatient bed capacity and essential support resources)
services) in order to prevent poor outcomes related to crowding. It is recommended that hospital leadership utilize a crowding assessment tool to consistently quantify saturation events and analyze data to identify specific mitigation actions that involve the entire hospital. It is imperative that local and national health care systems are active in addressing the more global and systemic causes of crowding, including hospital funding. Emergency medicine leadership should be actively involved in helping to identify successful solutions to crowding at both the local and national levels.

* A “boarded patient” is defined as a patient who remains in the emergency department after the patient has been admitted or placed into observation status at the facility but has not been transferred to an inpatient or observation unit.
Emergency physicians routinely encounter patients from diverse cultural backgrounds representing various customs, practices or beliefs. Cultural awareness is the ability of physicians to understand and respond to the unique cultural needs brought by patients to the health care encounter. The physician should consider the patient’s culture as it relates to the patient’s history and presenting symptoms in recommending a treatment plan that is mutually agreed upon by the patient and physician.

The American College of Emergency Physicians believes that:

- Quality health care depends on the scientific competence of physicians as well as their cultural awareness.
- Cultural awareness should be an essential element in the training of physicians and to the provision of safe, quality care in the emergency department environment.
- Physicians should encourage patients and their representatives to communicate cultural issues that may impact their care.
- Resources should be made available to emergency departments and emergency physicians to assure they are able to respond to the needs of all patients regardless of their respective cultural backgrounds.
ABSTRACT. The American Academy of Pediatrics (AAP), American College of Emergency Physicians (ACEP), and Emergency Nurses Association (ENA) have collaborated to identify practices and principles to guide the care of children, families, and staff in the challenging and uncommon event of the death of a child in the emergency department.

Key words: emergency department, death, child, pediatrician, nurse.


INTRODUCTION

The death of a child in the emergency department (ED) is an event with emotional, cultural, procedural, and legal challenges. The original policy statement, “Death of a Child in the Emergency Department; Joint Statement by the American Academy of Pediatrics and the American College of Emergency Physicians,” was first published in 2002. It represented a groundbreaking collaboration between general and pediatric emergency practitioners regarding their professional obligations in managing the death of a child in the ED, recognized as one of the most difficult challenges in emergency care. This revised statement expands that collaboration to include emergency nursing and is issued jointly by the American Academy of Pediatrics (AAP), the American College of Emergency Physicians (ACEP), and the Emergency Nurses Association (ENA).

The infrequency of child death in the ED and the enormity of the tragedy magnify the challenges in simultaneously providing clinical care, holistic support for families, and care of the team delivering care while attending to significant operational, legal, ethical, and spiritual issues. The evidence basis for these recommendations is detailed in the accompanying technical report of the same title.1
RECOMMENDATIONS

The AAP, ACEP, and ENA support the following principles:

• The ED health care team uses a patient-centered, family-focused, and team-oriented approach when a child dies in the ED.
• The ED health care team provides personal, compassionate, and individualized support to families while respecting social, spiritual, and cultural diversity.
• The ED health care team provides effective, timely, attentive, and sensitive palliative care to patients with lifespan-limiting conditions and anticipated death presenting to the ED for end-of-life care.
• The ED health care team clarifies with the family the child’s medical home and promptly notifies the child’s primary care provider and appropriate subspecialty providers of the death and, as appropriate, coordinates with the medical home and primary care provider in follow-up of any postmortem examination.
• ED procedures provide a coordinated response to a child’s death including:
  o Written protocols regarding:
    ▪ family member presence during and after attempted resuscitation
    ▪ preterm delivery resuscitation
    ▪ end-of-life care/anticipated death in the ED of a child with a lifespan-limiting condition
    ▪ collaboration with law enforcement staff to address forensic concerns while providing compassionate care
    ▪ institutional position on permitting the practice of procedures involving the newly deceased
    ▪ best practice-outlining procedures after the death of a child (eg, a “death packet” with guidelines for completion of a death certificate, organ donation, etc)
  o Processes for notification of primary care and subspecialty providers and medical home of the impending death or death of their patient
  o Identification of resources, including other individuals and organizations, that can respond to the ED to assist staff and bereaved families, such as child life, chaplaincy, social work, behavioral health, hospice, or palliative care staff
  o Identification and notification of medical examiner/coroner regarding all deaths, as directed by applicable law
  o Routine offering of postmortem autopsy to families for all non-medical examiner-coroner cases
  o Clear processes for organ and tissue procurement
  o Identification and reporting of cases of suspected child maltreatment
  o Formal voluntary support and programs for ED staff and trainees, out-of-hospital providers, and others who are experiencing distress
  o Support of child death review activities to understand causes of preventable child death

• Emergency medicine, pediatric resident, and emergency nurse training includes specific education regarding the difficult issues raised by the death of a child in the ED, such as:
  o Evidence for supporting family presence during attempted resuscitation
  o Best palliative care practices for imminently dying pediatric patients
  o Communicating the new of the death of a child in the ED to parents and family
  o Best practice in discussion of organ donation or autopsy
  o Filing the report of suspected child abuse or neglect in the setting of child death
  o Medical-legal issues and best practice surrounding completion of death certificates
  o Optimal documentation and collaboration with state and local child death review teams to identify strategies to prevent future child deaths
  o Self-care following difficult or troubling ED cases

• The ED health care team routinely considers care for the bereaved members of the patient’s family that may include information and arrangements for bereavement care services, condolence cards, and follow-up with family to address any concerns or questions.
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Deferral of Care After Medical Screening of Emergency Department Patients

The American College of Emergency Physicians (ACEP) believes that every patient who seeks care in the emergency department (ED) should receive appropriate and necessary medical care. While this care should ideally be provided in the ED, ACEP recognizes that in limited circumstances, deferral of care from the ED may be warranted, but that strict safeguards are necessary to protect such patients and ensure that deferral of care is appropriate and safe for the patient.

In situations in which it is determined that a patient has no emergency medical condition and that their care can be safely deferred, very specific and concrete standards must be adopted by the hospital to ensure patient access to an alternative setting and timely, appropriate treatment.

Minimum steps prior to any deferral of care should include:

- A standardized process to ensure that all patients presenting for medical care receive an appropriate medical screening examination (MSE) by a qualified medical provider as identified in the hospital by-laws or in the rules and regulations governing the medical staff following governing body approval; and
- Appropriate medical treatment for emergency medical conditions, as is required by the Emergency Medical Treatment and Labor Act (EMTALA); and
- The determination that the MSE identifies no emergency medical condition requiring immediate treatment in the ED, and that deferral of care is not likely to result in a significant deterioration in the patient’s medical condition or the unreasonable exposure of the patient’s family or members of the community to a communicable disease; and
- The determination by the hospital, in advance of any deferral of care, that at least one appropriate alternative setting and provider is available such that the patient can obtain timely evaluation and treatment, whether or not the patient has health insurance coverage; and
• The determination by the hospital, in advance of deferral of care, that the patient will be able to make and receive a timely appointment in this alternative setting with a qualified provider.

Deferral of care from the ED can have significant risks to patients and providers. ACEP strongly opposes deferral of care for patients presenting to the ED without the aforementioned safeguards.

Emergency departments using deferral of care processes should have active emergency physician involvement in the development of the processes to ensure safe patient care and appropriate disposition.

Emergency physicians should not be compelled to participate in deferral of care strategies unless the safeguards for safe deferral as detailed in this policy are followed.

Emergency physicians are responsible for the care of patients they are treating in the ED after a physician-patient relationship has been established; they must have the opportunity to further evaluate and complete their patients' care if they believe it is appropriate, even if no emergency medical condition exists.
Definition of “Admit Time”

Originally approved June 2016

The time when the “Order to Admit” is placed by the emergency department provider or the time when the inpatient bed request is placed, whichever is earliest.

This definition may be difficult to operationalize in some environments. In those cases, an alternate definition that could be used, as developed by the Emergency Department Benchmarking Alliance in 2014:

First documented date and time of the disposition to admit the patient from the ED. As admission processes vary at different hospitals, this can use the first documented time of any of the following: 1) admission order (this may be an operational order rather than the hospital admission to inpatient status order), 2) disposition order (must explicitly state to admit), 3) documented bed request, or 4) documented acceptance from admitting physician. This is not the “bed assignment time” or “report called” time.
POLICY STATEMENT

Definition of an Emergency Physician

An emergency physician is defined as a physician who is certified (or eligible to be certified) by the American Board of Emergency Medicine (ABEM) or the American Osteopathic Board of Emergency Medicine (AOBEM) or an equivalent international certifying body recognized by ABEM or AOBEM in Emergency Medicine or Pediatric Emergency Medicine, or who is eligible for active membership in the American College of Emergency Physicians.

It should be noted that residents in an Accreditation Council for Graduate Medical Education (ACGME) or American Osteopathic Association (AOA) approved residency in Emergency Medicine are “Emergency Medicine Resident Physicians.”
Definition of an Emergency Service

An emergency service is any health care service provided to evaluate and/or treat any medical condition such that a prudent layperson possessing an average knowledge of medicine and health, believes that immediate unscheduled medical care is required.

In order for emergency departments to continue to provide quality patient care and access to that care, ACEP believes a “boarded patient” is defined as a patient who remains in the emergency department after the patient has been admitted or placed into observation status at the facility but has not been transferred to an inpatient or observation unit.

The primary cause of overcrowding is boarding: the practice of holding patients in the emergency department after they have been admitted to the hospital, because no inpatient or observation beds are available. This practice often results in a number of problems, including ambulance refusals, prolonged patient waiting times, and increased suffering for those who wait, lying on gurneys in emergency department corridors for hours, and even days, which affects not only their care and comfort but also the primary work of the emergency department staff taking care of emergency department patients. When EDs are overwhelmed, their ability to respond to community emergencies and disasters may also be compromised.

The time at which boarding starts, or the time-zero, is the time at which the decision has been made to admit or place the patient into observation status.

Reducing the time that patients for whom an “admit” or “observation” decision has been made remain in the emergency department (ED) can improve access to treatment and increase quality of care. ACEP agrees with the National Quality Forum deliberations noting the importance of examining the median time from admit decision time to time of departure from the ED for patients admitted to inpatient status:

A proxy for emergency department crowding includes the proportion and lengths of time patients remain in the emergency department after the decision to admit. Studies have shown that boarding patients in the emergency department can lead to greater hospital lengths of stay over prompt admissions. Reducing this time potentially improves access to care
specific to patient condition and increases the capability of facilities to provide additional treatment. (NQF: *National Voluntary Consensus Standards for Emergency Care – Phase II: Hospital-based Emergency Care Measures*, June 2008).

6 United States General Accounting Office GAO. Hospital Emergency Departments: crowded conditions vary among hospitals and communities. 2003; GAO-03-460.


The American College of Emergency Physicians (ACEP) defines clinical ultrasonography as a diagnostic modality that provides clinically significant data not obtainable by inspection, palpation, auscultation, or other components of the physical examination. It is a distinct clinical modality, not an adjunct to or extension of the physical examination.
Emergency medicine democratic groups are defined by their governing structure which should be in writing and available for review by potential new members.

Democratic groups should be governed by a body that is subject to change by fair and transparent elections that embody a one-vote-one-person structure and philosophy or a representative vote recognizing equity ownership/seniority within the group.

The governing body (or the electorate) should have complete control over the finances and decision making in the group. Financial equity in the group should be structured in such a manner that a new member has a realistic set of expectations as to his/her potential costs, liabilities, and benefits before making the decision to join the group.

All members/owners of the group should have:
- a right to petition the governing body for redress and grievances;
- access to a fair due-process procedure;
- freedom to speak (within the business confines of the group and in a non-disruptive manner) that should be exercised without fear; and
- an equal and realistic ownership opportunity within the group.

With democracy there comes obligation; there is a fiduciary responsibility to the group and an ethical responsibility for all members/owners.
Definition of Emergency Medicine

Emergency medicine is the medical specialty dedicated to the diagnosis and treatment of unforeseen illness or injury. It encompasses a unique body of knowledge as set forth in the “Model of the Clinical Practice of Emergency Medicine.” The practice of emergency medicine includes the initial evaluation, diagnosis, treatment, coordination of care among multiple providers, and disposition of any patient requiring expeditious medical, surgical, or psychiatric care.

Emergency medicine is not defined by location but may be practiced in a variety of settings including hospital-based and freestanding emergency departments (EDs), urgent care clinics, observation medicine units, emergency medical response vehicles, at disaster sites, or via telemedicine.

Emergency medicine encompasses planning, oversight, and medical direction for community emergency medical response, medical control, and disaster preparedness. Emergency medicine professionals provide valuable clinical, administrative, and leadership services to the emergency department and other sectors of the health care delivery system.

Emergency physicians are the foundation of the United States health care system's patient safety net. They possess a clear understanding of the health care delivery system and the needs of their patients. Emergency physicians are uniquely positioned to evaluate, plan, and implement community and regional health policy initiatives.
Definition of Rural Emergency Medicine

Rural emergency medicine is urgent or emergent medicine practiced in geographic areas with low population densities and resource constraints, including ready access to more specialized care facilities. Rural emergency departments provide critical services for their communities, including facilitating earlier evaluation and entry into the healthcare system, stabilization and initiation of treatment, and coordinated transfer to a tertiary care facility.
The American College of Emergency Physicians (ACEP) opposes federal and state initiatives which require physicians and health care facilities to refuse care to undocumented persons or to report suspected undocumented persons to immigration authorities. Emergency providers are required by federal law (EMTALA) to provide stabilization to all persons who present to them. Based on our moral and legal obligations, we do not discriminate against any patient based on race, gender, national identity or ability to pay. ACEP opposes actions that might dissuade any ill or injured patient from seeking care, including fear of intervention by immigration authorities. As such, ACEP supports all emergency departments and emergency providers in not inquiring about or reporting immigration status unless specifically relevant. Patients in need should be assured that emergency departments are safe zones for all.
The American College of Emergency Physicians (ACEP) believes key stakeholders should develop real-time syndromic surveillance to capture a majority of clinical illnesses and injury patterns on a mass scale. Early identification can improve the response to an incident or reduce an epidemic’s potential, leading to a reduction of morbidity and mortality, as well as overall cost.

ACEP further supports prospective and retrospective disaster data collection and research which is critical for future disaster preparedness and response. Accurate data collection in a disaster can be difficult without government mandate and assistance.

Therefore, ACEP supports the following:

- EMS and public health systems and agencies play an active role in real-time disaster data collection and sharing.
- Real-time reporting of all injuries and illnesses related to officially declared disasters and terrorist events.
- Real-time use of local health agency disaster collection databases to track disaster-related injuries and illnesses to enhance local disaster response.
- A coordinated response across health care and emergency response agencies for the purpose of a public health syndromic surveillance network to identify an infectious disease outbreak or other public health concerns.
- Documentation of disaster related ICD-10 codes for the purposes of data and research.
The American College of Emergency Physicians (ACEP) supports a national credentialing mechanism and up-to-date database of available physicians and medical volunteers who could be deployed as needed in the face of a national emergency. A policy and program must be in place to provide these responders with workers’ compensation and medical liability protection when deploying to a disaster at the request of the federal or state government.
The American College of Emergency Physicians (ACEP) believes that emergency physicians should assume a primary role in disaster preparedness and response, throughout all phases of the disaster life cycle. The provision of effective disaster medical services requires prior training or experience, which is a component of emergency medicine residency training. Additionally, emergency physicians should be encouraged to pursue continued training enabling them to best fulfill this responsibility.

A medical disaster occurs when the destructive effects of natural or man-made forces overwhelm the ability of a given area or community to meet the demand for health care. Where local, regional, and national disaster networks exist, emergency physicians should participate in strengthening them. Where they are not yet functional, emergency physicians should assist in planning and implementing them.

Disaster preparedness and response is a multidisciplinary activity that requires cooperation and frequent training exercises. Each agency or individual contributes unique capabilities, perspectives, and experiences that complement one another. Within this context, emergency physicians contribute both medical and operational expertise and share the responsibility for ensuring an effective and well-integrated disaster response.

Disaster medical services and emergency medical services share the goal of optimal acute health care; however, in achieving that goal, the two systems may use different approaches. The medical control of emergency medical services lies within the domain of emergency medicine. During a disaster, it remains the responsibility of emergency physicians to continue their regular responsibilities, in addition to disaster medical service-related roles.

The advancement of disaster medicine requires the integration of data from research and experience. Emergency physicians must use their skills in research, education, and organization to incorporate and disseminate these improvements as new concepts and technologies emerge.
Disaster Planning and Response

Approved June 2015

Revised June 2015

The American College of Emergency Physicians (ACEP) encourages emergency physicians to:

1. Assist their institutions and community to prepare for and respond to disasters.
2. Continue to serve their communities and nation during time of disasters.
3. Implement actions to protect themselves, their families, their co-workers, and their patients from risks.
4. Work with institutional and public leaders to effectively communicate public health and safety information to co-workers and the public.
5. Serve as subject-matter experts on the allocation of scarce health care resources, when necessary.

The American College of Emergency Physicians will, when possible and appropriate during disasters, use its resources to disseminate current, scientifically based information from national experts.
POLICY
STATEMENT

Disclosure of Medical Errors

The American College of Emergency Physicians (ACEP) believes that emergency physicians should provide prompt and truthful information to patients or their representatives about their medical conditions and treatments. In the emergency department (ED), as in other health care settings, patients may experience or be at risk for adverse events as a result of human error or flaws in the health care system. If, after careful review of all available relevant information, emergency physicians determine that a medical error has occurred during their care of a patient in the ED, they or appropriate designee should inform the patient in a timely manner that an error has occurred, and provide information about the error and its consequences, following institutional and practice group policies and considering applicable state statutes on this subject. If the patient is incapacitated, and therefore unable to receive this information, emergency physicians or appropriate designee should provide the information to the patient’s representative.

To show respect for the patient and commitment to patient welfare, disclosure of a medical error in the patient’s care should include an apology that an error has occurred. Depending on specific circumstances and institutional or practice group policies and considering applicable state statutes, this apology may be offered by the emergency physician, another member of the patient’s health care team, or an officer of the institution.

In some cases, it may be apparent that treatment provided in the ED has harmed a patient, but it may not be obvious whether the harm was the result of a medical error or was an unavoidable complication of an appropriate treatment. When such an adverse event occurs, emergency physicians or appropriate designee should inform the patient or the patient’s representative that a problem has occurred in the patient’s care, that the problem is being examined, and that additional information will be provided when it is available.

This policy does not address errors discovered after patients leave the ED or errors made outside of the ED.

ACEP recognizes that substantial obstacles, including unrealistic expectations of physician infallibility, lack of training about disclosure of errors, and fear of increased malpractice exposure, may obstruct the free disclosure to patients of medical errors. To overcome these obstacles, ACEP recommends the following initiatives:
• Health care institutions should develop and implement policies and procedures for identifying and responding to medical errors, including continuous quality improvement (CQI) systems and procedures for disclosing significant errors to patients.

• Medical educators should develop and provide specific instruction to trainees at all levels on identifying and preventing medical errors and on communicating truthfully and sensitively with patients or their representatives about errors.

• States should enact legislation that makes apology statements by physicians related to disclosure of medical errors inadmissible in malpractice actions.
In recognition of the significant public safety dangers associated with drivers who are impaired by the use of alcohol or drugs, as well as by those who engage in distracted driving\(^1\), the American College of Emergency Physicians:

- Encourages public education about the dangers of impaired, intoxicated, and distracted driving.
- Discourages the use of handheld electronic mobile devices while driving motorized vehicles or maneuvering other vehicles.
- Recognizes that pedestrians may also be distracted by the use of handheld electronic mobile devices.
- Encourages research to quantify the magnitude and severity of injuries to distracted pedestrians and drivers using electronic mobile devices and encourages research involving prevention of these injuries.
- Support measures that enhance the safety of both the offender and the general public and legal sanctions for persons convicted of driving while impaired, intoxicated, or distracted.
- Supports innovative technologies that discourage and reduce driver distraction and impairment.
- Recognizes that drowsy driving is potentially another form of impaired driving and encourages continued research into its consequences and increasing public awareness of its dangers.
- Advocates toxicological screening of drivers by law enforcement officials in crashes involving fatality or serious injury.
- Advocates for education efforts regarding the hazards of binge drinking and other substance abuse, as these activities are often associated with impaired driving.
- Opposes legislation providing permissive or mandatory reporting of the results of patient toxicological screening which conflict with the appropriate role of physicians in the physician-patient relationship.
- Opposes legislation that relieves insurance companies of financial responsibility of otherwise insured losses incurred by beneficiaries who suffer the losses due to the actions of those distracted, intoxicated, or impaired while driving.

\(^1\) Distracted driving is defined in accordance with the definition provided at [www.distraction.gov](http://www.distraction.gov), a web site developed for the U.S. Department of
Transportation, which states that “distracted driving is any non-driving activity a person engages in while operating a motor vehicle. Such activities have the potential to distract the person from the primary task of driving and increase the risk of crashing.” Driving includes but is not limited to automobiles, trucks, motorcycles, bicycles, skateboards, and watercraft.
Domestic Family Violence

The American College of Emergency Physicians (ACEP) encourages emergency personnel to assess all patients for family violence in all its forms, including that directed toward children, elders, intimate partners, and other family members. Such patients should be appropriately referred for help and detailed evaluation. Identification and assessment can be difficult as violence and maltreatment can encompass abuse in many different forms including neglect, physical abuse, sexual abuse, emotional abuse, financial exploitation and intimidation.

ACEP opposes mandatory reporting of domestic violence to the criminal justice system. Instead, ACEP encourages partnering with and reporting of domestic violence to local social services, victims’ services, the criminal justice system, or any other appropriate resource agency to provide confidential counseling and assistance, in accordance with the patient’s wishes. Safety planning should be an important component of any screening process. In jurisdictions that have mandatory reporting requirements, persons reporting in good faith should be immune from liability for compliance.

ACEP recommends that:

- Emergency personnel assess patients for intimate partner violence, child and elder maltreatment and neglect.
- Emergency physicians, nurse practitioners, and physician assistants are familiar with signs and symptoms of intimate partner violence, child and elder maltreatment and neglect.
- Emergency medical services, medical schools, and emergency medicine residency curricula should include education and training in recognition, assessment and interventions in intimate partner violence, child and elder maltreatment and neglect.
- Hospitals and emergency departments (EDs) encourage research regarding the epidemiology of intimate partner violence, child and elder maltreatment and neglect as well as best practice approaches to screening, assessment and intervention for victims.
- Hospitals and EDs are encouraged to participate in collaborative interdisciplinary approaches for the screening, assessment, safety planning and intervention of victims of intimate partner violence, child and elder maltreatment and neglect. These approaches include the development of policies, protocols, and relationships with outside agencies that oversee the management and investigation of family violence.
• Hospitals and EDs should maintain appropriate education regarding state legal requirements for reporting intimate partner violence, child and elder maltreatment.
Drug “Take-back” Programs

The American College of Emergency Physicians (ACEP) believes that development and implementation of drug take-back programs for the safe disposal of unused controlled substances are an essential part of an effective approach to reducing the abuse of controlled substances. Further, ACEP believes that these programs should exist at no cost to patients and that there should be no legal sanctions against those who turn in unused controlled substances.

ACEP supports current legislation that endorses drug take-back programs, including the Secure and Responsible Drug Disposal Act of 2010 (“Disposal Act”) and relevant US Drug Enforcement Administration (DEA) regulations, such as registration of authorized collectors (i.e., DEA-regulated drug take-back sites) and the use of DEA Form 41 to record destruction.
POLICY STATEMENT

Due Process for Physician Medical Directors of Emergency Medical Services

The American College of Emergency Physicians (ACEP) considers Emergency Medical Services (EMS) a practice of medicine requiring physician oversight, reaffirms its commitment to physician medical director leadership in EMS, and supports the following principles:

- Physician medical directors in EMS systems who are practicing in accordance with the principles of responsible, ethical, evidence-based, patient-centered oversight of EMS systems must be afforded due process rights in their EMS oversight responsibilities or contracted services.

- Physician due process rights help to sustain and advance quality patient care and patient safety.

- The threat of termination or actual termination from EMS medical oversight services for physician medical directors in EMS systems without the right of a fair hearing prevents physician medical directors in EMS systems from fully advocating for patients for fear of retribution. Denial of due process rights for physician medical directors in EMS systems is a critical quality-of-care issue that negatively impacts patients.

- The right to due process is well established in the United States healthcare system, found in the Healthcare Quality Improvement Act of 1986 and affirmed in the 14th Amendment of the Constitution of the United States.

- Physician medical director in EMS contracts should include a due process clause. Employed or independently contracted physician medical directors in EMS systems should be protected from any clause in relevant contracts requiring that due process be waived unless the physician medical director is part of a group that chooses to terminate its group affiliation with the EMS system.
• ACEP encourages the Centers for Medicare and Medicaid Services (CMS) to guarantee due process rights for physician medical directors in EMS systems by making such rights un-waivable and irrevocable through the Medicare Conditions of Participation and other appropriate avenues.

• Employment due process protections subject to this policy are intended to be exclusive of due process procedures associated with hospital or other health care entity peer review policies and procedures.
Economic Credentialing

The American College of Emergency Physicians (ACEP) is committed to high-quality, cost-effective care and recognizes the responsibility of emergency physicians to patients and society to employ prudent stewardship of health care resources. It is essential that the performance of emergency physicians not be judged solely on economic factors (cost of care/resource utilization) unrelated to quality of care. This practice would seriously undermine the independence of physician judgment in providing care that is in the patient's best interest.

ACEP supports granting and renewing medical staff/hospital privileges based on appropriate training and ongoing professional competency that is patient centric.
Electronic Prescription Drug Monitoring Programs

The diversion of controlled substances from medical to non-medical purposes has become a significant public health problem. The American College of Emergency Physicians (ACEP) supports the use of electronic prescription drug monitoring programs (PDMP) and believes these systems should:

- Protect patient privacy.
- Not discourage a patient with a medical condition from seeking care.
- Support access to legitimate medical use of controlled substances.
- Ensure accurate, timely and complete data.
- Facilitate seamless data flow from the PDMP into the electronic health record for easy access by the provider (ideally for example, push systems).
- Be voluntary.
- Provide liability protection for the provider.
- Minimize burdensome requirements on the provider.
- Utilize a robust electronic monitoring system with intra-state linkages, easily accessible and navigable by providers seven days a week, twenty-four hours a day.
- Be limited to appropriate individuals and agencies including physicians and pharmacists and allow for an appropriately registered delegate to access the PDMP database as a surrogate for the prescribing provider.
- Not be used to evaluate a provider’s practice.
- Allow providers to monitor their own prescribing patterns and to identify potential unauthorized use.

ACEP opposes mandatory reporting of potential abuse to law enforcement because such reporting fundamentally conflicts with the appropriate role of providers in the provider-patient relationship.
The American College of Emergency Physicians (ACEP) encourages the use of national standards for data elements in emergency department (ED) information systems and emergency medical services (EMS) information systems. Adherence to prevailing data standards enables interoperable data exchanges between information systems used in clinical care and in public health. In addition to relevant clinical data elements, ED and EMS information systems should capture and record accurate demographic data, including granular data on patient gender, race, ethnicity, and language preference; which allows the optimization of practice resources to improve quality and achieve health equity.
Emergency Contraception for Women at Risk of Unintended and Preventable Pregnancy

ACEP supports the availability of non-prescription emergency contraception.
Policy Statement

Emergency Department Nurse Staffing

Approved October 2016
Revised October 2016
Reaffirmed September 2005

This policy statement was originally approved as a Board Motion titled “Nursing Shortage” in June 1988 and was approved as a policy statement in June 1999.

The American College of Emergency Physicians (ACEP) supports emergency department (ED) nurse staffing systems that provide adequate numbers of registered nurses who are trained and experienced in the practice of emergency nursing. Adequate nurse staffing levels should account for patient volume and acuity, the increased time demands of electronic medical record documentation, the number of patients boarding in the ED, patient/family education, and care coordination. Nurse staffing should be evaluated on these factors in addition to experience and skill mix of the ED staff.

Maintaining emergency department nurse staffing at levels comparable to inpatient and observation units is prudent to provide the same standard of care, treatment, and services to meet patient care and safety expectations. Contingency plans should provide additional nurse staffing for unanticipated emergency patient volume and/or acuity, and boarding of emergency patients awaiting community psychiatric, observation or inpatient bed placement. These plans should include the assignment of medical, surgical, and ICU nurses in addition to behavioral health personnel to the ED, as needed to care for patients boarded in the ED.

Emergency department staffing models should account for experience in emergency nursing as well as the proportion of ancillary personnel available to support the emergency nursing staff.
Emergency Department Observation Services

Financial Disclosure

Emergency department (ED) patients frequently require services beyond their initial ED care to determine the need for inpatient admission. These distinct and reimbursable services may include but are not limited to: further diagnostic evaluation, continued therapy or management of acute psycho-social issues.

To promote quality of care and patient safety for ED observation patients, the American College of Emergency Physicians (ACEP) supports the following principles:

• Observation of appropriate ED patients in a dedicated ED observation area, instead of a general inpatient bed or an acute care ED bed, is a "best practice" that requires a commitment of staff and hospital resources.
• An emergency physician and emergency nurse should direct ED observation areas with clearly defined administrative responsibilities for the unit.
• Written policies and procedures for the ED observation area should be approved by appropriate ED and hospital medical staff representatives.
• ED observation area policies and procedures should address the following:
  o Patient criteria for admission into the unit, discharge from the unit, and admission to an inpatient bed;
  o A clear statement of which physician bears clinical responsibility for each patient in the area;
  o A clear delineation of emergency physician and nursing staff roles and responsibilities throughout the day – including how care will be transferred between providers;
  o Circumstances that require notification of the physician who is responsible for the patient;
  o Maximum allowable length of stay in the unit and means to address outliers; and
  o A description of how utilization and relevant quality measures will be monitored and reported.
• ED observation areas should have adequate space, staffing, equipment, and supplies appropriate for the conditions being managed.
• Mechanisms should be in place to expedite the discharge or the transfer of patients to an inpatient bed, when appropriate.
The American College of Emergency Physicians (ACEP) supports the use of patient advocates in the emergency department (ED). If EDs choose to use patient advocates, there are a number of ways in which patient advocates can contribute to patient comfort, satisfaction, education and safety, including the following:

- Patient experience and comfort
- Patient complaints and compliments/service recovery
- Patient protection and advocacy services
- Discharge planning/readmission reduction
- Community health and support services referrals
- Education, including disease-specific education

ACEP recognizes that there are a variety of training programs, commensurate with responsibilities, to prepare individuals for patient advocacy services in the ED. At a minimum, patient advocates in the ED should receive training in customer service and be able to effectively communicate the ED mission and flow process, in addition to training for specific job functions.
Emergency Department Planning and Resource Guidelines

The purpose of this policy is to provide an outline of, as well as references concerning the resources and planning needed to meet the emergency medical care needs of the individual and the community.

Emergency departments* must possess the staff and resources necessary to evaluate all individuals presenting to the emergency department (ED). Emergency departments must also be able to provide or arrange treatment necessary to attempt to stabilize emergency patients who are found to have an emergency medical condition. Because of the unscheduled and episodic nature of health emergencies and acute illnesses, experienced and qualified physician, nursing, and ancillary personnel must be available 24 hours a day to serve those needs.

Emergency departments also provide treatment for individuals whose health needs are not of an emergent nature, but for whom EDs may be the only accessible or timely entry point into the broader health care system. EDs provide evaluation to anyone who believes they have an emergency condition under the prudent layperson standard and in accordance with EMTALA. Accessing an ED for care is an option exercised by patients seeking available high-quality services.

The American College of Emergency Physicians (ACEP) believes that:

- Emergency medical care must be available to all members of the public.
- Access to appropriate emergency medical and nursing care must be unrestricted.
- A smooth continuum should exist among prehospital providers, ED providers, and providers of definitive follow-up care.
- Evaluation, management, and treatment of patients must be appropriate and expedient.
- Resources should exist in the ED to accommodate each patient from the time of arrival through evaluation, decision-making, treatment, and disposition.

* These guidelines are intended to apply to either hospital-based or free-standing emergency departments open 24 hours a day.
• EDs should have policies and plans to provide effective administration, staffing, facility design, equipment, medication, and ancillary services.
• The emergency physicians, emergency nurse, and additional medical team members are the core components of the emergency medical care system. These ED personnel must establish effective working relationships with other health care providers and entities with whom they must interact. These include emergency medical services (EMS) providers, ancillary hospital personnel, other physicians, and other health care and social service resources.

Policy sections include:
I. Resources and Planning
   A. Responsibilities and Public Expectations
   1. EDs should be staffed by qualified personnel with knowledge and skills sufficient to evaluate and manage those who seek emergency care. EDs should be designed and equipped to facilitate this work.
   2. Timely emergency care by an emergency physician and emergency nursing staff physically present in the ED must be continuously available 24 hours a day, seven days a week.
   3. Emergency patient evaluation and stabilization must be provided to each individual who presents for such care. Consistent with applicable standards and regulations, the patient or applicable guarantor is financially responsible for the charges incurred in the course of this care.
   4. EDs should participate in an active public education program that details the intended scope of services provided at the facility.
   5. EDs should support existing EMS systems and provide medical direction where appropriate.

   B. Necessary Elements
      This section of the guidelines outlines elements of administration, staffing, design, and materials needed for the delivery of emergency care.

      1. Administration
         a. The emergency facility must be organized and administered to meet the health care needs of its patient population. A written organizational plan for the ED consistent with hospital
b. Operation of the ED must be guided by written policies and procedures.

c. The medical director of an ED†, in collaboration with the director of emergency nursing and with appropriate integration of ancillary services, must ensure that quality, safety, and appropriateness of emergency care are continually monitored and evaluated. The ED medical director should have oversight over all aspects of the practice of emergency medicine in an ED.

d. All new staff members working in an ED should receive a formal orientation program that addresses the mission of the institution, standard operating procedures of the ED, and the responsibilities of each member of the ED staff.

e. All emergency care personnel must maintain and enhance their professional knowledge and skills, with the goal of providing optimal care to patients.

f. The duties and responsibilities of physicians, nurses, and ancillary staff members in the ED must be defined in writing. The ED quality assurance program should provide for the evaluation and monitoring of each member of the emergency care team at regular intervals.

g. In accordance with applicable laws, regulations, and standards, the triage and screening of each patient who enters the facility seeking care must be performed by a physician, or by a specially trained registered nurse, nurse practitioner, or physician assistant, in accordance with the Emergency Medical Treatment and Active Labor Act (EMTALA) policies delineated in the medical staff bylaws or by the hospital board of trustees. Policy guidelines should be developed collaboratively by the medical director of emergency services and the director of emergency nursing.

h. Immediate evaluation and stabilization, to the degree reasonably possible, must be available for each patient who presents with an emergency medical condition.

i. The emergency physician is responsible for the medical care provided in the ED. This includes the medical evaluation, diagnosis, and recommended treatment and disposition of the emergency patient, as well as the direction and coordination of all other care provided to the patient. Medical care responsibility for a particular patient in the ED may be transferred to another physician if said responsibility has been assumed unambiguously. A registered nurse is responsible for the nursing care of each emergency patient to include assessment, planning, and evaluation of response to interventions.

j. The ED must maintain a control register or “log” identifying each individual who presents to the facility seeking emergency care. An electronic health record that captures and records this data is encouraged.

k. A legible and appropriate medical record must be established for every individual who presents for emergency care. This record must be retained as required by law and should remain promptly available to the emergency staff when needed.

†Where appropriate in this document, the term “chair, or chief, of the department of emergency medicine” may be substituted for the title “medical director of the emergency department.”

2. Staffing

a. Appropriately educated and qualified emergency care professionals, including a physician and a registered nurse, shall staff the ED during all hours of operation.

b. An emergency medical director shall direct the medical care provided in the ED. The medical director of the ED should:

• Be certified by the American Board of Emergency Medicine, the American Osteopathic Board of Emergency Medicine or possess comparable qualifications as established through the privilege delineation policy.

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• Possess competence in management and administration of the clinical services in an ED.
• Be a voting member of the executive committee of the hospital’s medical staff.
• Be knowledgeable about EMS operations and the regional EMS network.
• Be responsible for assessing and making recommendations to the hospital’s credentialing body related to the qualifications of emergency physicians with respect to the clinical privileges granted to them.
• Ensure that the emergency staff is adequately qualified and appropriately educated.

c. All physicians who staff the ED, including the medical director, should be subject to the hospital’s customary credentialing process and must be members of the hospital medical staff with clinical privileges in emergency medicine. Emergency physicians should have the same rights, privileges, and responsibilities as any other member of the medical staff, as outlined in the organized medical staff's various categories of medical staff membership.

d. Each physician should be individually credentialed by the hospital medical staff department in accordance with criteria contained in ACEPs policy on physician credentialing. All emergency physicians who practice in an ED must possess training, experience, and competence in emergency medicine sufficient to evaluate and initially manage and treat all patients who seek emergency care, consistent with the physician’s delineated clinical privileges.

e. The nursing care provided in the ED shall be directed by a registered nurse. The director of emergency nursing services should:
• Demonstrate evidence of substantial education, experience, and competence in emergency nursing. The Certified Emergency Nurse (CEN) credential is an excellent benchmark.
• Show evidence of competence in management and administration of the clinical services in an ED.
• Ensure that the nursing and support staff are appropriately educated and qualified.

f. Each nurse working in the ED should:
• Provide evidence of adequate previous ED or critical care experience or have completed an emergency care education program. The CEN credential is an excellent benchmark.
• Demonstrate evidence of the knowledge and skills necessary to deliver nursing care in accordance with the Standards of Emergency Nursing Practice.

g. The medical director of the ED and the director of emergency nursing must assess staffing needs on a regular basis. Patient census, injury/illness severity, arrival time, and availability of ancillary services and support staff are factors to be considered in the evaluation of emergency scheduling and staffing needs. Staffing patterns should accommodate the potential for the unexpected arrival of additional critically ill or injured patients. A plan should exist for the provision of additional nursing, physician assistant, advanced practice registered nurse, and physician support in times of disaster.

3. Facility

a. The ED should be designed to provide a safe environment in which to render care and should enable convenient access for all individuals who present for care.

b. The ED should be designed to protect, to the maximum extent reasonably possible consistent with medical necessity, the right of the patient to visual and auditory privacy.

c. Radiological, imaging, and other diagnostic services such as those outlined in Appendix 3 must be available within a reasonable period of time for individuals who require these services.
d. Laboratory services such as those outlined in Appendix 4 must be available within a reasonable period of time for the provision of appropriate diagnostic tests for individuals who require these services.

e. Appropriate signs consistent with the applicable regulations and laws should indicate the direction of the ED from major thoroughfares and whether the facility is designated as a specialized emergency care center.

f. Adequate provisions for the safety of the ED staff, patients, and visitors must be designed and implemented.

g. In accordance with regulations, translation and communication capabilities should exist for foreign languages and for the hearing impaired.

4. Equipment and Supplies
a. Equipment and supplies must be of high quality and should be appropriate to the reasonable needs of all patients anticipated by the ED.

b. Necessary equipment and supplies such as those outlined in Appendix 1 must be immediately available in the facility at all times.

c. Evidence of the proper functioning of all reusable direct patient care medical equipment must be documented at regular intervals.

5. Pharmacologic/Therapeutic Drugs and Agents
Necessary drugs and agents such as those outlined in Appendix 2 must be immediately available. A mechanism must exist to identify and replace all drugs before their expiration dates.

6. Ancillary Services
a. Lab
b. Radiology
c. Anesthesia*
d. Respiratory Therapy*
e. Electrocardiography
   *may not be applicable to freestanding EDs

C. Relationships and Responsibilities

1. Responsibilities for the Continuity of Patient Care
Emergency care begins in the prehospital setting, continues in the ED, and concludes when responsibility for the patient is transferred to another physician or the patient is discharged. To promote optimal care of emergency patients, this transfer of responsibility should be accomplished in an effective, orderly, and predictable manner. This section describes the relationships that should exist between facilities and providers for proper continuity of care.

a. Prehospital Setting
   • Prehospital emergency care should be provided consistent with the ACEP policy, “Medical Direction of Emergency Medical Services.”
   • EDs must be a designated part of the EMS and community disaster plans and must have roles defined by the local EMS/disaster coordinating body. Protocols and procedures should be in place defining the EDs interface with the EMS system.
   • Patients should be transported to the nearest appropriate ED in accordance with applicable laws, regulations, and guidelines.
• When ambulance services are used to transport patients to an ED, a communication system such as a two-way radio, cellular phone, or other appropriate means should be available to permit notice of arrival or advance information concerning critically ill or injured patients.

• Transport personnel should provide complete written or electronic clinical documentation of all prehospital care provided to the patient. A copy of the document should be immediately available on transfer of care to the staff of the ED and should be included in the patient’s permanent emergency medical record.

b. Emergency Facility

• ED personnel must be familiar with medical care protocols used by the prehospital providers in their community.

• All individuals with potentially lethal or disabling illnesses or injuries or other potential emergency medical conditions who present or are brought to the facility must be evaluated promptly. Appropriate measures must be initiated to stabilize and manage these patients.

c. Patient Disposition

• Appropriately qualified physicians who will accept responsibility for the care of patients must be identified in advance by the hospital and its medical staff for patients requiring admission or transfer to an inpatient bed or observation/holding unit. Consistent with applicable laws and regulations, the hospital and its medical staff must provide to the ED a list of appropriate “on-call” specialists who are required to respond to assist in the care of emergency patients within reasonable established time limits.

• Patients admitted or transferred to an observation/holding unit should be managed in a manner consistent with guidelines specified in ACEP’s related policies.

• Appropriately qualified physicians or other appropriate and qualified health care professionals practicing within the scope of their licensure who will accept follow-up responsibility for patients discharged from the ED should be identified in advance by the hospital and its medical staff. The hospital and its medical staff must provide the ED with a list of appropriate on-call specialists or other appropriate referral services who will render follow-up services to ED patients within a reasonable period of time after discharge.

• All patients discharged or transferred from an ED must have specific, printed, or legibly written aftercare instructions.

d. Transfer

• When patient transfer is indicated, the emergency facility must have a written plan for transferring patients in a vehicle with appropriate patient care capabilities including life support (e.g., ambulance, advanced life support, basic life support, fixed-wing, and rotor). When necessary, means should be available to provide nursing or physician staffing of transfer vehicles. Medical records necessary for ongoing care must accompany the patient; if these are not available at the time of transfer, they must be expeditiously provided to the receiving facility (e.g., by fax transmission) in accordance with EMTALA.

• Patients with potentially lethal or disabling conditions or other emergency medical conditions must not be transferred from an emergency facility unless appropriate evaluation and stabilization procedures have been initiated within the capability of the facility. Transfer of patients to a facility with greater capability and resources should be
arranged as necessary.

- All transfers must comply with local, state, and federal laws and be consistent with ACEP policies related to patient transfer.

**Figure 1  SUGGESTED EQUIPMENT AND SUPPLIES FOR EDs**

*The rooms, equipment, instruments, and supplies listed below are only suggested. Each of the items should be located in or immediately available to the area noted. This list does not include routine medical/surgical supplies such as adhesive bandages, gauze pads, and suture material. Nor does it include routine office items such as paper, desks, paper clips, and chairs.*

**Entire Department**

- Central station monitoring capability
- Physiological monitors
- Blood flow detectors
- Defibrillator with monitor and battery
- Thermometers
- Pulse oximetry
- Nurse-call system for patient use
- Portable suction regulator
- Infusion pumps to include blood pumps
- IV poles
- Bag-valve-mask respiratory and adult and pediatric size mask
- Portable oxygen tanks
- Blood/fluid warmer and tubing
- Nasogastric suction supplies
- Nebulizer
- Gastric lavage supplies, including large-lumen tubes and bite blocks
- Urinary catheters, including straight catheters, Foley catheters, Coude catheters, filiforms and followers, and appropriate collection equipment
- Intraosseous needles and placement equipment
- Lumbar puncture sets (adult and pediatric)
- Blanket warmer
- Tonometer
- Slit lamp
- Wheel chairs
- Medication dispensing system with locking capabilities
- Separately wrapped instruments (specifics will vary by department)
- Availability of light microscopy for emergency procedures
- Weight scales (adult and infant)
- Tape measure
- Ear irrigation and cerumen removal equipment
- Vascular Doppler
- Anoscope
- Adult and Pediatric “code” cart
- Suture or minor surgical procedure sets (generic)
- Portable sonogram equipment
• EKG machine
• Point of care testing
• X-ray viewing capabilities
• Chart rack
• Computer system
• Internet capabilities
• Patient tracking system
• Access to electronic health record
• Radio or other device for communication with ambulances
• Patient discharge instruction system
• Patient registration system/ Information services
• Intradepartmental staff communication system- pagers, mobile phones
• ED charting system for physician, nursing, and attending physician documentation equipment
• Reference materials including toxicology resource information
• Personal protective equipment- gloves, eye goggles, face mask, gowns, head and foot covers
• Linen (pillows, towels, wash cloths, gowns, blankets)
• Patient belongings or clothing bag
• Security needs –including restraints and wand-type or free standing metal detectors as indicated
• Equipment for adequate housekeeping

General Examination Rooms

• Examination tables or stretchers appropriate to the area. (For any area in which seriously ill patients are managed, a stretcher with capability for changes in position, attached IV poles, and a holder for portable oxygen tank should be used. Pelvic tables for GYN examinations.)
• Step stool
• Chair/stool for emergency staff
• Seating for family members or visitors
• Adequate lighting, including procedure lights as indicated
• Cabinets
• Adequate sinks for hand-washing, including dispensers for germicidal soap and paper towels
• Wall mounted oxygen supplies and equipment, including nasal cannulas, face masks, and venturi masks.
• Wall mounted suction capability, including both tracheal cannulas and larger cannulas
• Wall-mounted or portable otoscope/ophthalmoscope
• Sphygmomanometer/stethoscope
• Televisions
• Reading material for patients
• Biohazard-disposal receptacles, including for sharps
• Garbage receptacles for non-contaminated materials

Resuscitation Room

All items listed for general examination rooms plus:
• Access to adult and pediatric “code cart” to include appropriate medication charts
• Capability for direct communication with nursing station, preferably hands free
• Radiography equipment
• Radiographic viewing capabilities
• Airways needs
  Big-valve-mask respirator (adult, pediatric, and infant)
  Cricothyroidotomy instruments and supplies
  Endotracheal tubes, size 2.5 to 8.5 mm
  Fiberoptic laryngoscope, video laryngoscope or alternative rescue intubation equipment
  Laryngoscopes, straight and curved blades and stylets
  Laryngoscopic mirror and supplies
  Laryngeal Mask Airway (LMA)
  Oral and nasal airways
  Tracheostomy instrument and supplies

• Breathing
  Noninvasive Ventilation System (BIPAP/CPAP)
  Closed-chest drainage device
  Chest tube instruments and supplies
  Emergency thoracotomy instruments and supplies
  End-tidal CO2 monitor
  Nebulizer
  Peak flow meter
  Pulse oximetry
  Volume cycle ventilator

• Circulation
  Automatic physiological monitor, noninvasive
  Blood/fluid infusion pumps and tubing
  Cardiac compression board
  Central venous catheter setups/kits
  Central venous pressure monitoring equipment
  Cutdown instruments and supplies
  Intraosseous needles
  IV catheters, sets, tubing, poles
  Monitor/defibrillator with pediatric paddles, internal paddles, appropriate pads and other supplies
  Pericardiocentesis instruments
  Rapid infusion equipment
  Temporary external pacemaker
  Transvenous and/or transthoracic pacemaker setup and supplies
  12-Lead ECG machine

Trauma and miscellaneous resuscitation

• Blood salvage/autotransfusion device
• Emergency obstetric instruments and supplies
• Hypothermia thermometer
• Infant warming equipment
• Peritoneal lavage instruments and supplies
• Spine stabilization equipment to include cervical collars, short and long boards
• Therapeutic hypothermia modalities
• Warming/cooling blanket
Other Special Rooms

All items listed for general examination rooms plus:

- **Orthopedic**
  - Cast cutter
  - Cast and splint application supplies and equipment
  - Crutches
  - Extremity splinting and stabilization devices
  - Halo traction or Gardner-Wells/Trippe-Wells traction
  - Radiographic viewing capabilities
  - Traction equipment, including hanging weights and finger traps

- **Eye/ENT**
  - Eye chart
  - Ophthalmic tonometry device (applanation, Schiotz, or other)
  - Other ophthalmic supplies as indicated, including eye spud, rust ring remover, cobalt blue light
  - Slit lamp
  - Ear irrigation and cerumen removal equipment
  - Epistaxis instrument and supplies, including balloon posterior packs
  - Frazier suction tips
  - Headlight
  - Laryngoscopic mirror
  - Plastic suture instruments and supplies

- **OB-GYN**
  - Fetal Doppler and ultrasound equipment
  - Obstetrics/Gynecology examination light
  - Vaginal specula in various sizes
  - Sexual assault evidence-collection kits (as appropriate)
  - Suture material

**Figure 2**  SUGGESTED PHARMACOLOGICAL/THERAPEUTIC DRUGS FOR EDs

*These classes of drugs and agents are only suggested and will evolve as new therapies become available. The medical director of the ED and a pharmacy representative should develop a formulary of specific agents for use in an individual hospital's ED.*

<table>
<thead>
<tr>
<th>Analgesics</th>
<th>Anti-inflammatories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narcotic and non-narcotic</td>
<td>Steroidal/non-steroidal</td>
</tr>
<tr>
<td>Anesthetics</td>
<td>Bicarbonates</td>
</tr>
<tr>
<td>Topical, infiltrative, general</td>
<td>Blood Modifiers</td>
</tr>
<tr>
<td>Anticonvulsants</td>
<td>Anticoagulants, including thrombolytics</td>
</tr>
<tr>
<td>Antidiabetic agents</td>
<td>Hemostatics</td>
</tr>
<tr>
<td>Antidotes</td>
<td>Systemic</td>
</tr>
<tr>
<td>Antivenins</td>
<td>Topical</td>
</tr>
<tr>
<td>Antihistamines</td>
<td>Plasma expanders/ extenders</td>
</tr>
<tr>
<td>Anti-infective agents</td>
<td>Burn Preparations</td>
</tr>
<tr>
<td>Systemic/topical/post-exposure prophylaxis</td>
<td></td>
</tr>
</tbody>
</table>
Cardiovascular agents
  Ace inhibitors
  Adrenergic blockers
  Adrenergic stimulants
  Alpha/Beta blockers
  Antiarrhythmia agents
  Calcium channel blockers
  Digoxin channel blockers
  Diuretics
  Vasodilators
  Vasopressors
Cholinesterase Inhibitors
  Cholinesterase Inhibitors

Diagnostic agents
  Blood contents
  Stool contents
  Testing for myasthenia gravis
  Urine contents

Electrolytes
  Cation exchange resin
  Electrolyte replacements, parenteral and oral
  Fluid replacement solutions

Gastrointestinal agents
  Antacids
  Anti-diarrheals
  Emetics and Anti-emetics
  Anti-flatulent
  Anti-spasmodics
  Bowel evacuants/laxatives
  Histamine receptor antagonists
  Proton pump inhibitors
  Glucose elevating agents

Hormonal agents
  Oral contraceptives
  Steroid preparations
  Thyroid preparations
  Hypocalcemia and hypercalcemia management agents
Lubricants
Migraine preparations
Muscle relaxants
Narcotic antagonist
Nasal preparation
Neuromuscular blocking agents
Ophthalmologic preparations
Otic preparations
Oxytocin and tocolytics
Psychotherapeutic agents
Respiratory agents
  Antitussives
  Brochodilators
  Decongestants
  Leukotriene antagonist
Rh0(D) immune globulin
Salicylates
Sedatives and Hypnotics
Vaccinations
Vitamins and minerals

Figure 3  RADIOLOGIC, IMAGING, AND OTHER DIAGNOSTIC SERVICES

The specific services available and the timeliness of availability of these services for emergency patients in an individual hospital's ED should be determined by the medical director of the ED in collaboration with the directors of the diagnostic services and other appropriate individuals.

The following should be readily available 24 hours a day for emergency patients:

Standard radiologic studies of bony and soft-tissue structures

Emergency ultrasound services for the diagnosis of obstetric/gynecologic, cardiac and hemodynamic problems and other urgent conditions.
Cardiovascular services
   Doppler studies
   12-Lead ECGs and rhythm strips

Pulmonary services
   Arterial blood gas determination
   Peak flow determination
   Pulse oximetry

Fetal monitoring (nonstress test)/uterine monitoring in applicable facilities

The following services should be available on an urgent basis, provided by staff in the hospital or by staff to be called in to respond within a reasonable period of time:

Nuclear medicine

Radiographic
   Arteriography/venography
   Computed tomography or the ability to arrange for urgent CT scan
   Dye-contrast studies (intravenous pyelography, gastrointestinal contrast, etc.)
   Magnetic resonance imaging services or the ability to arrange for urgent MRI

Vascular/flow studies including impedance plethysmography

Figure 4  SUGGESTED LABORATORY CAPABILITIES

The medical director of the ED and the director of laboratory services should develop guidelines for availability and timeliness of services for an individual hospital's ED. The following laboratory capabilities are suggested for hospitals with 24-hour EDs. This list may not be comprehensive or complete. Point-of-care testing may be available for many of the below listed tests and may facilitate timely results.

Blood Bank
   Bank products availability
   Type and cross-matching capabilities

Chemistry
   Ammonia
   Amylase
   Anticonvulsant and other therapeutic drug levels
   Arterial blood gases
   Bilirubin (total and direct)
   B-type natriuretic peptide (BNP)
   Calcium
   Carboxyhemoglobin
   Cardiac isoenzymes (including creatine kinase- MB)
   Creatinine
   Electrolytes (blood, CSF, and urine)
   Ethanol
   Glucose (blood and CSF)
Lactate  
Lipase  
Liver-function enzymes (ALT, AST, alkaline phosphatase)  
Methemoglobin  
Osmolality  
Protein (CSF)  
Serum magnesium  
Urea nitrogen

**Hematology**
- Cell count and differential (blood, CSF, joint and other body fluid analysis)  
- Coagulation studies  
- Erythrocyte sedimentation rate
- Platelet count  
- Reticulocyte count  
- Sickle cell prep

**Microbiology**
- Acid fast smear/staining  
- Chlamydia and gonorrhea testing  
- Counterimmune electrophoresis for bacterial identification  
- Gram staining and culture/sensitivities
- Herpes testing  
- Strep screening  
- Viral culture  
- Wright stain

**Other**
- Hepatitis screening  
- HIV screening  
- CSF, joint and other body fluid analysis  
- Toxicology screening and drug levels
- Urinalysis  
- Mononucleosis spot  
- Serology (syphilis, recombinant immunoassay)  
- Pregnancy testing (qualitative and quantitative)
The American College of Emergency Physicians (ACEP) recommends close coordination between emergency physicians, health care facilities, and public health entities to educate the public regarding appropriate physician referrals and emergency department (ED) utilization for presumptive influenza.

To meet this goal, the following steps are recommended to minimize the impact of community wide influenza.

1. Ensure that emergency care and critical care providers [emergency medical services (EMS) personnel, nurses, physicians, and ancillary staff involved in direct patient care] are current in their influenza immunization.

2. Implement rapid screening and appropriate respiratory infection control interventions for all individuals arriving in the ED.

3. End the practice of boarding admitted patients in the ED when no inpatient beds are available, which will allow the ED to respond to increased patient volumes and maintain appropriate respiratory precautions. Hospitals operating at full capacity may be required to distribute boarded patients who do not require respiratory isolation to inpatient hallways, solariums, admission units, and other spaces outside the ED.

4. Develop robust communication methods with the Centers for Disease Control and Prevention (CDC) as well as state and local health departments that provide real-time, surveillance-derived guidance specific for ED care ( triage, testing, treatment, and disposition) for both seasonal influenza epidemics and pandemics.

5. Engage emergency physician participation in city, state, and national public health response planning.
6. Develop hospital-based and regional emergency response plans to appropriately manage increased patient volumes and containment precautions in the event of an epidemic. Such response plans may include alternate venues of care for low acuity patients and postponement of elective admissions.

7. Create regional command centers to monitor ambulance diversion status and local inpatient and ED capacity, and to coordinate regional ED response.
Emergency physicians and pediatricians provide medical care to many children with special needs because of chronic, complex medical illnesses. Care of these children may be complicated by the lack of patient history information, and unusual and uncommon disease processes.

To optimize emergency care of children with special needs, the American College of Emergency Physicians supports these principles:

- A mechanism should be available to quickly identify the child with special health care needs when that child presents for emergency care.
- Records of each child's special needs should be maintained in an accessible and usable format.
- The exact form in which relevant information is stored may vary depending on individual physician and patient preference.
- A universally accepted form should be disseminated for use by prehospital providers, parents, physicians, and other child advocates.

Figure 1 depicts the recommended form titled, "Emergency Information Form for Children with Special Needs." ¹

¹A similar policy suggesting use of this form has been adopted by the American Academy of Pediatrics.
**FIGURE 1**

*Computerized Emergency Information Form*

<table>
<thead>
<tr>
<th>Emergency Information Form For Children With Special Health Care Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Today’s date</strong></td>
</tr>
<tr>
<td><strong>Your name</strong>:</td>
</tr>
<tr>
<td><strong>Parent/Guardian</strong>:</td>
</tr>
<tr>
<td><strong>Address</strong>:</td>
</tr>
<tr>
<td><strong>Nickname</strong>:</td>
</tr>
<tr>
<td><strong>Parent/Guardian</strong>:</td>
</tr>
<tr>
<td><strong>Emergency contacts</strong>:</td>
</tr>
</tbody>
</table>

**CONSENT REQUIRED**: I have read and understand the information contained on this form.

**Patient ID**

<table>
<thead>
<tr>
<th>Provider’s Name</th>
<th>Specialties</th>
<th>All contact phone numbers (E-mail optional)</th>
<th>Fax</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary Care</strong>:</td>
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<tr>
<td><strong>Specialist 1</strong>:</td>
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<td><strong>Specialist 2</strong>:</td>
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<tr>
<td><strong>Others</strong>:</td>
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</tbody>
</table>

**Facilities & Providers**

<table>
<thead>
<tr>
<th>Provider’s Name</th>
<th>Specialties</th>
<th>All contact phone numbers (E-mail optional)</th>
<th>Fax</th>
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<tbody>
<tr>
<td><strong>Primary Pharmacy (brand, phone, other)</strong></td>
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<tr>
<td><strong>Anticipated primary emergency department (name, phone, other)</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Anticipated tertiary care center (name, phone, other)</strong></td>
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</table>

**Clinical Baseline**

- **Diagnosis/Problem list (all starting with most important)**:
  - Baseline physical findings
  - Baseline vital signs
  - Baseline neurologic status
  - Immunologic competency status
  - Synoptic of clinical status
  - Medications (doses, purpose)
  - Anesthetic prophylaxis (drug, dose, indication)
  - Significant baseline lab/imaging/diagnostic studies
  - Prosthetics, appliances, advanced technology devices, life support
  - Allergies: Medications, foods, substances to be avoided and why
  - Advanced directives (include date of last review)
  - Procedures to be avoided and why

**ED Management**

- **Describe common presenting problems/findings**
- **Suggested studies**
- **Treatment recommendations**

**Immunizations**

<table>
<thead>
<tr>
<th>Vaccines</th>
<th></th>
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<tbody>
<tr>
<td><strong>Vaccines</strong></td>
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</tr>
<tr>
<td><strong>Hep B dates</strong></td>
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<tr>
<td><strong>Hep A dates</strong></td>
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</tr>
<tr>
<td><strong>Meningococcal</strong></td>
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</tr>
<tr>
<td><strong>Pneumococcal-7</strong></td>
<td></td>
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<tr>
<td><strong>Other</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Check or enter at least two of the most likely disasters that could affect this patient:**

- Power failure
- Hurricane
- Tornado
- Earthquake
- Tsunami
- Blizzard
- Avalanche
- Land/Mud slides

**Disaster Planning & Drills**

<table>
<thead>
<tr>
<th>Disaster type</th>
<th>Example drills</th>
<th>Describe type of drill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire, forest fire</td>
<td>Fire drill</td>
<td></td>
</tr>
<tr>
<td>Infrastructure (roads, communication) damage</td>
<td>Infrastructure drill</td>
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<td>Shelter structure damage</td>
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<td>Food and water supply compromise</td>
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<td>Medication, supplies, equipment compromise</td>
<td>Medication drill</td>
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<td>Nuclear radiation accident (fallout, meltdown, contamination, detonation, etc.)</td>
<td>Nuclear drill</td>
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<td>Explosion, blast, Other (e.g., terrorism, biological accident, chemical accident, other weather)</td>
<td>Explosive drill</td>
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<td>Other (e.g., terrorism, biological epidemic/accident, chemical accident, other weather event)</td>
<td>Other drill</td>
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**Other (describe)**

| Other (describe) | |

**Disaster drills reviewed or practiced with patient. Documentation of completed drills and planned dates for future drills.**

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<th>Date</th>
<th>Disaster type</th>
<th>Example drills</th>
<th>Describe type of drill</th>
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<td>electric generator use</td>
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**Other (describe)**
Emergency Medical Services Interfaces with Health Care Systems

Originally approved February 2018, replacing the following rescinded policy statements:

- EMS Regionalization of Care (2013-2018)
- Interfacility Transportation of the Critical Care Patient and Its Medical Direction (1999-2018)

The American College of Emergency Physicians (ACEP) believes that Emergency Medical Services (EMS) constitute an integral component in the continuum of acute medical care, and supports the following principles:

- EMS plays an essential role in the clinically effective, fiscally responsible regionalization of healthcare, providing acute medical assessment and interventional care contemporaneous with navigation of patients. Patients, particularly those with time-critical conditions, are best served in geographically appropriate health care facilities having the specialized capabilities and services, either on site or via appropriate communications modalities, required for their evidence-based, optimal clinical outcomes. Appropriate funding of coordinated continuum of care systems (e.g., trauma systems) is essential to promoting the availability of regionalization of healthcare.

- EMS systems must have significant involvement, funding, and leadership decision-making authority in any regionalized system of healthcare to best provide necessary out-of-hospital acute assessment and care to patients, including safe, timely navigation of patients.

- EMS destination protocols must be constructed with the substantive leadership of the EMS system’s physician medical director(s), always based primarily upon evidence-based clinical rationale, factoring geographical operational realities.

- Healthcare facility requests for diversion of EMS transported patients are requests, not legal requirements, for EMS professionals operating with the leadership of the EMS system’s physician medical director. Diversion requests should be kept to minimums in frequency and duration. Diversion request parameters that can be honored clinically and/or operationally are to be established by the EMS system’s physician medical director(s). Of particular note, hospitals should not seek or expect relief from inpatient census spikes and/or inpatient movement inefficiencies by requesting diversion of EMS transported patients.
• Healthcare facility requests for diversion of EMS transported patients must be weighed against the capabilities and needs of the geographically applicable served area. In situations where a multitude of area hospitals are experiencing overload, the EMS physician medical director(s) may determine that all hospitals are “open” to EMS transported patients to avoid disproportionate burden on remaining hospitals also at or near capacity. In situations where a hospital is the unique provider of specialized clinical service(s) for a geographically applicable served area, the EMS physician medical director(s) may determine that such hospital remains “open” to EMS transported patients requiring such unique, specialized clinical service(s).

• Acute care to acute care or longer-term care interfacility EMS transportation of a patient represents an important component in that patient’s treatment plan. Careful consideration must be given to the patient’s present clinical care needs, factoring ongoing needs and those that could reasonably, potentially arise during the time of interfacility transport. Appropriate clinical personnel, assessment equipment, and treatment equipment are to accompany the patient in the clinically appropriate transport vehicle(s) involved in any interfacility transport.

• During an acute care to acute care or longer-term care interfacility EMS transport, the patient’s transferring physician ultimately bears the responsibilities for patient assessment in timely proximity to the transport, determining the clinically appropriate level and modality of the transport, securing legally appropriate acceptance of care for the patient at the destination healthcare facility, and communicating the salient details of the patient’s condition and care plan, with both transport personnel and receiving physician(s). Transferring physicians are highly encouraged to consult with a physician medical director of the EMS system(s) intended to be involved in the patient’s interfacility transport when considering necessary level of care during transport and the modality of transport (eg, ground or air rotor wing).

• During an acute care to acute care or longer-term care interfacility EMS transport, the patient’s receiving physician ultimately bears the responsibilities for accepting the patient they agreed to accept.

• During an acute care to acute care or longer-term interfacility EMS transport, the physician medical director(s) for the involved interfacility transport professionals ultimately bear(s) the responsibility to establish, maintain, and update necessary treatment protocols to promote the optimal provision of expected usual and customary interfacility transport care. Often, specialized critical care needs may be encountered in the interfacility transportation of patients. Physician medical director(s) of interfacility transportation services may choose to involve other specialty and subspecialty physicians in the crafting of clinical treatment protocols and/or in providing on-line medical consult services during transports.

• All EMS transports of patients should include the exchange of clinically relevant information, in oral and/or written formats as conditions warrant. Formal written documentation of provided care must be supplied to subsequently treating clinicians in clinically relevant timeframes.
Emergency Medicine Telehealth

The use of telehealth is increasing in emergency departments (EDs) throughout the United States, and emergency physicians are well suited to the provision of this care. This policy statement addresses many of the current issues regarding telehealth in the ED setting.

Emergency telehealth is the process of remotely caring for patients with acute illness, injury, and exacerbations of chronic diseases, including the initial evaluation diagnosis, treatment, prevention, coordination of care, disposition, and public health impact of any patient requiring expeditious care irrespective of a prior relationship. Emergency physicians are uniquely qualified to utilize emergency telehealth to provide medical care across the spectrum of conditions and severity. Telehealth eliminates distance and cost barriers, improving access to medical services that would otherwise not be consistently available or affordable.

**Credentialing and Licensing**

The American College of Emergency Physicians (ACEP) supports development of interstate medical licenses, which would be offered based on reciprocity among the states. As interstate licenses evolve, ACEP further supports the development of uniform rules governing the practice of medicine, physician discipline, and laws concerning malpractice throughout the United States to provide uniform, safe, and quality urgent and emergent patient care.

ACEP believes that all telehealth emergency physicians should abide by the same local and regional credentialing policies and meet all qualifications of licensure, board eligibility, and certification required as mandated by state and federal law. Many community hospitals already provide in-state telehealth emergency physicians with reciprocal credentialing as recognized by the Centers for Medicare and Medicaid Services (CMS) with deeming authority.

The scope of care provided should be consistent with the clinician’s level of training (eg, MD/DO, ARNP, PA-C, RN, etc.). Oversight requirements and auditing standards applicable to face-to-face clinical encounters may be applied to telehealth visits. Where telehealth laws require or permit different requirements, compliance should be maintained with those provisions.
Establishing a Physician-Patient Relationship

ACEP understands that a physician-patient relationship can be established in many ways. In simple terms, a physician-patient relationship is established by mutual agreement between a physician and a patient to collaborate on the patient’s health care. For the purpose of telehealth in the ED setting, this collaboration should occur in real-time, should be interactive, and should meet the following minimum criteria:

1. The identity of the patient as well as the patient’s physical location at the time of service should be verified.
2. Patients should be introduced to the physician caring for them and provided with the physician’s applicable credentials.
3. Consent for the delivery of telehealth, including limitations of care that may be provided remotely, should be documented. Any additional consent for use of specific telehealth technologies should also be obtained (consent for photo, video, text alerts, etc.).
4. Documentation of the patient encounter should meet the same standards as a traditional in-person encounter to maintain a complete and legible medical record that is available to the patient and other medical personnel as needed. This documentation may include:
   a. A reliable medical history, which may include past medical history, history of present illness, review of systems, current medications and allergies, if applicable.
   b. An appropriate and adequate examination to establish a diagnosis or underlying condition. The technology used must be adequate to enable an examination similar to that possible in a face-to-face encounter.
   c. A plan of care that includes discussion with the patient about various treatment options and the risks and benefits of any recommended treatments.
   d. Clinical impression or diagnosis based on the above-obtained information.
5. The treating physician must agree to oversee the prescription of any prescribed medications.
6. Appropriate follow-up care for the patient should be suggested and guidelines established for referral to a higher level of care when needed.
7. Complete and legible medical records are available to patients and other medical personnel.
8. Treating physicians must practice within the scope of their specialty and usual clinical practice.

Informing and Educating the Patient

ACEP believes that prior to the initiation of a telehealth encounter, the emergency physician or designee should inform and educate the patient (either in writing or verbally) about telehealth service compared to in-person care. This should include discussion of the nature of a telehealth encounter, timing of service, record keeping, scheduling, privacy and security, potential risks, mandatory reporting, the credentials of the distant site emergency physician, and billing arrangements. The information should be provided in simple language that can be easily understood by the patient. This is particularly important when discussing technical issues like encryption or the potential for technical failure.

The emergency physician or designee should set appropriate expectations regarding the telehealth encounter, including, but not limited to the scope of service, communication, and follow-up.

Patient Choice of Telehealth Provider

ACEP supports patient choices in the selection of a telemedicine provider, but with the understanding that by the nature of emergencies and hospital credentialing practices, a choice may not be available, as is also true of in-person staffing in emergency departments.
Fair Compensation

Reimbursement and coverage for telehealth services are inconsistent across the nation. Medicaid and private insurance coverage for telehealth services vary widely by state. Telehealth services enable care and expertise to be provided to patients in locations where needed specialty care is not otherwise accessible because of cost or lack of availability. ACEP believes that telehealth services, like other health care services, should be reimbursed at a fair market value for the services rendered.

Advocacy for Billing

ACEP supports current efforts by the American Medical Association and other stakeholders in advocating for appropriate billing and fair payment for services rendered by emergency physicians providing telehealth services.

Internet Prescribing

ACEP supports internet prescribing as long as the following criteria are met:

1. A proper physician-patient relationship has been established.
2. The patient encounter is appropriately documented, including patient history and evaluation that adequately supports a diagnosis, development of a clinically appropriate treatment plan, and justification for the medication prescribed. A record of medications prescribed should be included in the patient’s medical record. The treating physician must also agree to supervise the prescription of medications, and the patient must have access to follow-up with in-person care, as needed.
3. The treating physician performs a technology-assisted physical examination.
4. The physical examination is documented, and the patient’s record reflects findings that would be sufficient to meet typical documentation standards.
5. Patient evaluation is held to the same standard as a traditional encounter.
6. State and federal laws regarding controlled and scheduled medications are followed.

ACEP does not support internet-prescribing based solely on internet or electronic medical questionnaires without real-time interactive engagement between the physician and patient.

Supervision of Nurse Practitioners and Physician Assistants

Physician assistants (PAs) and nurse practitioners (NPs) can serve an integral role as members of the emergency care team, but do not replace the medical expertise provided by emergency physicians. With the aim of ensuring that all patients seeking telehealth services receive high quality care, the American College of Emergency Physicians (ACEP) endorses the utilization of PAs and/or NPs who are supervised by an American Board of Emergency Medicine/American Osteopathic Board of Emergency Medicine (ABEM/AOBEM) board-certified or board-eligible emergency physician according to ACEP guidelines.

Standards for Referrals for a Higher Level of Care

ACEP supports the limitation of urgent and emergent telehealth services provided to those services normally performed or those for which emergency physicians are credentialed in their normal physical practice. Provision of services via telehealth, whether by telephone or videoconferencing, is no different from traditional care, and physicians must refrain from attempting to make clinical determinations outside of their normal specialty domain. Since patients and/or families are participating in the telehealth service, they should be included in the decision-making processes. Treatment options should be clearly communicated. Patients, and families when appropriate, should be included in shared decision-making regarding treatment
options. When a patient needs a higher level of care, instructions on how to obtain that care should be available and provided, as needed.

Legal Considerations for Telehealth

It is important to note that practice location is defined by the patient locale (ie, since the telehealth physician typically must be licensed to practice medicine in the state, as well as potentially credentialed by a hospital or other healthcare facility where the patient is being evaluated) and the laws of that state in which the patient is physically located at the time of the evaluation will prevail. Until there is uniform telehealth governance throughout the United States, it is also prudent to be aware of federal and individual state reimbursement regulations and restrictions that affect billing practices. Emergency medicine practice sites that are requesting and receiving telehealth services for general or specialty services are encouraged to ensure that telehealth systems and teleconsultants meet all of the above recommendations, so as to provide safe, secure, ethical, legal, and seamless patient care.

Telehealth Resources

Review of Telehealth Literature Whitepaper, ACEP Emergency Telehealth Section, original 2018, edited August 2019


American Telemedicine Association. ATA Practice Guidelines for Live, On Demand Primary and Urgent Care

American Telemedicine Association. List of standards and guidelines from other organizations

Center for Telehealth and e-Health Law. Reimbursement Overview

Federation of State Medical Boards. Interstate Medical Licensure Compact and Legislative Status.

Hospital Peer Review Newsletter. December 1, 2013.


Emergency medicine is recognized as a specialty by the American Board of Medical Specialties and the American Osteopathic Association. Responsibilities of specialty status include accrediting graduate medical education training programs and credentialing physicians as certified specialists. These responsibilities require creating standards for competency and defining professional practice principles.

Emergency physicians provide care and make treatment decisions based on real time evaluation of patients’ history, physical findings and many diagnostic studies, including the interpretation of electrocardiographs, imaging studies and laboratory tests. Emergency physicians possess a wide range of skills to treat injuries and illnesses and perform many interventions including but not limited to resuscitative procedures and trauma stabilization in patients of all ages.

It is the role and responsibility of the American Board of Emergency Medicine (ABEM) and the American Osteopathic Board of Emergency Medicine (AOBEM) to set and approve the training standards, assess competency through board certification processes and establish professional practice principles for emergency physicians.
The American College of Emergency Physicians believes that there is currently a significant shortage of physicians appropriately trained and certified in emergency medicine.
The American College of Emergency Physicians recognizes the need for organ and tissue donation and procurement. Emergency medicine can play a key role in this process.

Hospitals and emergency departments should have policies and procedures that facilitate donation and procurement. Procedures should specify the roles of the physicians, hospital staff, surgery recovery teams, and organ procurement agencies.
Emergency Physician Contractual Relationships

The Importance of Good Contracting:
- The interests of patients are best served when emergency physicians practice in a stable, fair, equitable, and supportive environment.
- Quality patient care is best promoted within a framework of fair and appropriate contractual relationships among various involved parties.

Contractual Rights:
- ACEP supports the emergency physician receiving early notice of a problem with his or her performance and an opportunity to correct any perceived deficiency before disciplinary action or termination is contemplated.
- All entities contracting with or employing emergency physicians to provide clinical services, either indirectly or directly, should ensure an adequate and fair discovery process prior to deciding whether or not to terminate or restrict an emergency physician’s contract or employment to provide clinical services.
- Emergency physicians employed or contracted should be informed of any provisions in the employment contract or the contracting vendor’s contract with the hospital concerning termination of a physician’s ability to practice at that site. This includes any knowledge by the contracting vendor of substantial risk of hospital contract instability.
- Emergency physician contracts should explicitly state the conditions and terms under which the physician’s contract can be reassigned to another contracting vendor or hospital with the express consent of the individual contracting physician.
- The emergency physician should have the right to review the parts of the contracting entities’ contract with the hospital that deal with the term and termination of the emergency physician contract.

Billing Rights:
- The emergency physician should have the right to review what is billed and collected for his or her service regardless of whether or not billing and collection is assigned to another entity within the limits of state and federal law.
- Hospitals should disclose to physicians and/or the contracting vendor which networks, plans, etc. the hospital is contracting with, ie, which
networks consider the hospital to be “in-network.”

- It is the right of an emergency physician contracting entity to make an independent decision regarding all contractual arrangements that involve insurers and to be represented by legal counsel.
- Health care facilities should provide confidential complete transparency to the emergency physician of all facility charges that are billed as part of an emergency visit.

The Nature of the Contract:

- Business relationships that include emergency physicians are best defined within a written contract.
- The contracting parties should be ethically bound to honor the terms of any contractual agreement to which it is a party and to relate to one another in an ethical manner.
- Physician disciplinary, quality of care or credentialing issues pertaining to medical care must be reviewed and affirmed by a licensed emergency physician.
- The emergency physician is individually responsible for the ethical provision of medical care within the physician-patient relationship, regardless of financial or contractual relationships.
- Quality medical care is provided by emergency physicians organized under a wide variety of group configurations and with varying methods of compensation. ACEP does not endorse any single type of contractual arrangement between emergency physicians and the contracting vendor.
Contrary to common misperception emergency physicians in non-office-based clinical settings bear significant overhead expenses. These expenses include, but are not limited to, the following:

- Uncompensated and undercompensated care including that resulting from EMTALA mandates. CMS concluded that emergency physicians are not compensated for at least 55% of the time they spend treating patients.\(^1\)
- Administrative expenses including but not limited to coding, billing, collection, legal and accounting services.
- Physician management services including medical director duties, quality improvement, EMS director duties, medical staff services, and community relations.
- Personnel and payroll expenses including fringe benefits.
- Documentation expenses including employment of scribes, transcription costs, training, and supplies.
- Adoption and implementation of electronic medical record systems to improve patient care and satisfy meaningful use requirements.
- Medical equipment, materials, and supplies including depreciation.
- Office expenses including rent or mortgage expenses for office space, utilities, telephone, information services, and technical support.
- Practitioner recruitment expenses including travel, moving costs, and training.
- Professional books and journals, continuing medical education expenses, and licenses.
- Availability expenses. The emergency department must be appropriately staffed and operational 24 hours-a-day, 7 days-a-week whether any patients are present or not. Unlike other specialists that can be on call, emergency physicians must be physically present and ready to provide care at all times. This unique practice requirement incurs significant costs which cannot be allocated to a particular patient.
- Costs associated with the preparation for and participation in planning for regional and national disasters, including travel and lodging, vaccine/immunization updates, shift coverage, community support, and adherence to federal/state mandates.
• Expenses related to the support and adherence to mandated performance and quality measures required by hospital and regulatory agencies and third party payers.
• Expenses related to compliance with mandated patient satisfaction initiatives.
• Administrative costs required for adherence to compliance regulations, e.g., patient privacy issues.

1 The December 31, 2002 Federal Register final rule regarding the 2003 physician Medicare fee schedule (67 FR 79972). Response from CMS demonstrating its continued reliance upon fee schedule determinations made in previous years.
Emergency Physician Rights and Responsibilities

The American College of Emergency Physicians (ACEP) believes that high-quality emergency care is best provided when emergency physicians practice in a fair and equitable environment. To provide guidance to physicians and others with respect to contractual arrangements involving the practice of emergency medicine in any setting, ACEP hereby adopts this statement of Emergency Physician Rights and Responsibilities.

Emergency physicians typically, but not exclusively, practice in a hospital-based setting. In nearly all cases, such practice is pursuant to a contractual arrangement on which practice at the hospital is based. The legitimate purpose of such contracts is to ensure the efficient and reliable staffing of the emergency department (ED) or other practice setting. However, such contracts may limit or eliminate physicians’ rights under the medical staff bylaws and contain other provisions that may compromise the professional autonomy of physicians. Consequently, such contracts may harm the public interest.

This guidance should be of value to hospitals, physicians, and professional or business entities contracting with individual physicians or groups of physicians for the provision of emergency care in a healthcare facility. It is anticipated that these guidelines will benefit the profession and the public. These guidelines are not intended to dictate individual contracting practices; rather, ACEP members must make independent determinations regarding their employment and contractual relationships with hospitals, practice groups, and other entities based on their individual circumstances.

Rights of Emergency Physicians

1. Emergency physician autonomy in clinical decision making should be respected and should not be restricted other than through reasonable rules, regulations, and bylaws of his or her medical staff or practice group. This includes reasonable, good faith deviations from current, published ACEP Clinical Policies based upon the particular clinical situation in a given patient.
1. Emergency physician autonomy should not be restricted by cost-saving guidelines, rules, or protocols. The physicians must have the ability to do what they believe in good faith is in the patient’s best interest at all time.

2. Emergency physicians and their patients have a right to expect adequate emergency physician, nurse and ancillary staffing and equipment to meet the acuity and volume needs of the patients seen at the facility and to have the facility management provide support to improve patient safety. Emergency physicians should be provided such support and resources as necessary to render high-quality emergency care in any practice setting and shall not be subject to adverse action for bringing to the attention of responsible parties’ deficiencies in such support or resources, when done in a reasonable and appropriate manner.

3. Emergency physicians should be reasonably compensated for clinical and administrative services and such compensation should be related to the physician qualifications, level of responsibility, experience, and quality and amount of work performed.

4. Emergency physicians should not be required to purchase unnecessary, unneeded, or excessively priced administrative services from a hospital, contract group of any size, or other parties in return for privileges or patient referrals.

5. Emergency physicians should be provided periodic reports of billings and collections in their name and have the right to audit such billings, without retribution.

6. Emergency physicians should be accorded due process before any adverse final action with respect to employment or contract status, the effect of which would be the loss or limitation of medical staff privileges. Emergency physicians’ medical and/or clinical staff privileges should not be reduced, terminated, or otherwise restricted except for grounds related to their competency, health status, limits placed by professional practice boards or state law.

7. Emergency physicians who practice pursuant to an exclusive contract arrangement should not be required to waive their individual medical staff due process rights as a condition of practice opportunity or privileges.

8. Emergency physicians should not be required to render anything of value in return for referral of patients by a healthcare facility (e.g., through the awarding of an exclusive contract) other than assurances of reliability and high-quality care; nor should emergency physicians receive anything of value in return for referrals of patients to others.

9. Emergency physicians, both independent contractors and physician employees, should be represented in the contract negotiation process between hospitals and those payers providing reimbursement for emergency services. Emergency physicians are entitled to fair rights and reimbursement pursuant to such contract agreements.

10. Emergency physicians should not be required to agree to any unreasonable restrictive agreement that limits the right to practice medicine for a specified period of time or in a specific area after the termination of employment or contract to provide services as an emergency physician. Such restrictions are not in the public interest.

Responsibilities of Emergency Physicians

1. Emergency physicians bear a responsibility to practice emergency medicine in an ethical manner consistent with contemporary, evidence-based emergency medicine principles.

2. Emergency physicians must maintain current emergency medicine knowledge and skills through independent study, continuing medical education (CME) activities and Maintenance of Certification (MOC) standards.

3. Emergency physicians should exhibit attributes of professionalism in the healthcare facility where their practice is based including: altruism, accountability, duty, honor, integrity, respect, and positive patient experience.

4. Emergency physicians should participate in medical staff and/or hospital affairs.

5. Emergency physicians should gain knowledge of the basic principles of documentation, coding and reimbursement, practice expense costs, and other applicable physician administration costs, to assist in
accurate billing for their services and to properly interpret practice revenue and expense information which they receive.

6. Emergency physicians should gain a working knowledge of national quality and performance measures and patient safety.

7. Emergency physicians must maintain knowledge of and compliance with major federal and state regulations that affect the practice of emergency medicine, such as the Emergency Medical Treatment and Labor Act (EMTALA) and the Health Insurance Portability and Accountability Act (HIPAA) of 1996.

Emergency physicians who are employees, contractors, or principals of a practice group, have certain duties and responsibilities to the group and are accountable to the best interests of the group. Efforts detrimental to the welfare of the group are inappropriate and may expose the individual to legal liability.
The American College of Emergency Physicians believes that the best interests of patients are served when emergency physicians practice in a fair, equitable, and supportive environment.

The emergency physician's well-being is of fundamental importance to success and longevity in a career in emergency medicine. Well-being is adversely affected by constantly rotating shifts. The effects of rotating shifts are cumulative, and represent one of the most important reasons physicians leave the specialty. The College therefore endorses the following principles:

- Shifts should be scheduled, whenever possible, in a manner consistent with circadian principles. For most settings, scheduling isolated night shifts or relatively long sequences of night shifts is recommended.
- Overly long shifts or inordinately long stretches of shifts on consecutive nights should be avoided whenever possible. In most settings, shifts should last twelve hours or less. Schedulers should take into consideration the total number of hours worked by each practitioner and the intervals of time off between shifts. ACEP strongly recommends that practitioners have regularly scheduled periods of at least 24 hours off work.
- Rotating shifts in a clockwise manner (day to evening to night) is preferred. This applies even when there are intervening days off.
- Night shift workers' schedules must be designed carefully to provide for anchor sleep periods, and those workers' daytime responsibilities should be held to an absolute minimum. Groups should consider various incentives to compensate those working predominantly night shifts.
- Schedules for emergency physicians should take into account factors such as ED volume, patient acuity levels, non-clinical responsibilities, and individual physician's age.
- A place to sleep before driving home after night shifts should be provided.

References
Emergency physicians have a responsibility to patients and society to be prudent stewards of the health care resources entrusted to them. To ensure the protection of patient interests under the constraints of limited resources, ACEP endorses the following.

- The best medical interest of the patient should be foremost in any clinical decision-making process.

- Criteria for appropriate use of finite resources should include (1) the urgency of the patient's medical condition; (2) the likely treatment benefit to the patient; (3) the likely burdens and costs of treatment to the patient; and (4) the costs to other patients and to society.

- Emergency physicians should not allocate health care resources on the basis of the patient's ability to pay, contribution to society, past use of resources, or responsibility for his/her medical condition.
The emergency physician's principal legal and ethical responsibility is to patients who present to be seen and treated in the emergency department. ACEP believes that:

- An emergency physician must be available at all times to respond to emergency department patients in a timely and safe manner.
- It is the responsibility of the hospital administration and the organized medical staff to assure adequate medical care for those emergency situations that occur in other hospital departments and areas.
- Hospital medical emergency response plans and teams should be organized in a manner that is not reliant upon an emergency physician unless the emergency department and its patients' medical needs can be safely provided for at all times.
- Emergency physicians shall have adequate legal protection when responding to in-hospital emergencies outside the emergency department.
Emergency Ultrasound Certification by External Entities

The American College of Emergency Physicians (ACEP) believes that certification by non-emergency medicine external bodies, organizations, societies or other medical specialties or upon short course completion is inadequate to demonstrate comprehensive training, knowledge, and skill in the practice of emergency ultrasound.

Emergency ultrasound comprises a set of focused applications utilized to diagnose life-threatening conditions, guide invasive procedures, and treat emergency medical conditions. Both residency-based and practice-based pathways exist for emergency physicians to demonstrate competency in emergency ultrasound as detailed in the ACEP policy statement, “Emergency Ultrasound Guidelines.”

Any non-emergency medicine external certification process would impede the use of this critical clinical skill and adversely affect patient care.

ACEP strongly opposes the use of any non-emergency medicine external certification process to validate competency in the use of emergency ultrasound. Furthermore, any such process should not be utilized as a requirement for hospital privileges or credentialing, nor for reimbursement by accountable care organizations (ACOs), managed care organizations (MCOs), the Centers for Medicare and Medicaid Services (CMS) or other third-party payers.
Emergency Ultrasound Imaging
Criteria Compendium

Revised October 2014

Originally approved April 2006

- Aorta
- Cardiac
- Kidney and Bladder
- Lung and Pleura
- Ocular
- Pelvic
- Right Upper Quadrant
- Soft Tissue/Musculoskeletal
- Trauma
- Ultrasound-Guided Procedures
- Venous Thrombosis

Developed by the following members of ACEPs Emergency Ultrasound Section:

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ACEP Emergency Ultrasound Imaging Criteria:

Aorta

1. **Introduction**

The American College of Emergency Physicians (ACEP) has developed these criteria to assist practitioners performing emergency ultrasound studies (EUS) of the abdomen and retroperitoneum in patients suspected of having an acute abdominal aortic aneurysm (AAA).

Ultrasound has been shown to accurately identify both aneurysmal and normal abdominal aortas. In most cases, EUS is used to identify or exclude the presence of infrarenal AAA. In some cases, EUS of the abdominal aorta can also identify the presence of suprarenal AAA or of distal dissection. If thoracic aortic aneurysm or proximal dissection is suspected, these may be detected using transthoracic techniques or may require additional diagnostic modalities. Patients in whom AAA is identified also need to be assessed for free intraperitoneal fluid.

EUS evaluation of the aorta occurs in conjunction with other EUS applications and other imaging and laboratory tests. It is a clinically focused examination, which, in conjunction with historical and laboratory information, provides additional data for decision-making. It attempts to answer specific questions about a particular patient’s condition. While other tests may provide information that is more detailed than EUS, have greater anatomic specificity, or identify alternative diagnoses, EUS is non-invasive, is rapidly deployed and does not entail removal of the patient from the resuscitation area. Further, EUS avoids the delays, costs, specialized technical personnel, the administration of contrast agents and the biohazardous potential of radiation. These advantages make EUS a valuable addition to available diagnostic resources in the care of patients with time-sensitive or emergency conditions such as acute AAA.

2. **Indications/Limitations**

a. **Primary**
   
i. The rapid evaluation of the abdominal aorta from the diaphragmatic hiatus to the aortic bifurcation for evidence of aneurysm.

b. **Extended**
   
i. Abdominal aortic dissection
   ii. Thoracic aortic dissection
   iii. Intraperitoneal free fluid in the event that AAA is identified
   iv. Iliac, splenic, and other abdominal artery aneurysms

c. **Contraindications**
   
i. There are no absolute contraindications to EUS of the abdominal aorta. There may be relative contraindications based on the patient’s clinical situation.

d. **Limitations**
   
i. EUS of the aorta is a single component of the overall and ongoing resuscitation. Since it is a focused examination, EUS does not identify all abnormalities or diseases of the aorta. EUS, like other tests, does not replace clinical judgment and should be interpreted in the context of the entire clinical picture. If the findings of the EUS are equivocal additional diagnostic testing may be indicated.

   ii. Examination of the aorta may be technically limited by
      – Obese habitus
− Bowel gas
− Abdominal tenderness
− Abdominal dressings

e. Pitfalls

i. While most aneurysms are fusiform, extending over several centimeters of aorta, saccular aneurysms are confined to a short focal section of the aorta, making them easily overlooked. This may be avoided by methodical, systematic real-time scanning through all tissue planes in both transverse and longitudinal sections.

ii. When bowel gas or other technical factors prevent a complete systematic real-time scan in orthogonal planes, these limitations should be identified and documented. Such limitations may mandate further evaluation by alternative methods, as clinically indicated.

iii. A small aneurysm does not preclude rupture. A patient with symptoms consistent with acute AAA and an aortic diameter greater than 3.0 cm should undergo further diagnostic evaluation.

iv. The absence of free intraperitoneal fluid does not rule out acute AAA as most acute AAAs presenting to the ED do not have free peritoneal fluid.

v. The presence of retroperitoneal hemorrhage cannot be reliably identified by EUS.

vi. If an AAA is identified, it still may not be the cause of a patient’s symptoms.

vii. The presence of free intraperitoneal fluid with an AAA, does not necessarily mean that the aneurysm is the source of the fluid.

viii. Oblique or angled cuts exaggerate the true aortic diameter. Scanning planes should be obtained that are either exactly aligned with, or at exact right angles to, the main axis of the vessel.

ix. Off-plane longitudinal images and transverse images not obtained at the level of maximal dilatation will underestimate the true diameter of the vessel.

x. With a tortuous or ectatic aorta “longitudinal” and “transverse” views should be obtained with respect to the axis of the vessel in order to avoid artifactual exaggeration of the aortic diameter.

xi. Large para-aortic nodes may be confused with the aorta and/or AAA. They usually occur anterior to the aorta, but may be posterior, displacing the aorta away from the vertebral body. They can be distinguished by an irregular nodular shape, identifiable in real-time. If color flow Doppler is utilized, nodes will not demonstrate high-velocity luminal flow.

xii. Longstanding thrombus within an AAA may become calcified and mistaken for bowel outside the aorta, thereby obscuring the aortic walls and preventing recognition of the aneurysm. Gain should be adjusted so that blood within the lumen of the vessel appears anechoic (ie, black).

3. Qualifications and Responsibilities of the Clinician Performing the Examination
EUS of the aorta provides information that is the basis of immediate decisions about further evaluation, management, and therapeutic interventions. Because of its direct bearing on patient care, the rendering of a diagnosis by EUS represents the practice of medicine, and therefore is the responsibility of the treating physician.

Due to the time-critical and dynamic nature of acute AAA, emergent interventions may be mandated by the diagnostic findings of EUS of the aorta. For this reason, EUS of the aorta should occur as soon as the clinical decision is made to evaluate the patient with ultrasound.

Physicians of a variety of medical specialties may perform EUS of the aorta. Training should be in accordance with specialty or organization specific guidelines. Physicians should render a diagnostic interpretation in a time frame consistent with the management of acute AAA, as outlined above.

4. Specifications for Individual Examinations
   a. General – Simultaneously with other aspects of resuscitation, ultrasound images are obtained demonstrating the abdominal aorta from the diaphragmatic hiatus to the bifurcation.

   b. Technique
      i. Identification. The aorta is most easily identified and most accurately measured in the transverse plane. The transverse image of the vertebral body is identified. In this plane, the normal aorta is a circular, hypoechoic structure identified adjacent to the left anterior surface of the vertebral body.

      ii. Real-time scanning technique.
          1. Overview. The abdominal aorta extends from the diaphragmatic hiatus to the bifurcation. The surface anatomy corresponding to these points are the xiphoid process and the umbilicus. If possible, the probe is held at right angles to the skin and slid from the xiphoid process inferiorly to the umbilicus, providing real-time systematic scanning through all planes from the diaphragm to the bifurcation. The probe is then rotated 90 degrees and images are obtained in the longitudinal plane by rocking or sliding the probe from side-to-side.

          2. Details of technique. In the subxiphoid region, the liver often provides a sonographic window. A cooperative patient may be asked to take a deep breath, which augments this window by lowering the diaphragm and liver margin. Frequently, gas in the transverse colon obscures the midsection of the aorta in a roughly 5-centimeter band inferior to the margin of the liver. This may preclude an uninterrupted and/or complete visualization of the aorta. In order to circumvent the gas-filled transverse colon, it may be necessary to use a fanning technique in the windows above and below this sonographic obstacle. Alternatively, applying downward constant pressure with the probe, in conjunction with peristalsis, may dissipate bowel gas.

          After a systematic real-time scan in transverse plane, the aorta should be scanned longitudinally. In this view, abnormalities in the lateral walls may be missed, but focal abnormalities in the anterior or posterior walls and absence of normal tapering are more easily appreciated.

          3. Additional windows. If bowel gas and/or truncal obesity interfere with visualization of the aorta in the anterior midline, the emergency physician should use any probe position that affords windows of the aorta. In particular, two additional windows can be used. First, in the right midaxillary line intercostal views using the liver as an acoustic window.
may provide alternate images of the aorta. To optimize this approach, the patient may be placed in a left decubitus position. On this view, the aorta will appear to be lying “deep” to the inferior vena cava. Second, the distal aorta can sometimes be visualized with the probe placed in a left paraumbilical region.

Evaluation of the ascending aorta, aortic arch, and descending aorta for dissection or aneurysm can be performed using parasternal and suprasternal windows. These are discussed in the “Cardiac” criteria.

4. Measurements. The aorta (and other abdominal arteries) are measured from the outside margin of the wall on one side to the outside margin of the other wall. In most instances, the anterior and posterior walls are usually more sharply defined, so an antero-posterior measurement is most precise. However, since many AAAs have larger side-to-side than antero-posterior diameters, measurements are obtained in both directions when possible. The maximum aortic diameter should be measured in both transverse and longitudinal planes.

5. Additional technical considerations. – If an AAA is identified, evaluation of the peritoneal cavity for free fluid (using the approach of the Focused Assessment by Sonography in Trauma) should be made.

5. Documentation

In performing EUS of the aorta, images are interpreted by the treating physician as they are acquired and are used to guide contemporaneous clinical decisions. Such interpretations should be documented in the medical record. Documentation should include the indication for the procedure, a description of the organs or structures identified and an interpretation of the findings. Images should be stored as a part of the medical record and done so in accordance with facility policy requirements. Given the often-emergent nature of such ultrasound examinations, the timely delivery of care should not be delayed by archiving ultrasound images.

6. Equipment Specifications

Curvilinear abdominal or phased array ultrasound probes can be utilized. A 2.0 – 5.0 MHz multifrequency transducer is ideal. The lower end of this frequency range may be needed in larger patients, while the higher frequency will give more detail in those with low body mass index. Both portable and cart-based ultrasound machines may be used.

7. Quality Control and Improvements, Safety, Infection Control and Patient Education

Policies and procedures related to quality, safety, infection control and patient education should be developed in accordance with specialty or organizational guidelines. Specific institutional guidelines may be developed to correspond with such guidelines.

Cardiac

1. Introduction

The American College of Emergency Physicians (ACEP) has developed these criteria to assist practitioners performing emergency ultrasound studies (EUS) of the heart in patients suspected of having emergent conditions where cardiac imaging may influence diagnosis or therapy.

The primary applications of cardiac EUS are in the diagnosis or exclusion of pericardial effusion, cardiac tamponade and the evaluation of gross cardiac function. Increasingly, evaluation of the right ventricle and aortic root are considered integral parts of focused cardiac EUS, and evaluation of the
inferior vena cava for fluid status may be considered part of the cardiac exam. Cardiac EUS is an integral component of patient evaluation and/or resuscitation. It is a clinically focused examination, which, in conjunction with historical and laboratory information, provides additional data for decision-making. It attempts to answer specific questions about a particular patient’s condition. Other diagnostic or therapeutic interventions may take precedence or may proceed simultaneously with the cardiac EUS evaluation. While other tests may provide information that is more detailed than EUS, have greater anatomic specificity, or identify alternative diagnoses, EUS is non-invasive, is rapidly deployed and does not entail removal of the patient from the resuscitation area. Further, EUS avoids the delays, costs, specialized technical personnel, the administration of contrast agents and the biohazardous potential of radiation. These advantages make EUS a valuable addition to available diagnostic resources in the care of patients with time-sensitive or emergency conditions such as acute cardiac disease. In addition, cardiac EUS is an integral component of the trauma EUS evaluation.

2. Indications/ Limitations
   a. Primary
      i. Detection of pericardial effusion and/or tamponade
      ii. Evaluation of gross cardiac activity in the setting of cardiopulmonary resuscitation
      iii. Evaluation of global left ventricular systolic function
   b. Extended
      i. Gross estimation of intravascular volume status and cardiac preload.
      ii. Identification of acute right ventricular dysfunction and/or acute pulmonary hypertension in the setting of acute and unexplained chest pain, dyspnea, or hemodynamic instability.
      iii. Identification of proximal aortic dissection or thoracic aortic aneurysm.
      iv. Procedural guidance of pericardiocentesis, pacemaker wire placement and capture.
   c. Contraindications
      There are no absolute contraindications to cardiac EUS. There may be relative contraindications based on specific features of the patient’s clinical situation.
   d. Limitations
      i. Cardiac EUS is a single component of the overall and ongoing evaluation. Since it is a focused examination EUS does not identify all abnormalities or diseases of the heart. EUS, like other tests, does not replace clinical judgment and should be interpreted in the context of the entire clinical picture. If the findings of the EUS are equivocal additional diagnostic testing may be indicated.
      ii. Cardiac ultrasound is capable of identifying many conditions beyond the primary and extended EUS applications listed above. These include but are not limited to: assessment of focal wall motion abnormalities, diastolic dysfunction, valvular abnormalities, intracardiac thrombus or mass, ventricular aneurysm, septal defects, aortic dissection, hypertrophic cardiomyopathy. While these conditions may be discovered when performing cardiac EUS, they are typically outside of the scope of focused cardiac EUS and should typically undergo appropriate consultant-performed imaging for confirmation or follow-up.
      iii. Cardiac EUS is technically limited by:
1. Abnormalities of the bony thorax

2. Pulmonary hyperinflation

3. Massive obesity

4. The patient’s inability to cooperate with the exam

5. Subcutaneous emphysema

e. Pitfalls

i. When technical factors prevent an adequate examination, these limitations should be identified and documented. As usual in emergency practice, such limitations may mandate further evaluation by alternative methods, as clinically indicated.

ii. The measured size of a pericardial effusion should be interpreted in the context of the patient’s clinical situation. A small rapidly forming effusion can cause tamponade, while extremely large slowly forming effusions may be tolerated with minimal symptoms.

iii. Clotted hemopericardium may be isoechoic with the myocardium or hyperechoic, so that it can be overlooked if the examining physician is expecting the anechoic of most effusions.

iv. Sonographic evidence of cardiac standstill should be interpreted in the context of the entire clinical picture.

v. Cardiac EUS may reveal sonographic evidence of right ventricular strain in cases of massive pulmonary embolus sufficient to cause hemodynamic instability. However, a cardiac EUS may not demonstrate the findings of right ventricular strain and a normal EUS does not exclude pulmonary embolism.

vi. Evidence of right ventricular strain may be due to causes other than pulmonary embolus. These include acute right ventricular infarct, pulmonic stenosis, and chronic pulmonary hypertension.

vii. Small or loculated pericardial effusions may be overlooked. As with other EUS, the heart should be scanned through multiple tissue planes in two orthogonal directions.

viii. Pleural effusions may be mistaken for pericardial fluid. Evaluation of other areas of the chest usually reveals their characteristic shape and location.

ix. Occasionally, hypoechoic epicardial fat pads may be mistaken for pericardial fluid. Epicardial fat usually demonstrates some internal echoing, is not distributed evenly in the pericardial space, and moves with epicardial motion.

x. The descending aorta may be mistaken for a posterior effusion. This can be resolved by rotating the probe into a transverse plane.

3. Qualifications and Responsibilities of the Clinician Performing the Examination

Cardiac EUS provides information that is the basis of immediate decisions about further evaluation, management, and therapeutic interventions. Because of its direct bearing on patient care, the
rendering of a diagnosis by cardiac EUS represents the practice of medicine, and therefore is the responsibility of the treating physician.

Due to the time-critical and dynamic nature of cardiac disease, emergent interventions may be mandated by the diagnostic findings of EUS examination. For this reason, cardiac EUS should be performed as soon as the clinical decision is made that the patient needs a sonographic evaluation.

Physicians of a variety of medical specialties may perform focused cardiac ultrasound. Training should be in accordance with specialty or organization-specific guidelines. Physicians should render a diagnostic interpretation in a time frame consistent with the management of acute cardiac disease, as outlined above.

4. Specifications for Individual Examinations
a. General - Images are obtained and interpreted in real time without removing the patient from the clinical care area. Images are ideally obtained in a left-semi-decubitus position, although the clinical situation often limits the patient to lying supine. Images may be captured for documentation and/or quality review. Recording of moving images, either in video or cine loops, may provide more information than is possible with still cardiac EUS images. However, capturing moving images may be impractical in the course of caring for the acutely ill patient.

b. Technique
   i. Overview
      Both patient habitus and underlying pathological conditions affect the accessibility of the heart to sonographic evaluation. For example, patients with causes of pulmonary hyperinflation (eg, emphysema or intubation) are likely to have poor parasternal windows, while patients with abdominal distension or pain may have an inaccessible subcostal window. For this reason, familiarity in evaluating the heart from a number of cardiac windows and planes increases the likelihood of successful EUS performance and interpretation.

   ii. Orientation
      Cardiologists have traditionally used an alternate image orientation convention from general ultrasound and other EUS applications. In this cardiology convention, the probe indicator corresponds to the right side of the screen as it is viewed, rather than the left of the screen for a general or EUS convention. Since reversing the screen for certain images and/or parts of an EUS exam can be time-consuming and confusing, especially under the emergent conditions typical of cardiac EUS, most emergency physicians have adopted the convention of not adjusting the screen orientation. Throughout this document, this EUS convention will be followed to obtain the views described, and the emergency physician will not need to reverse the orientation of the screen. The approximate orientation of the probe marker in the various classic cardiac views is described in terms of a clock face where 12 o’clock is directed to the head, 6 o’clock is directed to the feet, 9 o’clock is directed to the patient’s right, and so on.

   iii. The primary cardiac views
      Throughout the following discussion “windows” refer to locations that typically afford sonographic access to the heart. Conversely, “views” refer to cardinal imaging planes of the heart, defined by specific structures that they demonstrate. In the following discussion, typical surface anatomical locations are described for the cardiac windows, but these are subject to significant individual variation based on the location and lie of the heart. The
emergency physician should focus on identifying the key features of the primary cardiac views, regardless of the window where the probe needs to be positioned to obtain them.

1. **Subcostal four-chamber view (subxiphoid)**
   This view is obtained by placing the probe just under the rib cage or xiphoid process with the transducer directed towards the patient’s left shoulder and the probe marker directed towards the patient’s right (9-o’clock). The liver is used as a sonographic window. The heart lies immediately behind the sternum, so that it is necessary, in a supine patient, to direct the probe in a plane that is almost parallel with the horizontal plane of the stretcher. This requires firm downward pressure, especially in patients with a protuberant abdomen. Structures imaged in the subcostal four-chamber view include the right atrium, tricuspid valve, right ventricle, left atrium and left ventricle. The pericardial spaces should be examined both anterior and posterior to the heart. By scanning inferiorly, the inferior vena cava may also be visualized as it drains into the right atrium. This can help with orientation, as well as giving information about the patient’s preload and intravascular volume status.

2. **Parasternal long axis view**
   This view is typically obtained using the third, fourth, and fifth intercostal spaces, immediately to the left of the patient’s sternum. Structures imaged on this view include the pericardial spaces (anterior and posterior), the right ventricle, the septum, the left atrium and left ventricular inflow tract, the left ventricle in long axis, the left ventricular outflow tract, the aortic valve, and the aortic root. The probe marker is directed to the patient’s left hip (approximately 4-o’clock). In this view the aortic outflow and left atrium will be on the right side of the screen as it is viewed and the cardiac apex will be on the left side of the screen.

   Alternately, the probe may be directed to the patient’s right shoulder (approximately 10-o’clock). This will provide a view that is reversed 180 degrees from that seen in cardiology texts, but is consistent with orientation in the rest of emergency ultrasound, with the apex (a leftward structure) on the right side of the screen as it is viewed. In this probe position the orientation will appear very similar to the subcostal view, only slightly higher so that the aortic outflow tract is seen instead of the right atrium.

3. **Parasternal short axis view**
   This view is obtained by directing the marker in an approximately 8-o’clock direction. By rocking the probe in these interspaces, images can be obtained from the apex of the left ventricle inferiorly up to the aortic root superiorly. Intervening structures which can be identified, all in cross-section, include the entire left ventricular cavity, the right ventricle, the papillary muscles, the mitral valve, the aortic outflow tract, the aortic valve, the aortic root and the left atrium. The view at and immediately below the mitral valve may be particularly helpful for determining overall left ventricular systolic function.

4. **Apical four-chamber view**
   This view is obtained by placing the probe at the point of maximal impulse (PMI) as determined by physical exam. Normally this is in the fifth intercostal space and inferior to the nipple, however this location is subject to great individual variation. The probe is directed up along the axis of the heart toward the right shoulder, with the marker oriented towards the patient’s right or 9-o’clock, which is towards the ceiling in a supine position.
patient. The apex of the heart is at the center of the image with the septum coursing vertically in the center of the screen. The left ventricle and left atrium will be on the right side of the screen, and the right ventricle and atrium will be on the left side of the screen. This view demonstrates both the mitral and tricuspid valves and gives a clear view of the relative volumes of the two ventricular cavities, the motions of their free walls, and the interventricular septum.

iv. Secondary cardiac views

1. Subxiphoid short axis view
This view is obtained by placing the probe in the same location as the subxiphoid four-chamber view, but rotating the probe marker 90 degrees clockwise into a cephalad direction at 12-o’clock. This provides a short axis view of the right and left ventricles. With side to side rocking motion, a longitudinal view of the inferior vena cava emptying into the right atrium can be seen.

2. Venous windows
The inferior vena cava (IVC) may be traced by following hepatic veins in a subcostal window. Comparing the maximal IVC diameter in exhalation with the minimal IVC diameter in inhalation may provide a qualitative estimate of preload. Collapse of 50 - 99% is normal; complete collapse may indicate volume depletion and 50% collapse may indicate volume overload, pericardial tamponade and/or right ventricular failure.

3. Suprasternal notch view
This view is obtained by placing the probe in the suprasternal notch, directed inferiorly into the mediastinum. The marker is usually directed obliquely between the patient’s right and anterior since this is the plane followed by the aortic arch as it crosses from right anterior to left posterior of the mediastinum. A bolster under the patient’s shoulders with the neck in full extension will facilitate this view used to visualize the aortic arch and great vessels.

4. Apical two chamber view
This view is obtained by rotating the probe clockwise 90 degrees from the apical four chamber view, so that the probe marker is directed in a cephalad direction at 12-o’clock. This allows visualization of the anterior and inferior left ventricular walls as well as the mitral and aortic valves. This view is infrequently utilized in the cardiac EUS.

v. Relationship of the cardiac views
Several of the cardiac views provide images of the same planes of the heart from different angles. This is true of the following pairs of views: the parasternal long axis and apical two-chamber views; the apical four-chamber and sub-xiphoid four-chamber views; and the parasternal short axis and the subxiphoid short axis views.

c. Key components of the cardiac EUS evaluation
i. Evaluation of pericardial effusion. Pericardial effusion usually appears as an anechoic or hypoechoic fluid collection within the pericardial space. With inflammatory, infectious, malignant or hemorrhagic etiologies, this fluid may have a more complex echogenicity. Fluid tends to collect dependently, but may be seen in any portion of the pericardium. Very small amounts of pericardial fluid can be considered physiologic and are seen in normal individuals. A widely used system classifies effusions as none, small (10 mm in diastole, often non-circumferential), moderate (circumferential, no part greater than 10 mm in width
in diastole), large (10-20 mm in width), and very large (>20 mm and/or evidence of tamponade physiology).

ii. Echocardiographic evidence of tamponade. Diastolic collapse of any chamber in the presence of moderate or large effusion is indicative of tamponade. Hemodynamic instability with a moderate or large pericardial effusion, even without identifiable diastolic collapse, is suspicious for tamponade physiology. A dilated non-collapsible IVC in the presence of pericardial effusion is also suspicious for tamponade physiology.

iii. Evaluation of gross cardiac motion in the setting of cardiopulmonary resuscitation. Terminal cardiac dysfunction typically progresses through global ventricular hypokinesis, incomplete systolic valve closure, absence of valve motion, absence of ventricular motion, and finally culminating in intracardiac gel-like densities. The lack of mechanical cardiac activity, or true cardiac standstill, demonstrated by EUS has the gravest of prognoses. The decision to terminate resuscitative efforts should be made on clinical grounds in conjunction with the sonographic findings.

iv. Evaluation of global cardiac function. Published investigations demonstrate that emergency physicians with relatively limited training and experience can accurately estimate cardiac ejection fraction. Left ventricular systolic function is typically graded as normal (EF >50%), moderately depressed (EF 30-50%), or severely depressed (EF <30%).

5. Documentation
In performing EUS of the heart, images are interpreted by the treating physician as they are acquired and are used to guide contemporaneous clinical decisions. Such interpretations should be documented in the medical record. Documentation should include the indication for the procedure, a description of the organs or structures identified and an interpretation of the findings. Images should be stored as a part of the medical record and done so in accordance with facility policy requirements. Given the often-emergent nature of such ultrasound examinations, the timely delivery of care should not be delayed by archiving ultrasound images.

6. Equipment Specifications
A phased array cardiac transducer is optimal, since it facilitates scanning through the narrow intercostal windows, and is capable of high frame rates, which provide better resolution of rapidly moving cardiac structures. If this is not available, a 2-5 MHz general-purpose curved array abdominal probe, preferably with a small footprint, will suffice. The cardiac presets available on most equipment may be activated to optimize cardiac images. Doppler capability may be helpful in certain extended emergency echo indications but is not routinely used for the primary cardiac EUS indications. Both portable and cart-based ultrasound machines may be used, depending on the location and setting of the examination.

7. Quality Control and Improvements, Safety, Infection Control and Patient Education
Policies and procedures related to quality, safety, infection control and patient education should be developed in accordance with specialty or organizational guidelines. Specific institutional guidelines may be developed to correspond with such guidelines.

Kidney and Bladder
1. Introduction
The American College of Emergency Physicians (ACEP) has developed these criteria to assist practitioners performing emergency ultrasound studies (EUS) of the kidneys and bladder in patients suspected of having diseases involving the urinary tract.

Emergency ultrasound of the kidneys and urinary tract may identify both normal and pathological conditions. The primary indications for this application of EUS are in the evaluation of obstructive uropathy and acute urinary retention. The evaluation of perirenal structures and the peritoneum for perirenal fluid is considered in the criteria for trauma EUS.

EUS of the kidneys and urinary tract occurs as a component of the overall clinical evaluation of a patient with possible urinary tract disease. It is a clinically focused examination, which, in conjunction with historical and laboratory information, provides additional data for decision-making. It attempts to answer specific questions about a particular patient’s condition. While other tests may provide information that is more detailed than EUS, have greater anatomic specificity, or identify alternative diagnoses, EUS is non-invasive, is rapidly deployed and does not entail removal of the patient from the resuscitation area. Further, EUS avoids the delays, costs, specialized technical personnel, the administration of contrast agents and the biohazardous potential of radiation. These advantages make EUS a valuable addition to available diagnostic resources in the care of patients with time-sensitive or emergency conditions such as acute renal colic and urinary retention.

2. Indications/Limitations
   a. Primary
      i. The rapid evaluation of the urinary tract for sonographic evidence of obstructive uropathy and/or urinary retention in a patient with clinical findings suggestive of these diseases.

   b. Extended
      i. Causes of obstructive uropathy
         ii. Causes of acute hematuria
         iii. Causes of acute renal failure
         iv. Infections and abscesses of the kidneys
         v. Renal cysts and masses
         vi. Gross bladder and prostate abnormalities
         vii. Renal trauma

c. Contraindications: No absolute contraindications exist. Contraindications are relative, based on specific features of the patient’s clinical condition.

d. Limitations
   i. EUS of the kidney and urinary tract is a single component of the overall and ongoing evaluation. Since it is a focused examination EUS does not identify all abnormalities or diseases of the urinary tract. EUS, like other tests, does not replace clinical judgment and should be interpreted in the context of the entire clinical picture. If the findings of the EUS are equivocal, additional diagnostic testing may be indicated.

   ii. Examination of the kidneys and collecting system may be technically limited by:
1. Patient habitus including obesity, paucity of subcutaneous fat, narrow intercostal spaces

2. Bowel gas

3. Abdominal or rib tenderness

4. An empty bladder

e. Pitfalls
   i. When bowel gas or other technical factors prevent a complete real-time scan through all tissue planes, the limitations of the examination should be identified and documented. As is customary in emergency practice, such limitations may mandate further evaluation by alternative methods, as clinically indicated.

   ii. Hydronephrosis may be mimicked by several normal and abnormal conditions including dilated renal vasculature, renal sinus cysts, and bladder distension. Medullary pyramids may mimic hydronephrosis, especially in young patients.

   iii. Presence of obstruction may be masked by dehydration.

   iv. Absence of hydronephrosis does not rule out a ureteral stone. Many ureteral stones, especially small ones, do not cause hydronephrosis.

   v. Patients with an acutely symptomatic abdominal aortic aneurysm may present with symptoms suggestive of acute renal colic.

   vi. Both kidneys should be imaged in order to identify the presence of either unilateral kidney or bilateral disease processes.

   vii. The bladder should be imaged as part of EUS of the kidney and urinary tract. Many indications of this EUS exam are caused by conditions identifiable in the bladder.

   viii. Variations of renal anatomy are not uncommon and may be mistaken for pathologic conditions. These include reduplicated collection systems, unilateral, bipartite, ectopic and horse-shoe kidney.

   ix. Renal stones smaller than 3 mm are usually not identified by current sonographic equipment. Renal stones of all sizes may be missed and are usually identified by the shadowing they cause as their echogenicity is similar to that of surrounding renal sinus fat.

3. Qualifications and Responsibilities of the Clinician Performing the Examination

   EUS of the kidneys and urinary tract provides information upon which immediate decisions for further evaluation, management and interventions are based. Rendering a diagnosis by EUS impacts patient care directly and qualifies as the practice of medicine. Therefore, performing and interpreting EUS is the responsibility of the treating physician.

   Due to the time-critical and dynamic nature of many conditions of renal pathology, emergency interventions may be undertaken based upon findings of the EUS exam. For this reason, EUS should occur as soon as the clinical decision is made that the patient needs a sonographic exam.
Physicians of a variety of medical specialties may perform renal ultrasound examinations. Training should be in accordance with specialty or organization specific guidelines. Physicians should render a diagnostic interpretation in a time frame consistent with the management of acute renal pathology, as outlined above.

4. Specifications for Individual Examinations
   a. General. An attempt should be made to image both kidneys and the bladder in patients with suspected renal tract pathology undergoing EUS. In addition, hydronephrosis and urinary retention are frequently unsuspected causes of abdominal pain and may be recognized in the course of other abdominal or retroperitoneal EUS examinations.

   b. Technique
      i. Identification. The kidneys are more easily identified in their longitudinal axis. They are paired structures that lie oblique to every anatomic plane and at different levels on each side. Their inferior poles are anterior and lateral to their superior poles. Both hila are also directed obliquely. Orientation is defined with respect to the axes of the organ of interest (longitudinal, transverse, and oblique), rather than standardized anatomic planes (sagittal, coronal, oblique and transverse). The long axis of the kidney approximates the intercostal spaces and longitudinal scans may be facilitated by placing the transducer plane parallel to the intercostal space. By convention, the probe indicator is always toward the head or the vertebral end of the rib on both the right and left sides. Transverse views of the kidneys are therefore usually also transverse to the ribs, resulting in prominent rib shadows that may make visualizing the kidneys more difficult unless a small footprint or phased array probe is available. Transverse views are obtained on both sides by rotating the probe 90 degrees counter-clockwise from the plane of the longitudinal axis.

      ii. Real-time scanning technique
         1. Overview. The kidneys are retroperitoneal in location and are usually above the costal margin of the flanks in the region of the costovertebral angle. A general-purpose curved array abdominal probe with a frequency range of between 2.0 -5.0 MHz is generally used. A small footprint or phased array probe may facilitate scanning between the ribs, but may require several windows in the longitudinal plane if the kidney is long, or superficial. Images of both kidneys should be obtained in the longitudinal and transverse planes for purposes of comparison and to exclude absence of either kidney. The bladder should be imaged to assess for volume, evidence of distal ureteral obstruction and for calculi. As with other EUS exams, the organs of interest are scanned in real-time through all tissue planes in at least two orthogonal directions.

         2. Details of technique. The right kidney may be visualized with an anterior subcostal approach using the liver as a sonographic window. Imaging may be facilitated by having the patient in the left lateral decubitus position or prone. Asking the patient to take and hold a deep breath may serve to extend the liver window so that it includes the inferior pole of the kidney. Despite these techniques, parts or the entire kidney may not be seen in this view due to interposed loops of bowel, in which case the kidney should be imaged using an intercostal approach in the right flank between the anterior axillary line and midline posteriorly. For this approach, the patient can be placed in the decubitus position with a bolster under the lower side with the arm of the upper side fully abducted, thus spreading the intercostal spaces. Separate views of the superior and inferior poles are often required to adequately image the entire kidney in its longitudinal plane. To obtain transverse images, the transducer is rotated 90 counter-clockwise from the longitudinal plane. Once in the transverse plane, the transducer can be moved...
superiorly and medially, or inferiorly and laterally to locate the renal hilum. Images cephalad to the hilum represent the superior pole and those caudad represent the inferior pole. The left kidney lacks the hepatic window, necessitating an intercostal approach similar to the one described above for the right flank.

The bladder is imaged from top to bottom and from side to side, in transverse and sagittal planes, respectively. While a full bladder facilitates bladder scanning, distension may be a cause of artifactual hydronephrosis and is therefore to be avoided in scanning the kidneys. Ideally, the bladder is scanned prior to voiding (and again post-void, if outlet obstruction is a consideration), and kidney scanning performed after voiding. Such ideal conditions are rarely met with the exigencies of EUS and emergency care.

3. Key components of the examination. The kidneys should be studied for abnormalities of the renal sinus and parenchyma. Under normal circumstances, the renal collecting system contains no urine, so that the renal sinus is a homogeneously hyperechoic structure. A distended bladder can cause mild hydronephrosis in normal healthy adults. Several classifications of hydronephrosis have been suggested. One that is easily applied and widely utilized is Mild or Grade I (any hydronephrosis up to Grade II), Moderate or Grade II (the calices are confluent resulting in a “bear’s paw” appearance), or Severe or Grade III (the hydronephrosis is sufficiently extensive to cause effacement of the renal parenchyma). Other abnormalities identified including cysts, masses and bladder abnormalities may require additional diagnostic evaluation. Measurements may be made of the dimensions of abnormal findings and the length and width of the kidneys. Such measurements are rarely relevant in the EUS examination.

5. Documentation

In performing EUS of the kidneys and urinary tract, images are interpreted by the treating physician as they are acquired and are used to guide contemporaneous clinical decisions. Such interpretations should be documented in the medical record. Documentation should include the indication for the procedure, a description of the organs or structures identified and an interpretation of the findings. Images should be stored as a part of the medical record and done so in accordance with facility policy requirements. Given the often-emergent nature of such ultrasound examinations, the timely delivery of care should not be delayed by archiving ultrasound images.

6. Equipment Specifications

A curved array abdominal transducer with a frequency range of between 2.0 -5.0 MHz is generally used. A small footprint or phased array probe may facilitate scanning between the ribs. A higher frequency 5.0-7.0 MHz transducer may give better resolution in children and smaller adults. Both portable and cart-based ultrasound machines may be used, depending upon the location of the patient and the setting of the examination.

7. Quality Control and Improvements, Safety, Infection Control and Patient Education

Policies and procedures related to quality, safety, infection control and patient education should be developed in accordance with specialty or organizational guidelines. Specific institutional guidelines may be developed to correspond with such guidelines.

Lung and Pleura
1. Introduction
The American College of Emergency Physicians (ACEP) has developed these criteria to assist practitioners performing emergency ultrasound (EUS) studies of the chest to rule out pneumothorax and abnormal collections of pleural fluid.

Ultrasound has been shown to be helpful in the diagnosis of acute pneumothorax and is particularly sensitive for ruling out the presence of pneumothorax and pleural effusion. The ultrasound evaluation for pneumothorax examines the apposition of visceral and parietal pleura. The ultrasound evaluation for pleural effusion or hemothorax seeks to identify abnormal collections of pleural fluid. Extended applications for thoracic ultrasound include the diagnosis of abnormal interstitial lung water. Recent literature has shown that ultrasound is both sensitive and specific for interstitial lung fluid caused by congestive heart failure, volume overload, acute respiratory distress syndrome (ARDS), interstitial lung disease, and a variety of other diseases. Advantages of thoracic ultrasound are rapid deployment in critically ill patients with immediate diagnostic information without the need to transport or transfer the patient, the ability to perform the exam with portable ultrasound machines in remote or difficult clinical situations, and the ability to integrate the exam with sonographic evaluation of multiple organ systems. It is important to understand that thoracic ultrasound is a part of the resuscitative effort and is an emergent procedure. Other procedures may take precedence or may proceed simultaneously. It is not a comprehensive imaging test such as computerized tomography. The judicious use of ultrasound can add to the rapid, non-invasive, and dynamic evaluation of the critical patient.

2. **Indications/Limitations**
   a. **Primary**
      i. Acute pneumothorax
      ii. Abnormal collections of pleural fluid
   b. **Extended**
      i. Interstitial lung fluid caused by CHF and other conditions
      ii. Pneumonia
      iii. Pulmonary fibrosis
   c. **Contraindications**
      i. Known, tension pneumothorax requiring emergent intervention
   d. **Relative Contraindications**
      i. Significant pain in the area to be scanned
      ii. Open wounds or dressings in area to be scanned
   e. **Limitations**
      i. Morbidly obese patients can present so much adipose tissue that adequate imaging with ultrasound is technically difficult
      ii. While bedside thoracic ultrasound is more sensitive to diagnose pleural effusion than chest X-ray, the performance of the exam is dependent on the skill level of the sonologist
   f. **Pitfalls**
i. Absence of pleural sliding is not 100% specific for pneumothorax, as prior pleurodesis, pleural scarring, lung contusions, bronchial obstruction, and advanced bullous emphysema, may result in absence of lung sliding.

ii. The presence of pleural sliding only excludes pneumothorax immediately under the transducer. It does not rule out the presence of pneumothorax in other parts of the chest.

iii. Thoracic ultrasound does not exclude the presence of a pulmonary embolism

iv. The presence of B-lines posteriorly in the supine patient may be a normal finding.

v. The presence of interstitial lung fluid on bedside thoracic ultrasound can be caused by many disease processes. Sonographic information should be correlated with history, physical exam, and with other clinical findings.

vi. Motion of the transducer with respect to the patient’s chest wall may give the impression of pleural motion, resulting in failure to identify pneumothorax.

3. Qualifications and Responsibilities of the Clinician Performing the Examination

Chest EUS is the basis of immediate decisions concerning further evaluation, management, and therapeutic interventions. Because of its direct bearing on patient care, the rendering of a diagnosis by chest EUS represents the practice of medicine, and therefore is the responsibility of the treating physician.

Due to the time-critical and dynamic nature of many causes of chest pathology, emergency interventions may be undertaken based upon findings of the EUS exam. For this reason, EUS should occur as soon as the clinical decision is made that the patient needs a sonographic exam.

Personnel that may perform EUS of the chest include physicians of multiple specialties, ultrasound technologists, physician extenders, and emergency medical personnel. Training should be in accordance with specialty or organization specific guidelines.

4. Specifications for Individual Examinations

a. General - Chest EUS is performed simultaneously with other aspects of resuscitation. The transducer is placed systematically in each of the appropriate windows based on the clinical scenario. The ultrasound images are interpreted in real-time as the exam is being performed. If possible, images may be retained for purposes of documentation, quality assurance, or teaching.

b. Technique. Overview. The chest ultrasound examination requires little patient preparation except for positioning in the bed at an ergonomic height for the examiner. Multiple areas of the chest are scanned. A generous amount of ultrasound gel is helpful, as wide areas of the chest are evaluated. In the absence of pleural adhesions, a pneumothorax typically occurs in the most anterior aspect of the chest in a supine patient. Conversely, pleural effusions or hemothoraces tend to accumulate posteriorly in the costophrenic sulci. When evaluating a patient for pulmonary edema, the patient is often in a semi-recumbent or upright position. Experienced sonologists often perform lung and pleural exams with the transducer parallel to the ribs, but for most emergency sonologists, an orientation perpendicular to the ribs facilitates identification of the pleural line, immediately deep to the ribs, which are useful landmarks recognizable in older children and adults by distal shadowing. When evaluating the lung bases via the liver and spleen, the sonologist should identify the solid organ below the diaphragm, and the thoracic cavity superior to the diaphragm, indirectly recognizable by mirror artifact of liver (on the right) and spleen (on the left).
c. Pathologic findings
   i. Pneumothorax
      1. Anterior chest. In a trauma patient on a backboard, the anterior chest will be the most sensitive area to identify a pneumothorax. In this window, a linear array transducer is ideal, with the focal zone set at the pleural line. However, a curvilinear or phased array transducer may also be used, using their high frequency range, and with adjustment of the focal zone. The transducer is placed in the mid-clavicular line, immediately inferior to the clavicles, and the orientation marker is directed cephalad in a sagittal plane. Two ribs, with distal shadowing should be identified. The pleural line beneath the ribs should be identified. The physician should evaluate for pleural sliding or shimmering as the patient breathes, indicating that the lung is expanded with the visceral and parietal pleura directly apposed. Other findings that exclude pneumothorax under the transducer include “lung pulse” (motion of visceral pleura and lung in time with cardiac motion) and the presence of B-lines (see below). The absence of any of these findings is highly suggestive of the presence of a pneumothorax. Conversely, the presence of the “leading edge” or “lung point” sign (created by the site of transition between expanded and collapsed lung) is pathognomonic of the presence of pneumothorax. Each interspace in the mid-clavicular line should be systematically evaluated to the level of the diaphragm on both sides. At each interspace, the sonologist should anchor the probe to the patient’s chest wall using his/her examining hand, in order to minimize chest wall motion, which can be mistaken for lung sliding. The movement of the pericardium should not be mistaken for either pleural sliding or the lung-point sign in the left chest. In most cases, the probe should be placed more laterally when examining the left chest in the region of the heart.

      2. Lateral chest. The technique for examining the lateral chest is identical to the anterior chest, except the physician will examine each interspace in the mid-axillary line.

      3. Posterior thorax. The technique for examining the posterior thorax is identical to the anterior chest, except the physician will examine each interspace on the patient’s back. The patient is examined sitting up if possible. Ultrasound waves do not penetrate the scapulae, so these should be abducted by asking the patient to grasp the contralateral shoulder with each hand.

      4. Abbreviated exam. In critical situations, an ultrasound exam of the entire chest may not be feasible. In such circumstances, the evaluation may be limited to a single location on each anterior hemothorax. This two-point exam may identify large pneumothoraces, but miss a smaller pneumothorax.

      5. M-Mode evaluation. M-Mode can be used to help identify or to document the presence of a pneumothorax. The M-mode sampling bar is placed in the middle of the intercostal space and the resulting M-Mode tracing is evaluated over time. In the normal patient a linear pattern superficial to the pleural line is in sharp distinction to the granular pattern deep to it (the “seashore sign”). With pneumothorax, there is a horizontal linear pattern above and below the pleural line (“stratosphere sign” or “barcode sign”).

   ii. Pleural effusion
      1. Evaluation of right lung base in the supine patient. Similar to the evaluation of fluid in Morrison’s Pouch, the physician can rapidly identify fluid above the diaphragm. Typically, a curvilinear or phased array probe is placed in an intercostal space around the nipple line in the coronal plane or parallel with the ribs, with the orientation marker...
directed cephalad. Following the identification of the kidney, liver, and diaphragm, the examiner angles or rocks the probe to evaluate above the diaphragm, using the liver as the acoustic window. Free fluid in the hemithorax will be identified as an anechoic or black area above the diaphragm. The examiner may also identify consolidated lung sitting in large pleural effusions. The examiner should be aware that B-mode ultrasound is preferred to identify the presence of pleural effusion and hemothorax.

2. Evaluation of left lung base in the supine patient. Similar to the evaluation of free abdominal fluid in the left flank, the physician can rapidly identify fluid above the left diaphragm. Typically, a curvilinear or phased array probe is placed in an intercostal space around the mid-axillary line in the coronal plane or parallel with the ribs, with the orientation marker directed cephalad. Following the identification of the spleen, liver, and diaphragm, the examiner angles or rocks the probe to evaluate above the diaphragm, using the spleen as the acoustic window. Free fluid in the hemithorax will be identified as an anechoic or black area above the diaphragm. The examiner may also identify consolidated lung sitting in large pleural effusions. This view is often more challenging secondary to the relatively smaller size of the spleen compared to the liver.

3. Evaluation in the upright patient can be performed by placing the transducer on the midscapular line in a sagittal orientation, and sliding it from the level of the liver (on the right) or the spleen (on the left) in a cephalad direction until the diaphragm and costophrenic sulcus are identified. In the normal patient, this will be recognized by the presence of pleural sliding. Abnormal fluid collections (effusion, hemothorax, empyema, etc.) appear anechoic or hypoechoic.

4. Large pleural effusions. Occasionally, a large fluid collection may be identified during the evaluation of the pleura on the anterior chest wall.

5. E-FAST. During trauma scenarios, many clinicians now include evaluation of the pleural spaces for hemothorax during the E-FAST exam. The technique is as described above for “Evaluation of the lung bases in the supine patient” (see 7.f.vi.1 above and 7.f.vi.2 above).

iii. Interstitial lung fluid

1. Undifferentiated dyspnea. There is a substantial body of literature supporting the use of ultrasound for the differentiation of intrinsic lung disease and pulmonary edema states as a cause of acute dyspnea. The ultrasound finding of relevance is the presence of widespread B-lines. These are fine reverberation artifacts that extend from the pleural line to the far field. (Traditionally, depth is set at 15 cm.) These represent accumulation of fluid within the pulmonary interstitium. Many qualitative and quantitative methods have been described to assess B-lines. One of the most widely used divides the anterolateral thorax into eight zones. In each hemithorax, the four zones are defined approximately by the anterior axillary line (anterior and posterior) and the nipple line (superior and inferior). Scattered B-lines may be normal in the more posterior areas of lung in the supine patient, but are abnormal if found anteriorly. In general, the greater the number of rib spaces with B-lines, and the more anterior in distribution, the more specific the finding for abnormal increased interstitial lung water. If the B-lines are unilateral or more localized, a focal process such as pneumonitis is more likely. Bilateral and extensive B-lines are more likely to be due to a more generalized process such as volume overload, heart failure, or ARDS. In infants and children, the differential diagnosis of B-lines is different from that in adults, and is the subject of ongoing
elucidation. In extreme cases, the B-lines can become confluent, giving the appearance of a swinging curtain of artifact. A recent consensus conference has endorsed the use of “B-lines” to apply to the variety of terms used in the early literature on the topic including “comet tail artifacts”, and “lung rockets”. Ideally a small footprint curvilinear transducer is used with the focus at, or slightly below the pleural line and a 12 to 15 cm depth of field (greater depth also allows easier recognition of consolidations). If such a transducer is not available, a curved array abdominal transducer or a phased array transducer can be used. Linear array transducers (ideal for the assessment of pneumothorax) are suboptimal due to their limited depth of field. If possible, artifact-reduction technologies such as multibeam processing and tissue harmonic imaging should be turned off. The transducer should be oriented in the sagittal plane to identify two ribs and the pleural line immediately beneath the ribs. Scattered comet tail artifacts that dissipate in the far field are caused by minor irregularities in the visceral pleura are referred to as “Z-lines,” and have no clinical significance. They can be distinguished from B-lines, which are multiple and do not diminish in the far-field.

5. Documentation
In performing EUS of the lung and pleural spaces, images are interpreted by the treating physician as they are acquired and are used to guide contemporaneous clinical decisions. Such interpretations should be documented in the medical record. Documentation should include the indication for the procedure, a description of the organs or structures identified and an interpretation of the findings. Images should be stored as a part of the medical record and done so in accordance with facility policy requirements. Given the often-emergent nature of such ultrasound examinations, the timely delivery of care should not be delayed by archiving ultrasound images.

6. Equipment Specifications
A linear array transducer with a frequency range of 5.0 to 12.0 MHz will allow the sonologist to image the superficial pleura and its artifacts. A curvilinear or phased array probe with a low frequency range of 2.0 – 5.0 MHz can be used for the evaluation of pleural effusion and B-lines. Both portable and cart-based ultrasound machines may be used, depending on the location and setting of the examination.

7. Quality Control and Improvements, Safety, Infection Control, and Patient Education
Policies and procedures related to quality, safety, infection control, and patient concerns should be developed in accordance with specialty or organizational guidelines. Specific institutional guidelines may be developed to correspond with such guidelines.

Ocular
1. Introduction
The American College of Emergency Physicians (ACEP) has developed these criteria to assist practitioners performing emergency ultrasound (EUS) studies of the eye to evaluate for traumatic and non-traumatic findings.

The use of EUS of the eye has been used for the detection of posterior chamber and orbital pathology. Specifically, ultrasound has been described to detect retinal detachment, vitreous hemorrhage, and dislocations or disruptions of structures. In addition, the structures posterior to the globe such as the optic nerve sheath diameter may be a reflection of other disease in the central nervous system.

EUS evaluation of the eye occurs in conjunction with other EUS applications and other imaging and laboratory tests. It is a clinically focused examination, which, in conjunction with historical and
laboratory information, provides additional data for decision-making. It attempts to answer specific questions about a particular patient’s condition. While other tests may provide information that is more detailed than EUS, have greater anatomic specificity, or identify alternative diagnoses, EUS is non-invasive, is rapidly deployed and does not entail removal of the patient from the resuscitation area. Further, EUS avoids the delays, costs, specialized technical personnel, the administration of contrast agents and the biohazardous potential of radiation. These advantages make EUS a valuable addition to available diagnostic resources in the care of patients with time-sensitive or emergency conditions such as ocular complaints.

2. Indications/Limitations
   a. Primary
      i. Retinal detachment (RD) with or without vitreous detachment
   b. Extended
      i. Intracranial pressure indirectly via optic nerve sheath diameter measurement
      ii. Vitreous hemorrhage
      iii. Lens dislocation
      iv. Intraocular foreign body
      v. Globe rupture
      vi. Retrobulbar hemorrhage
      vii. Central retinal artery/vein occlusion
      viii. Subretinal hemorrhage
      ix. Posterior vitreous detachment (PVD)
      x. Direct and consensual light reflex
   c. Limitations
      i. Patient’s inability to tolerate exam secondary to eye pain
   d. Relative Contraindications
      i. Open ocular trauma with leaking aqueous or vitreous humor; globe rupture. This risk may be minimized with the use of a Tegaderm and copious gel over the closed eyelid.
      ii. Periorbital wounds
   e. Pitfalls
      i. Missed pathology due to visualization in only one plane or neglecting to utilize kinetic echography to visualize all quadrants and contents of the globe.
      ii. Applying too much pressure in a patient with suspected globe rupture or intraocular foreign body. In these patients a Tegaderm may be placed over the closed eyelid and copious gel applied. Scanning may then proceed using minimal or no applied pressure.
iii. Failure to differentiate retinal detachment from other pathologies such as chronic vitreous hemorrhage, PVD, or fibrinous vitreous bands.

3. **Qualifications and Responsibilities of the Clinician Performing the Examination**

Ocular EUS is the basis of immediate decisions concerning further evaluation, management, and therapeutic interventions. Because of its direct bearing on patient care, the rendering of a diagnosis by ocular EUS represent the practice of medicine, and therefore is the responsibility of the treating physician.

Due to the time-critical and dynamic nature of many causes of ocular pathology, emergency interventions may be undertaken based upon findings of the EUS exam. For this reason, EUS should occur as soon as the clinical decision is made that the patient needs a sonographic exam.

Physicians of a variety of medical specialties may perform ocular ultrasound. Training should be in accordance with specialty or organization specific guidelines. Physicians should render a diagnostic interpretation in a time frame consistent with the management of ocular disease, as outlined above.

4. **Specifications for Individual Examinations**

a. **General** – The eye is examined systematically in real time in all quadrants and in at least two orthogonal directions. Evaluation of the eye for evidence of other pathologies such as lens dislocation or vitreous hemorrhage, as described in “Extended Indications,” are then performed based on the clinical situation and the physician’s sonographic experience. The ultrasound images are interpreted in real-time as the exam is being performed. Images may be captured for archiving and/or quality review.

b. **Technique**

i. **Identification**

1. Anterior chamber. The anterior chamber of the eye is the smaller of the two chambers. It appears in the near field and is bounded posteriorly by the iris and lens.

2. Iris. In a transverse section, the iris is usually seen as 2 horizontal hyperechoic lines flanking the lens. In a longitudinal plane, the iris is donut-shaped, hyperechoic, and changes size when light is applied.

3. Lens. Due to its density and composition, the lens is difficult to completely visualize. Usually only the anterior and posterior surfaces, represented by two gently curved inverse arcs between the horizontal lines of the iris, can be seen. Reverberation artifact may also be seen extending posteriorly from the lens.

4. Posterior chamber. The posterior chamber of the eye is the larger of the two chambers. It is located directly posterior to the iris and lens, and should be completely anechoic and without internal echoes in the absence of pathology.

ii. **Real-time scanning technique**

1. Overview. The ocular examination can be performed at the patient’s bedside and requires little patient preparation except for positioning in the bed (supine or 20 degrees of head elevation), and a 5-12 MHz probe. If intraocular foreign body or globe rupture/perforation are suspected, a Tegaderm may first be placed over the closed lid and then a generous amount of sterile ultrasound gel applied. After the exam, the Tegaderm is gently removed and the need to wipe gel away from the eye is negated. Both eyes are insonated. The examiner should rest the examining hand on the patient’s
forehead or face to avoid unnecessary pressure on the globe. Typically, the examination is begun on the affected side and scanning is performed in two planes while and the patient is asked to move their eyes in all 4 directions. This serves two purposes: 1) all quadrants may be assessed and 2) identification of certain pathologies, such as retinal detachment and vitreous hemorrhage are easier since they move with eye movement (kinetic echography).

iii. Key components of the exam. Both eyes are systematically scanned in all quadrants as described above.

1. Traumatized eye. Evaluation of the traumatized eye with ultrasound is especially helpful when swelling limits direct visualization and evaluation of the eye and surrounding structures. The contours of the posterior chamber should be perfectly circular, and particular attention is paid to the posterior surface of the posterior chamber for evidence of retinal detachment. The vitreous is examined for hemorrhage or foreign bodies. Attention should also be paid to the retrobulbar space for hemorrhage and assessment of optic nerve edema. Direct and consensual light reflex of the iris may be checked with light applied to the closed eyelid of the traumatized eye as well as the unaffected eye.

2. Non-traumatized eye. Evaluation of the non-traumatized eye is a useful adjunct to the physical exam and slit lamp exam, especially with complaints of sudden onset vision loss. Attention is again paid to the posterior chamber for evidence of vitreous detachment with or without accompanying retinal detachment or hemorrhage. If the examiner is sufficiently skilled, color and power Doppler can be used to examine blood flow if central retinal artery/vein occlusion is suspected.

iv. Pathologic findings

1. Fibrinous vitreous bands. Usually an asymptomatic bilateral finding that occurs increasingly with age, these bands are also associated with diabetic retinopathy, sickle cells, prematurity, or previous vitreous hemorrhage. Bands appear as multiple hyperechoic mobile fibers in the posterior chamber that move with eye movement. Gain setting must usually be significantly increased to see fibrinous bands.

2. Retinal detachment. A brightly echogenic line separated from the posterior globe and tethered to optic nerve is indicative of RD. This should move as the eye is taken through range of motion. Depending on the cause of the detachment, other findings such as posterior vitreous detachment, vitreous hemorrhage, or subretinal hemorrhage may also be present. RD should be easily seen at normal gain levels.

3. Vitreous hemorrhage. The sonographic appearance of vitreous hemorrhage depends on the quantity and age of the hemorrhage. A small amount of fresh hemorrhage will appear as hyperechoic flecks that move with eye movement. A greater amount of blood will tend to layer along the posterior surface of the eye and also moves with eye movement. As blood ages, it tends to coalesce as string-like bands in the posterior chamber that move with eye movement.

4. Posterior vitreous detachment. PVD occurs increasingly with age and is usually an asymptomatic process but sometimes presents with photopsia. PVD is usually seen at higher gain levels and appears as a single, delicate string-like membrane that is detached from the posterior globe and moves with eye movement. It is thinner and less echogenic than an RD and notably, should not be tethered to the optic nerve. PVD can become
5. Subretinal hemorrhage. Appears as a shifting fluid collection along the posterior globe that is slightly more echoic than the vitreous body, and separated from it by the brightly echogenic retina.

6. Lens dislocation. Bedside ultrasound suggests a lens dislocation when the position of the lens in the affected eye to the relative position in the unaffected eye is disrupted and out of place.

7. Foreign body. Bedside ultrasound suggests an orbital foreign body when hyperechoic foreign material is appreciated in the globe when scanning in two planes. Thin-slice CT has a slightly higher sensitivity for intraocular foreign bodies, mainly because intraocular air introduced with the foreign body can hinder the view of deeper structures and pathology. All foreign bodies will appear hyperechoic with varying posterior artifact based on the composition of the foreign body itself (Metal and glass tend to produce reverberation artifact. Wood, gravel, and plastic are hyperechoic with a trailing shadow.)

8. Globe rupture. Ultrasound suggests globe rupture when the depth of the affected globe is shallow relative to the unaffected side. The globe typically loses the perfectly circular contour and vitreous hemorrhage is commonly seen in the posterior chamber. The scan is performed using a thick layer of sterile gel to avoid direct contact between probe and eyelid.

9. Retrolubular hemorrhage. Usually appears as a hypoechoic fluid collection posterior to the globe.

10. Optic nerve edema. The intra-orbital subarachnoid space is distensible and subject to the same pressure shifts as the intracranial compartment which contains the optic nerve. In an axis perpendicular to the optic nerve 3mm behind the globe, the optic nerve sheath diameter is measured. The optic nerve should be aligned directly opposite the probe but the optic nerve sheath diameter width measured perpendicular to the vertical axis of the scanning plane. A mean optic nerve sheath diameter of = 5mm has been suggested as the upper limits of normal in an adult with concern for increased ICP. This measurement shows high negative predictive value.

11. Central retinal artery occlusion. Ocular ultrasound suggests occlusion to the central retinal artery or vein when there is loss of color flow along the posterior globe or overlying the optic nerve (the retinal artery and vein run within the optic nerve sheath). Power Doppler should be used if color flow is not evident, and both arterial and venous waveforms should be documented in pulse Doppler mode.

12. Light response. It is possible to assess the pupil for direct and consensual light response through a closed or edematous eyelid. The iris is usually visualized in a long axis by moving the transducer to the top of the orbit in a transverse plane and fanning inferiorly while asking the patient to look at their feet. Light is then applied to either closed eyelid and the iris assessed for constriction. Measurements of pupil constriction can also be formally obtained with this method.

5. Documentation
In performing EUS of the eye, images are interpreted by the treating physician as they are acquired and are used to guide contemporaneous clinical decisions. Documentation of the ocular EUS should be incorporated into the medical record. Documentation should include the indication for the procedure, the views obtained, a description of the organs or structures identified and an interpretation of the findings. Images should be stored as a part of the medical record and in accordance with facility policy requirements. Given the often-emergent nature of such ultrasound examinations, the timely delivery of care should not be delayed by archiving ultrasound images.

6. Equipment Specifications
A high frequency linear array probe with a frequency range of 8 to 14 MHz is ideal, as this range will allow the sonographer to image the globe in detail. An endocavitary transducer with similar frequency range can also be used, and allows a sector field of view for better imaging of the retrobulbar space. B-mode imaging is preferred to avoid exposure of the eye to higher power outputs. Color-flow and Doppler modes may be used for focused evaluations of the optic nerve and retina but these examinations should be minimized.

7. Quality Control and Improvements, Safety, Infection Control, and Patient Education
Policies and procedures related to quality, safety, infection control, and patient concerns should be developed in accordance with specialty or organizational guidelines. Specific institutional guidelines may be developed to correspond with such guidelines.

Pelvic
1. Introduction
The American College of Emergency Physicians (ACEP) has developed these criteria to assist practitioners performing emergency ultrasound studies (EUS) of the pelvis in emergency patients to evaluate for evidence of acute pathology including ectopic pregnancy, ovarian cysts and tubo-ovarian abscess.

First trimester pregnancy complications such as abdominal pain and vaginal bleeding are common presenting complaints. Ultrasound finding of a clear intrauterine pregnancy, in many instances, minimizes the possibility of ectopic pregnancy and can decrease throughput time and decrease morbidity. The scope of practice for pelvic ultrasound will vary depending on individual experience, comfort/skill level and departmental policies. However, some centers may choose to evaluate the ovaries and seek to identify tubo-ovarian abscess, fibroids, and pelvic masses.

EUS of the pelvis occurs as a component of the overall clinical examination of a patient presenting with symptoms related to the pelvic area. It is a clinical focused examination, which, in conjunction with historical and laboratory information, provides additional data for decision-making. It attempts to answer specific questions about a particular patient’s condition. Other diagnostic tests may provide more detailed information than EUS, show greater anatomic detail, or identify alternative diagnoses. However, EUS is non-invasive, rapidly deployed, allows the patient to remain under a physician's direct care, and avoids delays, costs, specialized technical personnel, and bio-hazardous potentials of radiation and contrast agents. These advantages make it a valuable addition to the diagnostic resources available to the physician caring for patients with time-sensitive or emergency conditions such as ectopic pregnancy and other causes of acute pelvic pain.

2. Indications/Limitations:
   a. Primary
      i. To evaluate for the presence of intrauterine pregnancy, minimizing the likelihood of an ectopic pregnancy when modifying factors such as infertility treatment are not present.
b. Extended
   i. Ovarian cysts
   ii. Fibroids
   iii. Tubo-ovarian abscess
   iv. Ruling out ovarian torsion by ruling out cyst or mass
   v. Identifying suspected ectopic pregnancy

c. Limitations
   i. Infertility patients or others with specifically known risk factors for heterotopic pregnancy.
   ii. Assessing pelvic sonographic anatomy after vaginal-rectal surgery
   iii. Evaluation of fetal health outside of fetal heart rate determination

d. Pitfalls
   i. Ovarian torsion evaluation in the presence of ovarian, para-ovarian, tubal or para-tubal mass
   ii. Ovarian mass evaluation for presence of malignancy versus benign mass
   iii. Interstitial pregnancy
   iv. Presence of ovarian torsion due to a mass or cyst in first trimester patient with identified first trimester intrauterine pregnancy

3. Qualifications and Responsibilities of the Clinician Performing the Examination
   Pelvic EUS provides information that is the basis of immediate decisions concerning further evaluation, management, and therapeutic interventions. Because of the direct bearing on patient care, the rendering of a diagnosis by EUS represents the practice of medicine, and therefore is the responsibility of the treating physician.

   Due to the time-critical and dynamic nature of ectopic pregnancy and other pathologic conditions of the pelvis, emergency interventions may be mandated by the diagnostic findings of the EUS of the pelvis. For this reason, EUS of the pelvis should occur as soon as the clinical decision is made that the patient needs a sonographic evaluation.

   Physicians of a variety of medical specialties may perform EUS of the pelvis. Training should be in accordance with specialty or organizational specific guidelines. Physicians should render a diagnostic interpretation in a time frame consistent with the management of acute presentations related to the pelvic area, as outlined above.

4. Specifications for Individual Examinations
   a. General – Organs and structures evaluated by pelvic EUS are scanned systematically in real time through all tissue planes in at least two orthogonal directions. The primary focus of the pelvic EUS is the identification on an intrauterine pregnancy. Pelvic sonographic evaluations for other pelvic pathology, as described in “Extended Indications,” are performed based on the clinical situation and appropriate physician’s sonographic experience.
b. Technique
   i. Identification
      1. Uterus. The uterus should be examined in at least two planes, the short- and long-axis, to avoid missing important findings that may lie off midline or outside the endometrial canal, such as an interstitial pregnancy or fibroids. The uterus should be traced from the fundus to the cervix, confirming that it is actually the uterus that is being scanned rather than a gestational reaction from a large ectopic pregnancy. Fibroids, which can cause significant pain and even bleeding, should be noted. A pregnancy located less than 5 to 7 mm (exact minimum normal distance varies from reference to reference) from the edge of the myometrium is concerning for being an interstitial ectopic pregnancy.

      2. Cul-de-sac. The cul-de-sac or pouch of Douglas may contain small to moderate amounts of fluid in the normal female pelvis depending on her point in the menstrual cycle. Large amounts of fluid are abnormal but may not be tied to significant pathology. When an ectopic pregnancy is of concern, a significant amount of fluid in the pouch of Douglas raises the concern for rupture. Echogenic fluid in the pelvis may be consistent with either pus or blood.

      3. Ovaries. Each ovary should also be scanned in at least two planes, short- and long-axis. This technique should enable visualization of possible masses juxtaposed to the ovary as well as cysts located on the periphery of an ovary. In the first trimester patient with pain evaluating the ovaries may identify an unexpected cause for pain. For instance, ovarian masses, cysts, or ovarian torsion may be the etiology of a patient’s pain.

      4. Fallopian tubes. The normal fallopian tube can be visualized as it originates from the cornua of the uterus. Visualization can be limited by significant bowel gas or enhanced when distended by fluid such as in hydrosalpinx or tubo-ovarian abscess.

   ii. Real-time scanning technique
      1. Overview. The pelvic ultrasound examination can be performed at the patient’s bedside and when possible, immediately following the pelvic examination portion of the physical examination to limit the time a patient spends in the lithotomy position. A chaperone should also be present for all endovaginal examinations. In most instances, the transabdominal portion of the ultrasound exam should precede the transvaginal component as information regarding bladder fullness, position of the uterus, and anatomic variations can be appreciated. As well, in a certain percentage of patients, an intrauterine pregnancy will be documented, thereby minimizing the need to perform the endovaginal ultrasound exam.

      2. Transabdominal. The patient lies supine on the examination table. The transducer is placed on the lower abdomen just above the symphysis pubis and the pelvic organs are examined through a window of the distended bladder. Bladder filling is ideal when the bladder dome is just above the uterine fundus. Under distention limits visualization of the uterus and other pelvic organs. Images are obtained in sagittal and transverse planes. To optimally image the uterus, the transducer is aligned with the long axis of the uterus, which is often angled right or left of the midline cervix. The ovaries and adnexa are best seen by sliding the transducer to the contralateral side and angling back toward the ovary of interest. The transabdominal technique provides the best overview of the pelvis.
3. Transvaginal. For the transvaginal examination, optimal imaging is achieved with an empty bladder. Two possible patient positions will facilitate endovaginal scanning. In the first, the patient is supine on a stretcher or bed with her legs flexed. Folded sheets or pads are placed under her buttocks to elevate her pelvis above the examination table to allow room for transducer movement. Alternatively, the patient may be scanned on a pelvic examination table with her feet in stirrups. The probe may be placed in the vagina by the patient or the examiner. The uterus is examined entirely in two planes. When in the sagittal plane, the examiner sweeps the transducer laterally to each side to visualize the uterus in its entirety, because it is often deviated to one side. The transducer is then rotated 90 degrees counterclockwise to obtain a coronal view. The transducer can then be angled anteriorly, posteriorly, and to each side to obtain a full assessment of the uterus.

After the sagittal and coronal planes of the uterus have been fully interrogated, other structures in the pelvis can be visualized, such as the cul-de-sac, fallopian tubes, and ovaries. The cul-de-sac is posterior to the uterus and the ovaries are located lateral to the uterus and usually lie anterior to the internal iliac veins and medial to the external iliac vessels.

5. Documentation
In performing EUS of the pelvis, images are interpreted by the treating physician as they are acquired and used to guide contemporaneous clinical decisions. Such interpretations should be documented in the medical record. Documentation should include the indication for the procedure, a description of the organs or structures identified and an interpretation of the findings. Images should be stored as part of the medical record and done so in accordance with facility policy requirements. Given the often-emergent nature of such ultrasound examinations, the timely delivery of care should not be delayed by archiving ultrasound images.

6. Equipment specifications
A curved linear array abdominal transducer with a range of approximately 3.0 to 5.0 MHz as well as an endovaginal transducer with an approximate range of 6.0 to 10.0 MHz range is used for pelvic ultrasound. Color or power Doppler and pulsed wave Doppler are critical if an assessment of blood flow will be made. Both portable and cart-based ultrasound machines may be used, depending on the location and setting of the examination. There is no indication to interrogate the fetus with pulsed wave Doppler, therefore avoiding high-energy ultrasound in early pregnancy. Further, all pelvic ultrasound studies should be kept to a reasonably limited amount of time when sensitive tissue such as the fetus is involved.

7. Quality Control and Improvements, Safety, Infection Control, and Patient Education
Policies and procedures related to quality, safety, infection control, and patient education should be developed in accordance with specialty or organizational guidelines. Specific institutional guidelines may be developed to correspond with such guidelines.

Right Upper Quadrant

1. Introduction
The American College of Emergency Physicians (ACEP) has developed these criteria to assist practitioners performing emergent ultrasound (EUS) studies of the right upper quadrant (RUQ) in patients suspected of having acute biliary disease.
Abdominal pain is a common presenting complaint in the emergency department. Biliary disease is frequently a consideration among the possible etiologies. In many cases, EUS of the RUQ may be diagnostic for biliary disease, may exclude biliary disease, or may identify alternative causes of the patient’s symptoms. If biliary disease is identified, EUS also guides disposition by helping to distinguish emergent, urgent, and expectant conditions.

EUS of the RUQ occurs as a component of the overall clinical evaluation of a patient with abdominal pain. It is a clinically focused examination, which, in conjunction with historical and laboratory information, provides additional data for decision-making. It attempts to answer specific questions about a particular patient’s condition. While other tests may provide information that is more detailed than EUS, have greater anatomic specificity, or identify alternative diagnoses, EUS is non-invasive, is rapidly deployed and does not entail removal of the patient from the resuscitation area. Further, EUS avoids the delays, costs, specialized technical personnel, the administration of contrast agents and the biohazardous potential of radiation. These advantages make EUS a valuable addition to available diagnostic resources in the care of patients with time-sensitive or emergency conditions such as acute biliary colic or cholecystitis, as well as other causes of abdominal pain.

2. Indications/Limitations
   a. Primary
      i. Identification of cholelithiasis

   b. Extended
      i. Cholecystitis

         ii. Common bile duct abnormalities, including dilatation and choledocholithiasis

         iii. Liver abnormalities, including tumors, abscesses, intrahepatic cholestasis, pneumobilia, hepatomegaly

         iv. Portal vein abnormalities

   v. Abnormalities of the pancreas

   vi. Other gallbladder abnormalities, including tumors

   vii. Unexplained jaundice

   viii. Ascites

   c. Contraindications
      i. There are no absolute contraindications to RUQ EUS. There may be relative contraindications based on specific features of the patient’s clinical situation.

   d. Limitations
      i. EUS of the RUQ is a single component of the overall and ongoing evaluation. Since it is a focused examination, EUS does not identify all abnormalities or diseases of the RUQ. EUS, like other tests, does not replace clinical judgment and should be interpreted in the context of the entire clinical picture. If the findings of the EUS are equivocal, additional diagnostic testing may be indicated.
ii. The primary focus of RUQ EUS is to identify or exclude gallstones. Other entities, including hepatic tumors, abnormalities of the pancreas or abnormalities of the portal system would not usually be identified by a limited and focused exam.

iii. Examination of the RUQ may be technically limited by:

1. Obese habitus
2. Bowel gas
3. Abdominal tenderness

c. Pitfalls

i. When bowel gas or other technical factors prevent an adequate examination, these limitations should be identified and documented. As usual in emergency practice, such limitations may mandate further evaluation by alternative methods.

ii. Failure to identify the gallbladder may occur with chronic cholecystitis particularly when filled with stones, or, in the rare instances of gallbladder agenesis. Failure to identify the gallbladder should warrant additional diagnostic imaging.

iii. The gallbladder may be confused with other fluid filled structures including the portal vein, the inferior vena cava, and hepatic or renal cysts or loculated collections of fluid. These can be more accurately identified with careful scanning in multiple planes.

iv. Measurement of posterior gallbladder wall thickness may be inaccurate due to layered gallstones, acoustic enhancement from bile, and closely apposed loops of bowel. Consequently, measurement of gallbladder wall thickness should be made on the anterior wall, adjacent to the hepatic parenchyma.

v. Small gallstones may be overlooked or mistaken for gas in an adjacent loop of bowel. In questionable cases, gain settings should be optimized, the area should be scanned in several planes, and the patient should be repositioned to check for the mobility of gallstones.

vi. Gas in loops of bowel adjacent to the posterior wall of the gallbladder may be mistaken for stones. Intraluminal gas can be distinguished by noting peristalsis and specifically identifying the bowel wall. Stones are characterized by anechoic shadowing and movement with patient repositioning.

vii. Small stones in the gallbladder neck may easily be overlooked or mistaken for lateral cystic shadowing artifact (edge shadows). It may be necessary to image this area in several planes to avoid this pitfall.

viii. Common bile duct stones may only be identified by the shadowing they cause.

ix. Cholesterol stones are often small, less echogenic, may float, and may demonstrate comet tail artifacts.

x. Pneumobilia and emphysematous cholecystitis are subtle findings and may produce increased echogenicity and comet–tail artifact caused by gas in the biliary tree and gallbladder wall.
xi. Polyps may be mistaken for gallstones. The former are non-mobile, do not shadow, and are adjacent and attached to the inner gallbladder wall.

xii. Gallbladder wall thickening may not represent biliary pathology, but may be physiological, as in the post-prandial state, or with non-surgical conditions such as hypoproteinemia and congestive heart failure.

xiii. The presence of gallstones or other findings consistent with cholecystitis does not rule out the presence of other life-threatening causes of epigastric pain such as aortic aneurysm or myocardial infarction.

xiv. Except for emergency physicians with extensive experience in EUS, evaluations of the liver, pancreas and Doppler examination of the portal venous system are not part of the normal scope of EUS of the RUQ.

3. Qualifications and Responsibilities of the Clinician Performing the Examination

EUS of the RUQ provides information that is the basis of immediate decisions concerning further evaluation, management, and therapeutic interventions. Because of its direct bearing on patient care, the rendering of a diagnosis by RUQ EUS represent the practice of medicine, and therefore is the responsibility of the treating physician.

Due to the time-critical and dynamic nature of many causes of abdominal pain and biliary pathology, emergency interventions may be undertaken based upon findings of the EUS exam. For this reason, EUS should occur as soon as the clinical decision is made that the patient needs a sonographic exam. Physicians of a variety of medical specialties may perform biliary ultrasound. Training should be in accordance with specialty or organization specific guidelines. Physicians should render a diagnostic interpretation in a time frame consistent with the management of acute biliary disease, as outlined above.

4. Specifications for Individual Examinations

a. General – Organs and structures evaluated in the RUQ are scanned systematically in real time through all tissue planes in at least two orthogonal directions. The primary focus of the biliary EUS examination is the identification of gallstones. Evaluation of the gallbladder for evidence of cholecystitis and examination of the liver and biliary tree, as described in “Extended Indications,” are performed based on the clinical situation and the emergency physician’s ultrasound experience.

b. Technique

i. Identification

1. Gallbladder. The normal gallbladder is highly variable in size, shape, axis, and location. It may contain folds and septations, and may lie anywhere between the midline and the midaxillary line. The axis and location of the porta hepatis are also highly variable. Orientation of images of the gallbladder and common bile duct are conventionally defined with respect to their axes as longitudinal, transverse, and oblique, rather than standardized anatomic planes such as sagittal, coronal, oblique and transverse.

In most cases, the gallbladder lies immediately posterior to the inferior margin of the liver in the mid-clavicular line. In some patients, the fundus may extend several centimeters below the costal margin; in others, the gallbladder may be high in the hilum of the liver, almost completely surrounded by hepatic parenchyma. In order to avoid
confusing it with fluid-filled tubular structures, the entire extent of the gallbladder should be scanned in its long and short axes.

2. Common bile duct. It is usually located by following the neck of the gallbladder to the portal triad where it can be found in conjunction with the portal vein and the hepatic artery. The use of color Doppler helps identify vascular structures from the common bile duct.

ii. Real-time scanning technique

1. Overview: A general-purpose curved array abdominal probe with a frequency range of 2.0-5.0 MHz is generally used. A small footprint or phased array probe may facilitate scanning between the ribs. As with other EUS, the organs of interest are scanned methodically through all tissue planes in at least two orthogonal directions.

2. In most patients, the inferior margin of the liver provides a sonographic window for the gallbladder below the costal margin. In many cases, this window can be augmented by asking the patient to take and hold a deep breath. It may also be helpful to place the patient in a left decubitus position. The transducer is placed high in the epigastrium with the indicator in a cephalad orientation. The probe is swept laterally while being held immediately adjacent to the costal margin. The liver margin should be maintained within the field of view on the screen.

3. In patients whose liver margin cannot be visualized below the costal margin, an intercostal approach is necessary. In order to minimize rib shadowing, the transducer is oriented with the plane of the probe parallel to the intercostal space and the indicator directed toward the vertebral end of the rib. This plane is about 45 degrees counterclockwise from the long axis of the patient’s body. The probe is swept laterally from the sternal border to the midaxillary line until the gallbladder is located.

4. When the gallbladder has been located, its long and short axes are identified. In the long axis, images are obtained, by convention, with the gallbladder neck on the left of the screen, and the fundus on the right. The gallbladder is scanned systematically through all tissue planes in both long and short axis views. In many patients, a combination of subcostal and intercostal windows allows for views of the gallbladder from multiple directions and may help identify small stones, resolving artifacts, and examining the gallbladder neck.

5. The common bile duct is most easily located sonographically by finding and identifying the portal vein and hepatic artery, which comprise the portal triad. Several techniques can be used to locate the common bile duct in addition to anatomic location. These include tracking the hepatic artery from the celiac axis, tracking the portal vein from the confluence of the splenic and superior mesenteric veins, and following the portal vessels in the liver to the hepatic hilum. In a transverse view of the portal triad, the common bile duct and hepatic artery are typically seen anterior to the portal vein. The common bile duct is usually more lateral than the hepatic artery or more to the left on the screen. It can also be distinguished by its absence of a color flow Doppler signal if this modality is employed.

iii. Key components of the exam. The gallbladder is systematically scanned with particular attention to the neck. For patients with low-lying gallbladder, the fundus may be obscured by gas-filled colon. Decubitus positioning or inhalation may help provide adequate windows for scanning.
in this situation. The principal abnormal finding is gallstones that are echogenic with distal shadowing. Measurement of wall thickness, if performed, is made on the anterior wall between the lumen and the hepatic parenchyma. Measurements of gallbladder size are rarely helpful in EUS, although gross increases in transverse diameter or overall size may be evidence of cholecystitis and hydrops, respectively. A qualitative assessment of the wall and pericholecystic regions should also be made, looking for mural irregularity, breakdown of the normal trilaminar mural structure, and fluid collections.

The common bile duct, like other tubular structures, is most accurately measured when imaged in a transverse plane. It is most reliable to measure the intraluminal diameter (inside wall to inside wall). Anatomically, it is preferable to measure the common bile at its largest diameter, which typically occurs extra-hepatic ally. Identification of the common bile duct in this location is best achieved with long axis visualization, rather than the transverse orientation. Becoming facile with imaging in both planes is a key element to successful measurements of the common bile duct. Evaluation of the common bile duct may reveal shadowing suggesting stones and/or comet-tail artifact suggesting pneumobilia. The question of such findings would warrant additional diagnostic testing.

iv. Pathologic findings

1. Cholelithiasis - Gallstones are often mobile (move with patient positioning) and usually cause shadowing. Optimization of gain, frequency and focal zone settings may be necessary to identify small gallstones and to differentiate their shadows from those of adjacent bowel gas.

2. Cholecystitis - This diagnosis is based on the entire clinical picture in addition to the findings of the EUS. The following sonographic findings support the diagnosis of cholecystitis.
   a. Thickened, irregular, or heterogeneously echogenic gallbladder wall is measured along the anterior surface. Thickness greater than 3 millimeters is considered abnormal.
   b. Pericholecystic fluid may appear as hypo- or an-echoic regions seen along the anterior surface of the gallbladder within the hepatic parenchyma and suggests acute cholecystitis.
   c. A Sonographic Murphy’s sign is tenderness reproducing the patient’s abdominal pain elicited by probe compression directly on the gallbladder, combined with the absence of similar tenderness when it is compressed elsewhere.
   d. Increased transverse gallbladder diameter greater than 5 cm may be evidence of cholecystitis.

3. Common bile duct dilatation - The normal upper limit of common bile duct diameter has been described as 3 mm, although several studies have demonstrated increasing diameter with aging in patients without evidence of biliary disease. For this reason, many authorities consider that the normal common bile duct may increase by 1 mm for every decade of age.

4. Pathologic findings of the liver and other structures are beyond the scope of the EUS.

5. Documentation
In performing EUS of the RUQ, images are interpreted by the treating physician as they are acquired and are used to guide contemporaneous clinical decisions. Documentation of the RUQ EUS should be incorporated into the medical record. Documentation should include the indication for the procedure, the views obtained, a description of the organs or structures identified and an interpretation of the findings. Images should be stored as a part of the medical record and in accordance with facility policy requirements. Given the often-emergent nature of such ultrasound examinations, the timely delivery of care should not be delayed by archiving ultrasound images.

6. Equipment Specifications
A curvilinear abdominal transducer with frequencies of 2.0-5.0 MHz is appropriate. A small footprint curved array probe or phased array probe facilitates intercostal scanning. Both portable and cart-based ultrasound machines may be used, depending on the location and setting of the examination.

7. Quality Control and Improvements, Safety, Infection Control and Patient Education
Policies and procedures related to quality, safety, infection control and patient education should be developed in accordance with specialty or organizational guidelines. Specific institutional guidelines may be developed to correspond with such guidelines.

Soft tissue/Musculoskeletal
1. Introduction
The American College of Emergency Physicians (ACEP) has developed these criteria to assist practitioners performing emergency ultrasound (EUS) studies of soft tissue and musculoskeletal systems (ST-MSK).

Ultrasound allows the practitioner to rapidly assess patients for pathology that is difficult or impractical to assess by other means. Primarily, ultrasound can aid in the classification of soft tissue infection, localization of foreign bodies (FB), detection of joint effusions and guidance of arthrocentesis. Secondarily, ultrasound can aid in the diagnosis of deep space infection, guidance of foreign body removal, fracture detection and reduction, and evaluation for ligament and tendon pathology. It is a clinically focused examination, which, in conjunction with history, physical examination and other imaging, provides important data for decision-making and patient care.

2. Indications/Limitations
a. Primary
   i. Soft tissue: sonographic evaluation of
      1. Cellulitis versus abscess
      2. Foreign bodies
   ii. Musculoskeletal
      1. Evaluation of joint effusion
      2. Guidance of arthrocentesis
b. Extended
   i. Soft tissue
      1. Identification of deep space infection
      2. Guidance of foreign body removal
ii. Musculoskeletal
   1. Fracture detection and reduction
   2. Identification of tendon/ligament injury
   3. Diagnosis of tenosynovitis

c. Contraindications
   i. Need for immediate operative management

d. Relative contraindications
   i. Significant pain or open wounds over the area to be scanned

e. Limitations
   i. Ultrasound does not replace clinical judgment, especially when emergent surgical procedures are indicated.

f. Pitfalls
   i. Soft tissue
      1. Infection
         a. Early in the infectious course, classic sonographic findings of soft tissue infection may not be present.
         b. Deep space infections may be difficult to detect secondary to inadequate penetration with higher frequency transducers and settings.
         c. Abscesses typically have variable internal densities and consistencies, so sonographic appearance can also be variable.
         d. The appearance of cellulitis is indistinguishable from sterile edematous tissue. In these scenarios, sonographic findings should be interpreted in the context of the clinical history.

   2. Foreign body identification
      a. Small FBs (< 2 mm) may be difficult to detect and require careful and methodical examination.
      b. Superficial foreign bodies can also be difficult to detect since they are not typically located within the optimal focal zone of the sonographic window.
      c. Confined spaces, such as web interspaces, can be difficult to image due to the contours of the transducer.
      d. FBs adjacent to bone can be difficult to detect. Sonographers typically use shadowing or other artifacts as an important visual cue for presence of FB, and these may be obscured by closely adjacent bone.
      e. Other echogenic material in the skin, such as air, scar tissue, ossified cartilage and keratin plugs, may produce false positive findings.
f. Although ultrasound is sensitive for the presence of a FB, this sensitivity does not reach 100%. Ultrasound cannot definitively rule-out the presence of a FB.

3. Foreign body localization and removal – see Ultrasound Guided Procedures” criteria.

ii. Musculoskeletal

1. Ultrasound has been shown to be highly accurate in the detection of long bone fractures. Certain fractures may be difficult to detect, including:
   a. non-displaced fractures
   b. small avulsion fractures
   c. fractures involving
      i. articular surfaces
      ii. intertrochanteric regions
      iii. hands and feet

2. Joint effusions are occasionally difficult to detect if they are:
   a. very small in size
   b. early in an infectious course

3. Ligaments and Tendons require careful and methodical evaluation since:
   a. incomplete lacerations may be difficult to visualize
   b. anisotropy may lead to misinterpretation of the sonographic images
   c. early in the infectious course, the typical sonographic findings of tenosynovitis may not be present

3. Qualifications and Responsibilities of the Clinician Performing the Examination

ST-MSK EUS is the basis of immediate decisions concerning further evaluation, management, and therapeutic interventions. Because of its direct bearing on patient care, the rendering of a diagnosis by ST-MSK EUS represents the practice of medicine, and therefore is the responsibility of the treating physician.

Due to the time-critical and dynamic nature of many causes of soft tissue-MSK pathology, interventions may be undertaken based upon findings of the EUS exam. For this reason, EUS should occur as soon as the clinical decision is made that the patient needs a sonographic exam.

Physicians of a variety of medical specialties may perform ST-MSK ultrasound. Training should be in accordance with specialty or organization specific guidelines. Physicians should render a diagnostic interpretation in a time frame consistent with the management of ST-MSK disease, as outlined above.

4. Specifications for Individual Examinations

a. General. The ST-MSK examination can be performed at the patient’s bedside and requires little patient preparation except for positioning in the bed and control of significant pain in the scanning area if present. The ultrasound probe is placed over the area of interest and imaging is performed in both sagittal and transverse planes. The probe should be initially placed at the primary window and then be tilted, rocked and rotated to allow for real-time imaging of the
area(s) involved. This may take more time with difficult windows, challenging patients or other patient priorities. Interpretation should be done at the bedside immediately with performance of the real-time examination. Comparison to the contralateral “normal” side and dynamic imaging are both critical in ST-MSK sonography.

b. Technique
   i. Identification
      1. Dermal layer. Most superficial echogenic structure encountered (deep to the stand-off pad if one is being used).
      2. Subcutaneous fat. Located deep to the dermis, this is a relatively hypoechoic layer with a reticular pattern of interspersed echogenic connective tissue.
      3. Muscle tissue. Hypoechoic striated tissue typically found in bundles.
      4. Tendons/ligaments. Hyperechoic tissue with a fibrillar appearance in the long axis. Tendons can be observed to move as the corresponding joints are passively flexed and extended. Ligaments may be more difficult to visualize at ninety degrees to the ultrasound beam and therefore may appear more hypoechoic.
      6. Bones. Bony cortices are brightly echogenic with posterior shadowing. Typically, only the most superficial surface of the bone will be visible.
      7. Nerves. Typically, hyperechoic and fibrillar in the long axis and with a honeycomb appearance in a short axis, nerves may be confused for tendons. Nerves usually do not move significantly with joint movement, and are localized in relation to vascular structures.

   ii. Real-time scanning technique
      1. Overview. A high frequency linear or hockey stick transducer is typically employed for ST-MSK ultrasound. This enables high-resolution imaging but typically limits depth of penetration to a few centimeters. Imaging may be improved with certain devices such as stand-off pads or water bath to place the item of interest central in the focal zone. The items of interest should be scanned methodically in 2 orthogonal planes.
      2. Soft tissue. The transducer is generally first dragged over an area of normal skin adjacent to the area of interest. As the transducer moves closer to the area of interest, the sonographer will carefully assess for signs of cellulitis, abscess, or cutaneous foreign body. Of particular note, when interrogating a soft tissue abscess, the application of gentle pressure will often elicit movement within the abscess cavity and liquid contents are displaced.
      3. Bones. Ultrasound is very useful for the detection of fractures and to help guide fracture reduction. In most instances, a high frequency linear array is used to evaluate bone for the presence of a fracture; however, depending on the depth of bone being visualized, a lower frequency probe may be necessary to assure adequate tissue penetration. The probe is placed in the long axis over the bone in question to visualize the hyperechoic bony cortex. The sonographer then slides the probe along the length of the bone looking for interruptions, step-offs, and angulations of the cortex. The same technique can then
be repeated in the short axis to acquire more information. In some instances, a comparison of the contralateral bone may be helpful.

4. Joint effusions: Due to the unique anatomy of individual joints, the scanning technique is variable. In general, the probe is placed in the long axis over the bone proximal or distal to the joint in question in order to visualize the hyperechoic bony cortex. Keeping the cortex in view, the probe is slid toward the joint space looking for the presence of an anechoic/hypoechoic collection representing a joint effusion. In every instance, the contralateral joint should be used for comparison. It is generally accepted that an effusion exists if there is at least a 2mm difference in the amount of fluid present in the affected joint when compared to the contralateral joint.

5. Tendons/ligaments: Ultrasound is useful for the detection of tendon and ligamentous lacerations, ruptures, and tenosynovitis. In most instances, a high frequency linear array transducer is used to evaluate the structure of interest. In addition, superficial tendons or ligaments may be better visualized with the use of a standoff or water bath technique. Visualized in long axis, tendons and ligaments appear hyperechoic and fibrillar, and move as the corresponding joint is ranged. Disruption is most easily seen in the long axis. If infection is suspected, the sonographer should assess for fluid collections surrounding the tendon, which can be seen in either axis.

iii. Key components of the exam

1. Soft tissue. The normal/unaffected skin should be scanned prior to scanning the suspected infectious region. This comparison may aid in the recognition of subtle findings suggestive of soft tissue infection. In the assessment for abscess, the sonographer should remember that different internal densities of the abscess will lead to different echogenicities in the sonographic window. Gentle pressure should be applied to elicit movement within the abscess cavity, confirming the presence of pus. Foreign bodies can be difficult to locate, but several techniques improve visualization: scanning slow and methodically, imaging in multiple planes (to detect obliquely oriented objects), utilizing a standoff pad or water bath technique for superficial objects and ideally, imaging the foreign body directly perpendicular or parallel to its long axis. Familiarity with adjacent anatomic structures will allow the discernment of foreign bodies from muscle, nerve, fascia, tendon, blood vessels, bone and subcutaneous air.

2. Bones. The identification of small bone fractures is relatively uncomplicated given the high resolution and shallow field of view of the linear transducer. When used to assess progress in fracture reduction, ultrasound coupling gel may make reduction difficult by making the surfaces slippery. The gel should be wiped away with a towel before further attempts at reduction. When examining for femur fractures, a curvilinear transducer is helpful to obtain the depth necessary for imaging deep to the thick quadriceps muscles.

3. Joint effusions. Knowledge of the sonoanatomy of the individual joints is of the utmost importance. In most instances, a high frequency linear array is used; however, in deeper joints (ie, hip, shoulder) a lower frequency probe may be needed to assure adequate tissue penetration.

4. Tendons/ligaments. Tendons should be imaged from multiple angles to minimize the effect of anisotropy. This sonographic artifact is usually hypoechoic and triangular, and mimics a disruption in the tendon or ligament, but will correct as the transducer is
moved and the beam strikes the structure at 90 degrees. Tendons may also be easily identified by ranging the accompanying joint and observing for movement of the tendon.

iv. Pathologic findings

1. Cellulitis. Sonographic findings suggestive of cellulitis are non-specific but include tissue thickening, increased echogenicity of the subcutaneous tissue and reticular regions of hypoechoic edema which may yield a cobblestone-like appearance. Differentiating bands of edematous fluid from irregular collections of pus can be difficult.

2. Abscess. A subcutaneous abscess may have a variety of appearances. In general, a hyperechoic rim of edematous tissue surrounds an elliptical or spherical-shaped, hyperechoic fluid-filled cavity which demonstrates posterior acoustic enhancement. At times, however, an abscess can be irregularly shaped, lack a clear surrounding rim and demonstrate variable degrees of internal echogenicity due to purulent material, debris, septae or gas. Color flow Doppler can help confirm the absence of flow within the cavity and may reveal a region of hyperemia surrounding the abscess. Pressure applied over the infected region may reveal mobility of the purulent material within the cavity, helping to confirm its liquid nature. Prior to drainage of an abscess, recognition of surrounding anatomic structures (blood vessels, muscles, tendons, nerves) is essential.

3. Foreign bodies. All foreign bodies appear hyperechoic but will display variable degrees of artifact. Metal and glass tend to produce reverberation artifact. Wood, gravel, and plastic are hyperechoic with a trailing shadow. Substances that have been present in the body longer than 24 hours typically have a small amount of surrounding inflammatory fluid, which appears as an anechoic halo surrounding the hyperechoic material.


5. Deep space infections. In order to assure adequate tissue penetration a lower frequency transducer may be needed. The diagnosis of necrotizing fasciitis with ultrasound has not been studied systematically and thus ultrasound should not be utilized to exclude this diagnosis. A number of sonographic findings suggestive of this disease have been described including thickening of the subcutaneous fascia, a fluid layer 4 mm adjacent to deep fascia and subcutaneous gas.

6. Joint effusions. Joint effusions are easily seen by ultrasound as hypoechoic fluid collections in the joint space. The transducer is dragged along the long axis of the bone towards the articular surface. There, a V-shaped depression will be seen that is formed by the articular surface of the connecting bone. If an effusion is present this space will be filled by hypoechoic fluid collection. The precise location of the largest fluid collection may then be easily marked for aspiration.

7. Arthrocentesis. A joint effusion may be aspirated using static or dynamic visualization techniques.

   a. Static – The ultrasonographer visualizes the joint effusion and marks the overlying skin in two distinct planes noting the depth of the fluid as well as the optimal angle of entry. The probe is then removed, and the joint tapped using standard technique.

   b. Dynamic – The sonographer obtains a view of the joint effusion and under direct visualization uses the ultrasound to guide the needle into the most readily accessible
fluid collection. This may be done in short or long axis depending on the site and sonographer preference.

8. Fractures.
   a. Small bone fractures: Ultrasound may be helpful in the identification of small fractures, or those not easily or practically imaged with conventional radiography. These include facial fractures, rib fractures, and nasal bone fractures. The sonographer typically first identifies the hyperechoic bony cortex. Then, the transducer is dragged along the surface of the bone in both orthogonal planes as the continuity of the cortex is carefully assessed. Since the window depth of a high frequency transducer is 1-5 cm, fractures displaced by as little as a few millimeters will typically be obvious.

   b. Long bone fractures: Ultrasound is also helpful in the identification of long bony fractures. This includes use in austere environments such as the wilderness or battlefield. It may also be useful for a quick femoral survey in the hypotensive trauma patient when other sources of bleeding are not immediately obvious and bleeding into the femoral compartment is suspected. In this setting, a curvilinear transducer is helpful to obtain the depth necessary for imaging deep to the thick quadriceps muscles.

9. Fracture reduction. Ultrasound is helpful in fracture reduction when other imaging is impractical. This is most evident during procedural sedation when quick radiographs cannot be obtained to assess the success of the procedure. The bone is intermittently assessed along sagittal, coronal, and axial planes for adequacy of reduction as the clinician attempts to bring the cortices into alignment.

10. Tendon/ligament lacerations and ruptures. The ultrasound probe is placed in the longitudinal and transverse planes over the structure of interest in an attempt to visualize partial and complete tears. Partial tears will appear as hypoechoic areas within the normal fibrillar tendon architecture, while complete lacerations and ruptures will extend through the entire length of the tendon in question. Active and passive range of motion of the tendon can help to assist in the presence or absence of pathology; scanning the contralateral body part for comparison may be useful as well.

11. Tenosynovitis. The ultrasound probe is placed in the longitudinal and transverse planes over the tendon in question in order to assess for the presence of an anechoic/hypoechoic area around the tendon representing a collection of fluid suggesting infection. In addition, infected tendons may demonstrate enlargement when compared to the contralateral side.

5. Documentation
   In performing ST-MSK EUS, images are interpreted by the treating physician as they are acquired and are used to guide contemporaneous clinical decisions. Documentation of the ST-MSK EUS should be incorporated into the medical record. Documentation should include the indication for the procedure, the views obtained, a description of the organs or structures identified and an interpretation of the findings. Images should be stored as a part of the medical record and in accordance with facility policy requirements. Given the often-emergent nature of such ultrasound examinations, the timely delivery of care should not be delayed by archiving ultrasound images.

6. Equipment Specifications
Most of the applications described in this section involve superficial structures. Thus, optimal visualization occurs with linear ultrasound transducers at frequencies of 8.0-12.0 MHz. Occasionally, a curvilinear or phased array transducer of 3.5-5.0 MHz will be necessary to evaluate deeper structures such as in cases of suspected hip effusion/septic hip joint or deep space abscess. Endocavitary probes can be used to identify abscess formation in areas such as the oropharynx. Both portable and cart-based ultrasound machines may be used, depending on the location and setting of the examination.

7. **Quality Control and Improvements, Safety, Infection Control, and Patient Education**

Policies and procedures related to quality, safety, infection control, and patient concerns should be developed in accordance with specialty or organizational guidelines. Specific institutional guidelines may be developed to correspond with such guidelines.

**Trauma**

1. **Introduction**

The American College of Emergency Physicians (ACEP) has developed these criteria to assist practitioners who are performing emergency ultrasound studies (EUS) of the torso of the injured patient and commonly referred to as the Focused Assessment by Sonography in Trauma (FAST) exam. Trauma EUS is used to evaluate the peritoneal, pericardial or pleural spaces in anatomically dependent areas by combining several separate focused ultrasound examinations of the chest, heart, abdomen and pelvis. Since a variety of formats and content have been advocated for the FAST exam, and because this document considers some applications of trauma ultrasonography that are beyond the scope of the FAST, this document will refer to such examinations as “Emergency Ultrasound (EUS) in Trauma,” or “Trauma EUS.”

The primary indication for this application is to identify pathologic collections of free fluid or air released from injured organs or structures. Trauma EUS is performed at the bedside to assess for hemopericardium, hemothorax, hemoperitoneum or other abnormal fluids such as urine or bile, or pneumothorax. Free fluid is a marker of injury, not the injury itself. Since certain important traumatic conditions such as hollow viscus injury, mesenteric vascular injury, and diaphragmatic rupture may cause minimal hemorrhage, they can be easily be overlooked by trauma EUS. Trauma EUS also may not differentiate between different types of pathological fluid such as urine and blood. These characteristics of trauma EUS have implications for management of patients in whom these injuries are a consideration. Pneumothorax may be mimicked by lack of respiratory effort, mainstem intubation, adhesed or pleurodesed lung, or pleural masses (see “Lung and Pleura” criteria).

Trauma EUS is performed as an integral component of trauma resuscitation. Other diagnostic or therapeutic interventions may take precedence or may proceed simultaneously with the EUS evaluation. It is a clinically focused examination, which, in conjunction with historical and laboratory information, provides additional data for decision-making. It attempts to answer specific questions about a particular patient’s condition. While other tests may provide information that is more detailed than EUS, have greater anatomic specificity, or identify alternative diagnoses, EUS is non-invasive, is rapidly deployed and does not entail removal of the patient from the resuscitation area. Further, EUS avoids the delays, costs, specialized technical personnel, the administration of contrast agents and the biohazardous potential of radiation. These advantages make EUS a valuable addition to available diagnostic resources in the care of patients with time-sensitive or emergency conditions such as acute thoracic and abdominal trauma.
Trauma EUS is well suited to mass casualty situations where it can be used to rapidly triage multiple victims. It can be performed on the patient with spinal immobilization and with portable equipment, allowing it to be used in remote or difficult clinical situations such as aeromedical transport, wilderness rescue, expeditions, battlefield settings, and space flight. Finally, serial trauma EUS exams can be repeated as frequently as is clinically indicated. These advantages make it a valuable addition to diagnostic resources available in the care of patients with the time-sensitive and/or emergent conditions associated with torso trauma.

2. **Indications/Limitations**
   a. **Primary**
      i. To rapidly evaluate the torso for evidence of traumatic free fluid or pathologic air suggestive of injury in the peritoneal, pericardial, and pleural cavities.
   
   b. **Extended**
      i. Solid organ injury
      ii. Triage of multiple or mass casualties
   
   c. **Contraindications**
      i. There are no absolute contraindications to trauma EUS. There may be relative contraindications based on specific features of the patient’s clinical situation, eg, extensive abdominal or chest wall trauma.
      ii. The need for immediate laparotomy is often considered a contraindication to trauma EUS; however, even in this circumstance, EUS evaluation for pericardial tamponade or pneumothorax may be indicated prior to transfer to the operating room.
   
   d. **Limitations**
      i. Trauma EUS is a single component of the overall and ongoing resuscitation. Since it is a focused examination, EUS does not identify all abnormalities resulting from truncal trauma. EUS, like other tests, does not replace clinical judgment and should be interpreted in the context of the entire clinical picture. If the findings of the EUS are equivocal, additional diagnostic testing may be indicated.
      ii. EUS in trauma is technically limited by:
         1. Bowel gas
         2. Obesity
         3. Subcutaneous emphysema
      iii. Trauma EUS is likely to be less accurate in the following settings:
         1. Pediatric patients
         2. Patients with other reasons for free fluid such as prior diagnostic peritoneal lavage, ascites, ruptured ovarian cyst, pelvic inflammatory processes
   
   e. **Pitfalls**
      i. When bowel gas or other technical factors prevent a complete or adequate exam, these limitations should be identified and documented. As usual in emergency practice, such limitations may mandate further evaluation by alternative methods, as clinically indicated.
ii. Most studies show that peritoneal free fluid is not identified by EUS until at least 500 ml is present. Thus, a negative exam does not preclude early or slowly bleeding injuries.

iii. Some injuries may not give rise to free fluid and may therefore easily be missed by trauma EUS. These include contained solid organ injuries, mesenteric vascular injuries, hollow viscus injuries, and diaphragmatic injuries.

iv. Non-traumatic fluid collections such as ascites, or pleural and pericardial effusions, which are due to antecedent medical conditions, may be mistakenly ascribed to trauma. Credible history and associated clinical findings, as well as the sonographic features of the free fluid may suggest such conditions.

v. Trauma EUS does not specifically identify most solid organ injuries.

vi. EUS does not identify retroperitoneal hemorrhage.

vii. A negative trauma EUS is not accurate in excluding intra-abdominal injury after isolated penetrating trauma.

viii. Blood clots form rapidly in the peritoneum. Clotted blood has sonographic qualities similar to soft tissue and may be overlooked.

ix. Perinephric fat may be mistaken for hemoperitoneum.

x. Fluid in the stomach or bowel may be mistaken for hemoperitoneum.

xi. Small hemothoraces may be missed in the supine position.

xii. In the evaluation of the pericardium, epicardial fat pads, pericardial cysts, and the descending aorta have been mistaken for free fluid.

xiii. Patients with peritoneal or pleural adhesions with significant hemorrhage may not develop free fluid in the normal locations.

xiv. In the suprapubic view, posterior acoustic enhancement caused by the bladder can result in pelvic free fluid being overlooked. Gain settings should be adjusted accordingly.

3. Qualifications and Responsibilities of the Clinician Performing the Examination

Trauma EUS provides information that is the basis of immediate decisions about further evaluation, management, and therapeutic interventions. Because of its direct bearing on patient care, the rendering of a diagnosis by trauma ultrasound represents the practice of medicine, and therefore is the responsibility of the treating physician.

Due to the time-critical and dynamic nature of traumatic injury, emergent interventions may be mandated by the diagnostic findings of EUS examination. For this reason, trauma EUS should be performed as soon as possible (usually minutes) following the decision that the patient needs a sonographic evaluation.

Physicians of a variety of medical specialties may perform the FAST examination. Training should be in accordance with specialty or organization specific guidelines. Physicians should render a
diagnostic interpretation in a time frame consistent with the management of acute traumatic injury, as outlined above.

4. Specifications for Individual Examinations
   a. General Trauma EUS is performed simultaneously with other aspects of resuscitation. The transducer is placed systematically in each of 4 general regions with known windows to the peritoneum, pericardium and pleural spaces for detection of fluid and other sonographic abnormalities. The precise location of these regions varies from patient to patient, and is only used as a means to the real goal of identifying specific potential spaces where pathological collections of free fluid are known to collect. The transducer is placed in each of the regions consecutively and then tilted, rocked and rotated to allow for real-time imaging of the underlying potential space(s). The ultrasound images obtained are interpreted in real-time as the exam is being performed. If possible, images may be retained for purposes of documentation, quality assurance, or teaching.

   b. Technique
      i. Overview. The trauma EUS exam evaluates 4 general regions or “views” for free fluid in defined potential spaces. The order in which the regions are examined may be determined by clinical factors such as the mechanism of injury or external evidence of trauma. Since scientific investigations have shown that the single most likely site for free fluid to be identified is the right upper quadrant, many practitioners start with this view, and then progress in a clockwise rotation through the sub-xiphoid, left upper quadrant, and suprapubic views. As with other EUS, the potential spaces being examined should be scanned methodically in real-time through all tissue planes. If possible, they should be evaluated in at least two orthogonal directions. Identification of the potential spaces in a single still image or plane is likely to result in early injuries, or those with small volumes of free fluid, being overlooked.

      ii. Real-time scanning technique
         1. The right flank. Also known as the perihepatic view, Morison’s pouch view or right upper quadrant view. Four potential spaces for the accumulation of free fluid are examined in this region (listed in a cephalad to caudad direction): the pleural space, the subphrenic space, the hepatorenal space (Morison’s pouch), and the inferior pole of the kidney, which is a continuation of the right paracolic gutter.

         In this region, the liver usually provides a sonographic window for all four potential spaces. If the liver margin is sufficiently low, the probe can be placed in a subcostal location in the mid-clavicular line. Cooperative patients may facilitate this by being asked to “take a deep breath and hold” while the four potential spaces are examined. In the majority of patients, the liver does not afford an adequate window with a subcostal probe position, so an intercostal approach is necessary. In order to minimize rib shadowing, the transducer should be placed in an intercostal space in a location between the mid-clavicular and posterior axillary lines, with the plane of the probe parallel with the ribs. This plane is about 45 degrees counter-clockwise from the long axis of the patient’s body. The probe indicator, by convention, is always directed toward the head (the vertebral end) of the rib. By angling the probe superiorly, the subhepatic space and the right pleural space may be visualized for fluid. Abnormal fluid collections in the pleural space are visualized as anechoic or hypoechoic collections above the diaphragm.

         Angling inferiorly allows visualization of Morison’s pouch and may show the inferior pole of the right kidney. In many patients, bowel gas is interposed between the liver and
the inferior pole of the kidney, necessitating a more posterior approach to visualize this space.

Gain settings should be adjusted so that the diaphragm and renal sinus fat appear white, and known hypoechoic structures (such as the inferior vena cava, gallbladder, or renal vein) appear black.

2. The pericardial view. Also known as the subcostal or subxiphoid view. To examine the pericardium, the liver in the epigastric region is most commonly used as a sonographic window to the heart. The heart lies immediately behind the sternum, so that it is necessary, in a supine patient, to direct the probe in a direction toward the left shoulder that is almost parallel with the horizontal plane of the stretcher. This requires firm downward pressure, especially in patients with a protuberant abdomen, in order to obtain a view posterior to the sternum (“under” the sternum) in the supine patient. Both sagittal and transverse planes may be used. Many find the transverse plane easier, especially in obese patients, since it requires slightly less compression of the abdominal wall to obtain adequate views. The potential space of the pericardial sac is examined for fluid both inferiorly (between the diaphragmatic surface and the inferior myocardium) and posteriorly. Slight angulation in a caudal direction when the probe is held in a transverse orientation allows visualization of the IVC and hepatic veins including their normal respiratory variability. In some patients, a subxiphoid view is not possible due to anterior abdominal trauma, or body habitus. In this case, other routinely used cardiac windows such as the parasternal or apical four-chamber views may be used. These are described in the “Cardiac” criteria.

3. Left flank. In this view, also known as the perisplenic or left upper quadrant view, four potential spaces are sonographically explored, analogous to the right upper quadrant view. These four spaces are: the pleural space, the subphrenic space, the splenorenal space, and the inferior pole of the kidney, which is a continuation of the left paracolic gutter. This view can make some use of the spleen as a sonographic window, but, being so much smaller, it provides a much more limited window than the liver on the right. For this reason, the posterior intercostal approach described for the right upper quadrant is utilized extensively in the left upper quadrant. In order to avoid the gas filled splenic flexure and descending colon it is usually necessary to place the probe on the posterior axillary line or even more posteriorly. As is the case on the right side, the probe indicator, by convention, is always directed toward the head (the vertebral end) of the rib. This requires that, on the left, the probe is rotated approximately 45 degrees clockwise from the long axis of the patient’s body. Angulation superiorly allows visualization of the left pleural space. As on the right, the pleural spaces are investigated for evidence of hemothorax by looking for anechoic or hypoechoic collections above the diaphragm. In order to visualize the inferior pole of the left kidney and the superior extent of the left paracolic gutter, it is usually necessary to move the probe one to three rib spaces in a caudal direction. In each rib space, the probe is systematically swept through all planes in a search for free fluid.

4. Pelvic. Also known as the suprapubic view, retrovesical, and rectovesical view (in the male), and the retrouterine, rectouterine, and pouch of Douglas view (in the female). This space is the most dependent peritoneal space in the supine position. A full bladder is ideal to visualize the potential spaces in the pelvis, but adequate views can often be obtained with a partly filled bladder. When the bladder is empty, large volumes of anechoic or hypoechoic free fluid may still be seen, however it is not possible to reliably
rule out the presence of smaller amounts of free fluid. The probe is placed in the transverse plane immediately cephalad to the pubic bone. This maximizes the sonographic window afforded by the bladder. The probe is rocked from inferior to the dome of the bladder in a systematic manner through all tissue planes. The probe may be rotated 90 degrees counter-clockwise into the sagittal plane for additional visualization of the bladder and pelvic peritoneum.

Gain settings usually need to be decreased in this view to account for the posterior acoustic enhancement caused by the fluid-filled bladder.

5. Anterior pleural (Bilateral). In non-collapsed lung, the anterior visceral and parietal pleura are intimately apposed, and slide past one another during respiration. Absence of identifiable pleural sliding is indicative of separation of the parietal–visceral pleural interface by interposed gas, ie, pneumothorax. In the supine position, the anterior pleura is examined by placing the probe in a sagittal plane in the rib interspaces between the clavicle and diaphragm. The approximate midclavicular line is used on both sides. It is necessary to adjust frequency, depth, focus and gain settings to optimally image these superficial structures. This exam is discussed in more detail in the “Lung and Pleura” criteria.

iii. Additional windows
1. Paracolic gutters. These potential spaces are anatomically continuous with the hepatorenal and splenorenal spaces. Windows inferior to the level of kidneys and next to the iliac crests may reveal bowel surrounded by fluid.

iv. Other considerations
Trendelenburg and sitting position may increase the sensitivity of the ultrasound exam for abnormal fluid in the right upper quadrant and pelvis, respectively. Serial trauma EUS may be performed in response to changes in the patient’s condition, to check for the development of previously undetectable volumes of free fluid or for purposes of ongoing monitoring, as indicated clinically.

5. Documentation
In performing trauma EUS exams, images are interpreted by the treating physician as they are acquired and are used to guide contemporaneous clinical decisions. Such interpretations should be documented in the medical record. Documentation should include the indication for the procedure, a description of the organs or structures identified and an interpretation of the findings. Images should be stored as a part of the medical record and done so in accordance with facility policy requirements. Given the often-emergent nature of such ultrasound examinations, the timely delivery of care should not be delayed by archiving ultrasound images.

6. Equipment Specifications
Generally, a curvilinear abdominal or phased array cardiac ultrasound probe at frequencies of 2.0-5.0 MHz with a mean of 3.5 MHz will be used for an adult and 5.0 MHz for children and smaller adults. A small footprint may facilitate scanning between the ribs. A depth of field of up to 25 cm may be required in order to adequately visualize deeper structures in the right upper quadrant in large patients. A linear probe or curvilinear probe with frequencies of 7.0 MHz and above would be optimal for visualizing the near field of pleural line. Both portable and cart-based ultrasound machines may be used, depending on the location and setting of the examination.

7. Quality Control and Improvements, Safety, Infection Control and Patient Education
Policies and procedures related to quality, safety, infection control and patient education should be developed in accordance with specialty or organizational guidelines. Specific institutional guidelines may be developed to correspond with such guidelines.

Ultrasound-Guided Procedures

1. Introduction

The American College of Emergency Physicians (ACEP) has developed these criteria to assist practitioners utilizing emergency ultrasound (EUS) to facilitate the performance of procedures in the emergency patient.

Ultrasound has been shown to be helpful in determining patency of vascular structures and with the placement of central lines as well as peripheral lines. The Agency for Healthcare Research and Quality highlighted ultrasound-guided central lines as a key intervention that should be implemented immediately into twenty-first century patient care. This focus on patient safety will promote procedural ultrasound as it enables trained operators toward a “one stick” standard. These ultrasound examinations are performed at the bedside to identify vascular anatomy and guide direct visualization and cannulation of vessels.

Additional procedural applications for ultrasound include assessing for potential abscess formation and to drain fluid collections that accumulate pathologically; confirming fracture reduction and endotracheal tube placement; assessing bladder volume and directing aspiration; guiding nerve blocks and arthrocentesis; and facilitating lumbar puncture or pacemaker placement.

The advantages of procedural ultrasound include, improved patient safety, decreased procedural attempts, and decreased time to perform many procedures in patients whom the technique would otherwise be difficult. It is important to recognize that procedural ultrasound is a method to identify relevant anatomy and pathology before proceeding with invasive procedures while aiding the accurate execution and minimizing procedural complications. Procedural ultrasound is an adjunct to emergency care.

2. Indications/Limitations

a. Primary

i. Vascular access

1. To identify central venous structures, their relative location and their patency in facilitating placement of central venous catheters.

2. To identify peripheral venous structures, their relative location and patency in facilitating placement of peripheral venous access.

3. To identify arterial structures, their relative location and flow characteristics in facilitating placement of arterial lines.

b. Extended

i. To evaluate for and/or drain with ultrasound guidance or localization:

1. soft tissue abscess

2. peritonsillar abscess

3. pericardial effusion (pericardiocentesis)
4. pleural effusion (thoracentesis)

5. peritoneal fluid (paracentesis)

6. joint effusion (arthrocentesis)

7. cerebrospinal fluid (lumbar puncture)

ii. To evaluate for and localize with ultrasound:
   1. soft tissue foreign bodies
   2. pacemaker placement and capture
   3. fracture reduction
   4. endotracheal tube placement

iii. Ultrasound-guided nerve blocks

c. Limitations
   i. Procedural ultrasound is an adjunct to care. No modality is absolutely accurate. Procedural ultrasound should be interpreted and utilized in the context of the entire clinical picture.

   ii. Procedural ultrasound may be technically limited by:
      1. obese habitus
      2. subcutaneous air
      3. anomalous anatomy/prior surgical changes

d. Pitfalls
   i. Needle localization and its associated artifact must be visualized before proceeding with any procedure. The short axis transverse approach allows only a cross section of the needle to be visualized by the ultrasound beam and may lead to errors in depth perception of the needle. The long axis orientation allows the operator to trace the entire path and angle of the needle from the entry site at the skin and is preferred when this transducer orientation is possible.

   ii. It is important to identify a vessel by multiple means before attempting cannulation. The difference between veins and arteries can be determined by compressibility (veins compress), shape (arteries tend to be circular in transverse view, with muscular walls) and flow dynamics if Doppler is available and/or utilized.

   iii. Many times, abnormal structures can be compared to adjacent tissue or to the other normal side. If questions persist about the sonographic appearance of a structure, another imaging modality may be warranted.

3. Qualifications and Responsibilities of the Clinician Performing the Examination
   Physicians of a variety of medical specialties may perform procedural ultrasound. Training should be in accordance with specialty or organization specific guidelines.

4. Specifications for Individual Examinations
a. General – Ultrasound can be used systematically during the pre-scan to localize the relevant anatomy in orthogonal planes before executing the procedure in a sterile manner with sterile probe covers and real-time assessment. All invasive procedures should employ standard sterile techniques to diminish the risk of infection. A high frequency ultrasound probe is placed over the anatomy of interest in both sagittal and transverse planes. The probe should be initially placed at the primary window and then be fanned, rocked and rotated to allow for real-time imaging of the area(s) involved. This may take more time with difficult windows, challenging patients or other patient priorities. Interpretation should be done at the bedside immediately with performance of the real-time examination.

b. Procedural ultrasound techniques- Ultrasound guidance or ultrasound-assisted procedures can be performed using either of two accepted techniques:

   i. Ultrasound Assisted: Anatomic structures are identified, and an insertion position is identified with ultrasound. The procedure is carried out without the use of real time ultrasound guidance.

   ii. Real-Time: The ultrasound transducer is placed in a sterile covering and the key components of the procedure are performed with simultaneous ultrasound visualization during the procedure (eg, using ultrasound to visualize a needle entering a vessel)

c. Procedural ultrasound examinations

   i. Internal jugular vein

   ii. Femoral vein

   iii. Subclavian vein

   iv. External jugular vein

   v. Brachial and cephalic veins

   vi. Arterial cannulation

d. Additional Procedures

   i. Soft tissue abscess drainage

   ii. Peritonsillar abscess drainage

   iii. Pericardiocentesis

   iv. Pleurocentesis

   v. Paracentesis

   vi. Arthrocentesis

   vii. Lumbar puncture

   viii. Fracture reduction
ix. Endotracheal tube confirmation

x. Bladder volume assessment-suprapubic aspiration

xi. Nerve blocks

5. Documentation

Procedural ultrasound requires documentation of the ultrasound assisted procedure. Documentation should include the indication for the procedure, a description of the organs or structures identified and an interpretation of the findings. Images should be stored as a part of the medical record and in accordance with facility policy requirements. Given the often-emergent nature of such ultrasound examinations, the timely delivery of care should not be delayed by archiving ultrasound images.

6. Equipment Specifications

Multiple probes can be used, yet high frequency (7.0-12.0 MHz) linear array transducers work best to image superficial and vascular structures. Microconvex endoluminal probes can be used to identify abscess formation in areas such as the oropharynx. Portable and cart-based ultrasound machines may be used, depending on the location and setting of the examination.

7. Quality Control and Improvements, Safety, Infection Control and Patient Education

Policies and procedures related to quality, safety, infection control and patient education should be developed in accordance with specialty or organizational guidelines. Specific institutional guidelines may be developed to correspond with such guidelines.

Venous Thrombosis

1. Introduction

The American College of Emergency Physicians (ACEP) has developed these criteria to assist practitioners performing emergency ultrasound studies (EUS) of the venous system in the evaluation of venous thrombosis.

The primary application of venous EUS is in evaluation of deep venous thrombosis (DVT) of the proximal lower extremities. Lower extremity venous EUS differs in two fundamental aspects from the “Duplex” evaluation performed in a vascular laboratory. First, its anatomic focus is limited to two specific regions of the proximal deep venous system. Second, its sonographic technique consists primarily of dynamic evaluation of venous compressibility in real time. This approach to lower extremity proximal venous EUS is often referred to as limited compression ultrasonography (LCU). Since B-mode (gray-scale) equipment is widely available, and because substantial scientific evidence supports the use of limited compression ultrasonography, this guideline is focused on the evaluation of proximal lower extremity DVT using this technique. It is recognized that many emergency physicians have access to equipment with color flow and Doppler capabilities, and are experienced in its use. It is likely that they will augment their venous EUS with this technology.

Lower extremity venous EUS is performed and interpreted in the context of the entire clinical picture. It is a clinically focused examination, which, in conjunction with historical and laboratory information, provides additional data for decision-making. It attempts to answer specific questions about a particular patient’s condition. EUS of the lower extremities does not identify all abnormalities or diseases of the deep venous system. If the findings of lower extremity venous EUS exam are equivocal, further imaging or testing may be needed.

2. Indications/Limitations
a. Primary
   i. Evaluation for acute proximal DVT in the lower extremities.

b. Extended
   i. Chronic DVT
   ii. Distal DVT
   iii. Superficial venous thrombosis
   iv. Diagnosis of other causes of lower extremity pain and swelling under consideration in the evaluation of DVT such as cellulitis, abscess, muscle hematoma, fasciitis, and Baker’s cyst
   v. Upper extremity venous thrombosis

c. Contraindications
   i. Known, acute proximal DVT. If an ultrasound examination would not have any bearing on clinical decision-making, it should not be performed.
   ii. Other contraindications are relative, based on specific features of the patient’s clinical condition.

d. Limitations
   i. EUS of the lower extremity deep venous system is a single component of the overall and ongoing evaluation. Since it is a focused examination EUS does not identify all abnormalities or diseases of the lower extremity veins. EUS, like other tests, does not replace clinical judgment and should be interpreted in the context of the entire clinical picture. If the findings of the EUS are equivocal, additional diagnostic testing may be indicated.
   ii. A prior history of DVT may limit the utility of LCU. The chronic effects of DVT are highly variable in extent, location, timing and morphology. A completely normal venous EUS exam is likely to exclude both acute and chronic DVT. However, the interpretation of abnormal findings in patients with a history of prior DVT may be outside the scope of a lower extremity venous EUS examination.
   iii. Examination can be limited by:
      1. Obesity
      2. Local factors such as tenderness, sores, open wounds, or injuries
      3. The patient’s ability to cooperate with the exam

e. Pitfalls
   i. A non-compressible vein may be mistaken for an artery, leading to a false negative result.
   ii. An artery may be mistaken for a non-compressible vein, leading to a false positive result.
   iii. Large superficial veins may be mistaken for deep veins. This pitfall is more likely in obese patients and those with occlusive DVT causing distension in the collateral superficial veins.
Depending on the compressibility of the vein, this can lead to both false positive and false negative results.

iv. While thrombus may be directly visualized on examination, it is frequently isoechoic to unclotted blood and failure to see echogenic clot should not be used to exclude the diagnosis of DVT. This is especially problematic in obese patients due to the depth of some venous structures and resultant decrease in image clarity.

v. Inguinal lymphadenopathy may be mistaken for a non-compressible common femoral vein.

vi. Failure to arrange for repeat venous evaluation in patients with suspicion for isolated calf or distal DVT.

vii. Failure to consider the possibility of iliac or inferior vena cava obstruction as a cause for lower extremity pain or swelling. While color flow and Doppler techniques may identify the presence of these conditions, they are beyond the usual scope of the EUS exam.

viii. A negative scan for a lower extremity DVT does not rule out the presence of pulmonary embolism.

ix. Not recognizing that the superficial femoral vein is part of the deep venous system. This sometimes-confusing terminology has resulted in some authorities referring to the superficial femoral vein as simply the femoral vein.

x. Failing to recognize that a proximal greater saphenous vein thrombus, that is seen approaching the common femoral vein, will readily seed the common femoral vein and poses a significant risk and should be treated like a DVT.

3. Qualifications and Responsibilities of the Clinician Performing the Examination

Limited compression ultrasound of the venous system provides information that is the basis of immediate decisions concerning the patient’s evaluation, management, and therapy. Because of its direct bearing on patient care, the rendering of a diagnosis by venous EUS represents the practice of medicine, and therefore is the responsibility of the treating physician.

Due to the potential for life-threatening complications arising from acute DVT, emergent interventions may be mandated by the diagnostic findings of the EUS exam. For this reason, the EUS exam should occur as soon as the clinical decision is made that the patient needs a sonographic evaluation.

Physicians of a variety of medical specialties may perform a lower extremity LCU. Training should be in accordance with specialty or organization specific guidelines. Physicians should render a diagnostic interpretation in a time frame consistent with the management of acute DVT, as outlined above.

4. Specifications for Individual Examinations

a. General. Emergency ultrasound for the diagnosis of DVT evaluates for compressibility of the lower extremity deep venous system with specific attention directed towards key sections of the common femoral, femoral, deep femoral and popliteal veins. These sections constitute two short regions of the lower extremity, the inguinal region and popliteal fossa.

b. Technique
i. Identification of veins. For the purposes of lower extremity EUS, the proximal deep veins of the lower extremity are those in which thrombus poses a significant risk of pulmonary embolization. These include the common femoral, femoral (formerly superficial femoral vein), and popliteal veins. It is important to note that the superficial femoral vein is part of the deep system, not the superficial system as the name suggests. The deep femoral vein is easily overlooked, but much like the proximal greater saphenous vein it readily seeds thrombus into the common femoral vein. Therefore, it should be assessed for compression as part of the proximal region.

In the distal leg, the popliteal vein is formed by the confluence of the anterior and posterior tibial veins with the peroneal vein approximately 4-8 cm distal to the popliteal crease. Continuing proximally, the popliteal vein becomes the superficial femoral vein as it passes through the adductor canal approximately 8-12 cm proximal to the popliteal crease. The femoral vein joins the deep femoral vein to form the common femoral vein approximately 5-7 cm below the inguinal ligament. Prior to passing under the inguinal ligament to form the external iliac vein, the common femoral is joined by the great saphenous vein (a superficial vein) merging from the medial thigh. In relation to the companion arteries, the popliteal vein is superficial to the artery. The common femoral vein lies medial to the artery only in the region immediately inferior to the inguinal ligament. The vein abruptly runs posterior to the artery distal to the inguinal region.

ii. Compression. The sonographic evaluation is performed by compressing the vein directly under the transducer while watching for complete apposition of the anterior and posterior walls. If complete compression is not attained with sufficient pressure to cause arterial deformation, obstructing thrombus is likely to be present.

iii. Patient positioning. To facilitate the identification of the veins and test for compression, they need to be distended. This is accomplished by placing the lower extremities in a position of dependency preferably by placing the patient on a flat stretcher in reverse Trendelenburg. If the patient is on a gurney where this is not possible, the patient should be placed semi-sitting with 30 degrees of hip flexion.

iv. Transducer. A linear array vascular probe with a frequency of 6 – 10 MHz and width of approximately 50 mm is often ideal. Narrower transducers may make it harder to localize the veins and to apply uniform compression. For larger patients, a lower frequency or even an abdominal probe will facilitate greater tissue penetration.

v. Real-time scanning technique.
   1. The common femoral vein, saphenous vein inflow, deep femoral and femoral vein region. Gel is applied to the groin and medial thigh for a distance about 10 centimeters distal to the inguinal crease. Filling of the common femoral vein might be augmented by placing a small bolster under the knee resulting in slight (about 10 degrees) hip flexion. Mild external rotation of the hip (30 degrees) may also be helpful. The vein and artery may have almost any relationship with one another, although the vein is frequently seen posterior to the artery. Distinction of the two vessels may therefore depend on size (the vein is usually larger), shape (the vein is more ovoid) and compressibility. If color-flow or Doppler is utilized characteristic arterial or venous signals can help with differentiation.

Compressive evaluation of the vessel commences at the highest view obtainable at the inguinal ligament. Angling superiorly, a short section of the distal common iliac vein
might be scanned. Systematic scanning commences at the level of the inflow of the greater saphenous vein into the common femoral vein, applying compression every centimeter. Compression should be continued through the bifurcation of the common femoral vein into its femoral and deep femoral veins and approximately 2 cm beyond, since branch points are particularly susceptible to thrombosis. If difficulty is encountered in following the common femoral vein to the bifurcation, or in clearly identifying the two branching vessels, techniques to optimize the angle of interrogation should be used. In equivocal cases, comparison with the contralateral side may be helpful.

2. The popliteal vein. The patient can be placed in either a prone or decubitus position. In the latter case, the knee is flexed 10 – 30 degrees, and the side of the leg being examined should be down. If the patient is prone, placing a bolster under the ankle to flex the knee to about 15 degrees facilitates filling of the popliteal vein. Again, reverse Trendelenberg positioning promotes venous filling. Gel is applied from about 12 centimeters superior, to 5 centimeters inferior to the popliteal crease. The vein usually lies superficial to the artery. Both vessels lie superficial to the bony structures, which can be used as landmarks to anticipate the depth of the vessels. If difficulty is encountered in identifying the terminal branches of the popliteal vein, it is possible that the patient has one of the common variants of venous anatomy. In the absence of clear anatomic identification of the termination of the popliteal vein, the major venous structures should be imaged to approximately 7 centimeters below the popliteal crease. In equivocal cases, comparison with the contralateral side may be helpful. The popliteal vein should be compressed just into the proximal distal branches to catch any calf thrombus about to seed the popliteal vein.

vi. Additional components of the exam.
1. The femoral vein. As noted previously, this vein is not a primary focus of the standard lower extremity EUS evaluation, other than its proximal portion. In cases where there is a high suspicion of DVT and an otherwise normal exam of the common femoral and popliteal veins, the femoral vein may also be evaluated more extensively.

2. Color flow and Doppler. Color flow and Doppler assessment may be used to localize the vessels, although the use of this technology is beyond the scope of the standard EUS exam. Additionally, data suggest color and power Doppler adds little in ruling out DVT.

vii. Gray scale identification of clot. While thrombus may be hyperechoic, and thus directly visualized on exam, it is also frequently isoechoic to unclotted blood. Consequently, failure to see echogenic clot should not be used to exclude the diagnosis of DVT.

5. Documentation
In performing venous EUS, images are interpreted by the treating physician as they are acquired and are used to guide contemporaneous clinical decisions. Image documentation should be incorporated into the medical record. Documentation should include the indication for the procedure, the views obtained, a description of the structures identified and an interpretation of the findings. Limitations of the exam, and impediments to performing a complete exam should be noted. The written report of the venous EUS should document the presence of complete, partial or absent collapse in each vein examined. Images should be stored as a part of the medical record and done so in accordance with facility policy requirements. Since the LCU exam is a dynamic test, repeated multiple times over the lengths of the common femoral vein and popliteal vein, it is not practical in the emergency setting to obtain a still image record of each site evaluated with and without compression. If still image records
are obtained for documentation, one or more representative images of each vein, reflecting the key findings with and without compression, should be recorded.

6. Equipment Specifications
   A linear array vascular probe with a frequency of 6.0 – 10.0 MHz and width of 6 – 8 cm is often ideal. Narrower transducers may make it harder to localize the veins and to apply uniform compression. For larger patients, a lower frequency or even an abdominal probe will facilitate greater tissue penetration. Color or power Doppler capabilities may be of assistance in localizing venous structures. Both portable and cart-based ultrasound machines may be used, depending on the location and setting of the examination.

7. Quality Control and Improvements, Safety, Infection Control and Patient Education
   Policies and procedures related to quality, safety, infection control and patient education should be developed in accordance with specialty or organizational guidelines. Specific institutional guidelines may be developed to correspond with such guidelines.
The American College of Emergency Physicians (ACEP) believes that:

- Hospitals, medical staff, and payers share an ethical responsibility for the provision of emergency care.
- Hospital emergency departments (EDs) require a reliable on-call system that provides for the availability of medical staff members for consultation and participation in the evaluation and treatment of emergency patients.
- Such on-call systems are vital resources and must be maintained through the joint cooperation of the hospital governing body, administration, and medical staff.

ACEP endorses the following principles:

- Hospitals and their medical staffs must be familiar with and comply with the requirements of the Emergency Medical Treatment and Active Labor Act (EMTALA).
- Hospital bylaws and/or rules and regulations should clearly delineate which providers may participate in the EMTALA-mandated medical screening examination of patients.\(^1\)
- All patients who come to a hospital requesting care must receive a medical screening examination and the necessary treatment to stabilize an emergency medical condition without unnecessary delay and without regard to the patient's ability to pay.\(^1\) Under most circumstances, these services are best provided by emergency physicians.
- A medical screening examination and any necessary stabilizing treatment may require the use of ancillary, consultative, or inpatient services within the capability of the hospital and its medical staff or their delegates [advance practice registered nurse, physician assistant, certified nurse midwife, etc.].\(^1\)
- All hospitals that provide emergency services must maintain a schedule of medical and surgical specialists on-call for the ED in a manner that best meets the needs of the hospital's patients who are receiving services.\(^1\)
- To ensure institutional compliance with the provisions of EMTALA, hospital medical staff bylaws and/or rules, and regulations must delineate the responsibilities of the on-call physician and should specify methods for
monitoring and ensuring compliance.

- On-call physician services must be available within a reasonable time to provide necessary stabilizing treatment\(^1\) and without regard to the patient's ability to pay.
- If a hospital lacks the medical staff resources to provide on-call coverage for a given specialty, the hospital must have a plan that specifies how such referrals should be managed.\(^1\)
- Follow-up care should be arranged by referral for all patients who require such care.
- Physicians who choose to assume direct on-site emergency care responsibility for their patients must be physically present in the ED and must be members of the medical staff, privileged to provide such care.
- When feasible, requests for consultative services should be made in accordance with the patient's preferences and/or health plan.
- Physician services (including medically necessary post-stabilization care), when provided in response to the request for emergency care, should be recognized as emergency services for reimbursement purposes and should be compensated in a fair and equitable manner.
- Transfer of patient care responsibilities between physicians must be orderly, clearly defined, and properly documented. The mechanism for such transfers and for resolution of disagreements between physicians should be clearly defined in medical staff rules and regulations.
- All hospitals with specialized capabilities have a responsibility to accept transfer of patients when such transfer is necessary to stabilize an emergency medical condition.\(^1\) Hospitals should have a means to ensure medical staff responsibility for transfer acceptance and provision of specialized care.

Reference

\(^1\) The Emergency Medical Treatment and Active Labor Act, as established under the Consolidated Omnibus Budget Reconciliation Act (COBRA) of 1985 (42 USC 1395 dd), Section 9121, as amended by the Omnibus Budget Reconciliation Acts (OBRA) of 1987, 1989, and 1990. Rules and regulations published Federal Register June 22, 1994;59:32086-32127.
The American College of Emergency Physicians (ACEP):

- Supports ACEP Chapters having the autonomy to establish and coordinate evidence-based pain management guidelines that promote access to appropriate pain control within physician clinical judgment;

- Supports limiting the initial prescription of an opioid to no more than a 7-day supply, unless in the judgment of the treating physician a longer duration is indicated and rationale is documented;

- Supports widespread availability of opioid-related Continuing Medical Education (CME) but opposes state mandates for compulsory CME on pain or opioids;

- Supports effective, interoperable and voluntary state prescription drug monitoring programs (PDMPs) that push prescription data to emergency department providers, rather than requiring them to separately sign into and pull the data from the PDMP, and opposes legal mandates requiring access of the PDMP prior to prescribing or administering a controlled substance when the prescription does not exceed a 7-day supply; and,

- Supports exercising caution prior to prescribing an opioid for a patient who is prescribed a benzodiazepine and counseling the patient accordingly about the risks associated with concurrent use of opioids and benzodiazepines.
Ethical Issues at the End of Life

The American College of Emergency Physicians believes that:

- Emergency physicians play an important role in providing care at the end of life (EOL).
- Helping patients and their families achieve greater control over the dying process will improve EOL care by ensuring care is provided in accordance with patients’ wishes.
- Advance care planning can help patients formulate and express individual wishes for EOL care and communicate those wishes to their health care providers by means of advance directives (including state approved advance directives such as POLST, MOLST, MOST, DNAR orders, living wills and durable powers of attorney for health care).

To enhance EOL care in the emergency department, the American College of Emergency Physicians believes that emergency physicians should:

- Respect the dying patient’s needs for care, comfort, and compassion.
- Communicate promptly and appropriately with patients and their families about EOL care choices.
- Elicit the patient’s goals for care before initiating non-life-threatening treatment, recognizing that EOL care includes a broad range of therapeutic and palliative options, including forgoing treatments that may increase distress or are not aligned with the goals of the patient.
- Respect the wishes of dying patients including those expressed in advance directives. This also includes making a reasonable attempt at identifying their specific advance directives.
- Assist surrogates to make EOL care choices for patients who lack decision-making capacity, based on the patient’s own preferences, values, and goals.
- Encourage the presence of family and friends at the patient’s bedside near the end of life, if desired by the patient.
- Recognize when family distress or goals may not align with the patients’ goals.
- Protect the privacy of patients and families near the end of life.
- Promote liaisons with individuals and organizations in order to help patients and families honor EOL cultural and religious traditions.
- Physicians have a responsibility to communicate difficult information in a sensitive way.
- Comply with institutional policies regarding recovery of organs for transplantation.
- Obtain informed consent from surrogates for postmortem procedures.
The American College of Emergency Physicians supports the following principles.

- Patients who may benefit from resuscitation efforts should have equitable access to such efforts.

- Decisions to attempt resuscitation must take into account the accepted standards of medical care and the safety of the medical personnel as well as known patient preferences.

It is appropriate for out-of-hospital providers to honor valid orders to limit life-sustaining interventions at the end of life. Standardized guidelines and protocols should exist in all EMS systems to direct out-of-hospital personnel’s resuscitative efforts. Educational information regarding such policies should be disseminated to the community and to out-of-hospital and hospital providers.

Patient goals for end of life care should be honored by out-of-hospital and hospital providers at the end of life. EMS out of hospital order systems should support efforts to intervene or forgo these treatments based on available information.

The appropriate surrogate decision-maker, as defined by state law, should be involved in decisions regarding life-sustaining treatments if immediately available. Additional sources of information to guide treatment decisions may come from patient advance directives, family, or primary physicians as time permits. EMS systems should honor state-recognized orders addressing life-sustaining treatments such as Physician Orders for Life Sustaining Treatments (POLST).

If the patient’s goals or medical circumstances are unclear, medically appropriate resuscitative measures should be undertaken. It is ethically permissible for treatments, once started, to be withdrawn when additional information is available. This information may include the lack of response to treatment or definitive information about the patient’s goals for life-sustaining treatments.

Resuscitative efforts may be appropriately withheld, withdrawn or limited in circumstances such as the lack of immediately available resuscitation resources.
or when there is no realistic likelihood of benefit to the patient based on existing scientific evidence and reasonable medical judgement.

When resuscitative efforts are not indicated, emergency physicians should assure appropriate medical and psychosocial care during the dying process.
POLICY STATEMENT

Ethical Use of Telemedicine in Emergency Care

Telemedicine as related to emergency medical care uses real-time audio or video transmissions to provide information, advice and orders for diagnostic and treatment interventions between a distant site (e.g., healthcare facility, ambulance, ship, airplane, rescue location) and an emergency department or its telecommunication hub. Practitioners use telemedicine to assess patients and their diagnostic results, monitor ongoing clinical interventions, and interact with the patient’s on-site clinicians.

ACEP believes that emergency departments using telemedicine should make this form of care accessible regardless of race, religion, sexual orientation, location, or ability to pay.

ACEP believes that emergency departments and hospitals should ensure that their telemedicine systems and practices provide patients with at least the privacy and confidentiality required under HIPAA. This includes assuring that their equipment and technology are up-to-date and secure.

ACEP believes that telemedicine decisions relating to patient care, referrals and transfers should be based on the patient's healthcare needs.

ACEP supports the establishment of standards for telemedicine practitioners and development of related quality assurance and educational programs to develop the discipline.

ACEP supports legislative efforts that would allow for single-state licensing being sufficient for telemedical practice throughout the United States.

ACEP believes that all aspects of the telemedical consultations between advance medical practitioners (i.e. physicians, nurse practitioners, and physician assistants) are subject to the same informed consent and refusal standards as are face-to-face medical encounters.
The medical screening, examination and treatment of an emergency medical condition of a minor in the emergency department should not be delayed because of consent issues. When clinically, legally, and ethically appropriate, adolescents independently treated in the emergency department should have their confidentiality honored.
Expert Witness Cross-Specialty Testimony for Standard of Care

Expert witness cross-specialty testimony occurs when a physician in one medical specialty provides an expert witness opinion regarding the standard of care in a different medical specialty. Since medical expert witness testimony has the potential to establish standards of care, the American College of Emergency Physicians believes that the standard of care for emergency medicine should only be established and attested to by emergency physicians.
Expert Witness Guidelines for the Specialty of Emergency Medicine

Expert witnesses are asked to render opinions as to assess the requisite standard of care pertaining to emergency physicians in cases of alleged medical malpractice and peer review. Because medical expert witness testimony has demonstrated the potential to establish standards of medical care, and because physician expert witnesses hold themselves out as qualified to render an opinion by virtue of a medical degree, such testimony is considered by the American College of Emergency Physicians (ACEP) to constitute the practice of medicine.

To qualify as an expert witness in the specialty of emergency medicine, a physician shall:

- Be currently licensed in a state, territory, or area constituting legal jurisdiction of the United States as a doctor of medicine or osteopathic medicine;
- Be certified by a recognized certifying body in emergency medicine;
- Be in the active clinical practice of emergency medicine for at least three years (exclusive of training) immediately preceding the date of the occurrence giving rise to the case. A physician serving as an expert witness who is not currently engaged in the clinical practice of emergency medicine shall be considered to have met this requirement if he or she was so engaged during the three years immediately preceding the date of the occurrence giving rise to the case.
- Abide by the following guidelines:
  - The expert witness should possess current experience and ongoing knowledge in the area in which he or she is asked to testify.
  - The expert witness should not provide expert medical testimony that is false, misleading, or without medical foundation. The key to this process is a thorough review of available and appropriate medical records and contemporaneous literature concerning the case being examined.
  - A medical expert's opinion should reflect the state of medical knowledge at the time of the event giving rise to the case.
The expert witness should review the medical facts in a thorough, fair, and objective manner and should not exclude any relevant information to create a view favoring either the plaintiff or the defendant.

Expert witnesses should be chosen on the basis of their experience in the area in which they are providing testimony, and not on the basis of offices or positions held in medical specialty societies, unless such positions are material to the expertise of the witness.

An emergency physician should not engage in advertising or solicit employment as an expert witness where such advertising or solicitation contains false or deceptive representations about the physician's qualifications, experience, titles or background.

The expert witness should be willing to submit the transcripts of depositions and testimony to peer review.

An expert witness should never accept any compensation arrangement that is contingent on the outcome of litigation.

Misconduct as an expert, including the provision of false, fraudulent, or misleading testimony, may expose the physician to disciplinary action.2, 3

Be not only familiar with the local state law, regulations, and practice of emergency medicine, but strictly adhere to the state specific definitions of negligence.

References
The American College of Emergency Physicians (ACEP) supports the development of adequate injury data and surveillance systems, including external causes of morbidity codes, Crash Outcomes Data Evaluation System (CODES), and National Violent Death Reporting System (NVDRS) in all 50 states. These injury surveillance data systems are crucial for identifying, monitoring, and evaluating injury prevention strategies locally, regionally, and nationally.

The External Cause of Morbidity (V00-Y99) codes provide vital information for understanding the burden of injuries in the United States. Improving standardized collection of data in centralized morbidity data systems allows for improved data on injury epidemiology and more opportunities for data linkage with systems such as CODES and NVDRS. This information is invaluable for setting priorities and developing, implementing, and evaluating injury prevention and policy efforts.

Additionally, ACEP supports:

- Centers for Disease Control and Prevention (CDC) efforts to incorporate data element standards for fully integrated collection and extraction of data from electronic health records.

- Collaboration with other organizations and federal agencies in the development and implementation of guidelines and standards relating to emergency department (ED) External Cause of Morbidity codes completeness, accuracy, and specificity.

- The use of External Cause of Morbidity codes in the development and assessment of evidence-based injury prevention programs and policies. Efforts to develop: a) a central repository to share this data; b) linkages of appropriate additional data sets; and c) a user-friendly query system for ED and hospital discharge data.
Fair Coverage When Services Are Mandated

Any government agency, legislative body, insurance carrier, third party payer, or any other entity that mandates that a service or product be provided by emergency physicians or other providers, should also mandate an adequate source of funding to ensure fair coverage for those services or products.
Emergency physicians provide emergency medical services without regard for the patient’s insurance status or ability to pay, consistent with our mission and EMTALA obligations. Emergency physicians face unique financial challenges in meeting this mission. Emergency physicians play an important role in the health care safety net and continue to provide essential health care services to a disproportionate share of the remaining uninsured and under-insured population in the United States. Fair payment for emergency care services, whether government funded, commercially insured, and/or paid by the patient must be sufficient to preserve the nation’s fragile emergency care safety net, and ensure that patients have continued access to all qualified emergency care providers.
To promote the health and well-being of emergency physicians, ACEP endorses the following principles regarding family and medical leave time.

- The health and integrity of working physicians’ relationships with parents, children, and family are essential to the physicians’ well-being. The ability to respond to family needs promotes work satisfaction and career longevity which, in turn, contributes to higher quality patient care.

- The leaders of physician groups and residency programs, as well as employers, should support these policies actively by informing physicians of their availability and making such leave available without undue delay or administrative burden.

- Emergency physician groups, employers, and emergency medicine residency programs should have written policies that support family leaves of absence. These policies should take into consideration what can be done to support the individual financially, if needed, during the leave of absence. These policies should apply to personal serious physical and mental illness, both parents for the birth or adoption of a child, the care of a seriously ill family member, and situations involving the safety or cohesion of the family.

- Mothers, or primary caregivers of biological or adoptive children, should expect at least twelve weeks without work around the time of their child’s birth or adoption; the other parent should expect four weeks at the minimum.

- Flexible work schedules for parents before and after welcoming a new child should be made available whenever possible without disrupting the availability of patient care.
Fictitious Patients

The American College of Emergency Physicians believes that all emergency patients should have access to safe, timely, efficient, and courteous medical care.

ACEP supports creativity in the development of effective measures to evaluate and improve patient care. ACEP also supports innovative approaches to medical education, including approaches that foster empathy toward patients by health care providers.

Some institutions reportedly have used fictitious patients to help evaluate the service aspects of emergency care. Some medical schools have had students pose as patients as part of their training.

ACEP opposes the use of fictitious patients in emergency care units. Deception is unethical and may undermine the trust essential to the relationship between patients and emergency caregivers. Such practices may have unintended negative effects, such as the delays in treatment for other patients, unnecessary administration of medications and improper billing practices.
Recognizing that significant changes are occurring in the physician workforce and in the financing of graduate medical education (GME), the American College of Emergency Physicians (ACEP) believes that:

- Well-educated and experienced emergency physicians provide the best and most cost-effective emergency health care.
- Emergency medicine residency programs provide the best and only method of training future emergency physicians.
- Emergency medicine residency programs must have an adequate, predictable, and stable source of funds to ensure an ample supply of residency trained emergency medicine specialists. Emergency medicine programs need to increase the number of GME-funded residency positions in response to workforce demands and the current shortage of physicians appropriately trained and certified in emergency medicine.
- Emergency medicine residency programs train physicians to evaluate and respond to individual patient crises and major manmade and natural disasters on a 24-hour basis. All payers and the public directly or indirectly benefit from this service.
- Federal GME funding should be made through a non-discretionary appropriations process. Emergency medicine should have flexibility in the use of these funds in order to train residents to practice in non-urban areas.
- Any government advisory or planning body examining or developing policy relating to GME reform, including financing and workforce issues, should include representation and input from the specialty of emergency medicine.
The American College of Emergency Physicians condemns the current rates of injury and death from firearms in the United States. Firearm injury is a leading cause of death among young Americans, is the most common means of suicide death among all Americans, and has psychological and financial ramifications for victims, their families, and the healthcare system. As emergency physicians, we witness the toll firearm injuries take on our patients each day across the United States. We support the need for funding, research, and protocols to help address this public health issue.

ACEP supports legislative and regulatory efforts that:

- Actively support both private and public funding into firearm safety and injury prevention research;¹ ³
- Protect the duty of physicians to discuss firearm safety with patients;
- Support universal background checks for all firearm transactions, including private sales and transfers;
- Support adequate enforcement of existing laws and support new legislation that prevents high-risk and prohibited individuals from obtaining firearms;
- Restrict the sale and ownership of weapons, munitions, and large-capacity magazines that are designed for military or law enforcement use, and prohibit the sale of after-market modifications that increase the lethality of otherwise legal firearms;
- Support prohibitions on 3-D printing of firearms and their components (so-called “ghost guns” or other technologies that seek to bypass regulations);

ACEP supports public health and health care efforts that:

- Investigate the effect of social determinants of health and other cultural risk factors on patterns of firearm injury (eg, poverty, intimate partner violence, prior exposure to violence, the relationship between communities and law enforcement);
- Support a confidential national firearm injury research registry while encouraging states to establish a uniform approach to tracking and recording firearm-related injuries (eg, homicide, suicide, unintentional, self-defense, intimate partner violence, officer-involved, line-of-duty, etc.);
• Promote access to effective, affordable, and sustainable mental health services for emergency department patients with acute mental illness for whom access to a firearm poses a real risk to life for themselves or others;

• Provide health care providers with information on the most effective ways to counsel patients and families on proper firearm safety, emphasizing evidence-based methods that are shown to reduce intentional and unintentional injuries;\textsuperscript{4,6}

• Support research into public policies that may reduce the risk of all types of firearm-related injuries, including risk characteristics that might make a person more likely to engage in violent and/or suicidal behavior;\textsuperscript{2,5,6}

• Support community-based and hospital-based programs that would allow early intervention to prevent firearm-related injuries and their long-term consequences.\textsuperscript{4,7}

References


Food and Drink for Staff in the Emergency Department

Understanding that staff may have limited access to proper breaks depending on patient volume and acuity, as well as the importance of hydration and nutrition during a clinician’s shift, the American College of Emergency Physicians (ACEP) strongly advocates for organizations to permit and support policies that allow for food and beverages to be kept and ingested by staff members at their workstations in the emergency department (ED).

While food and beverages should be permitted at ED workstations, relevant polices should consider:

- Food and beverages should be stored separately (eg, refrigerators, cupboards) from areas designated for specimen storage and processing. Similarly, specimen handling must be performed at the bedside, in dirty utility rooms, or dedicated areas separate from workstations where food and drink may be consumed.

- Food and beverages should not be consumed in areas dedicated to the storage or administration of medications or specimen collection/processing.

- Staff must be responsible for handling food and beverages with appropriate care to prevent spills that may damage electronic equipment, sensitive documents, or other materials on the desktops.

- Appropriate hand hygiene must be performed before and after patient encounters or handling of specimens, as well as before and after touching or consuming food or beverage.
A freestanding emergency department (FSED) is a licensed facility that is structurally separate and distinct from a hospital and provides emergency care. There are two distinct types of FSEDs: a hospital outpatient department (HOPD), also referred to as an off-site hospital-based or satellite emergency department (ED), and independent freestanding emergency centers (IFECs). The number of FSEDs has increased in an ever-changing regulatory and health care environment.

HOPDs are owned and operated by medical centers or hospital systems. By federal regulations, if the medical center or hospital system accepts Medicare or Medicaid payments for emergency services at a HOPD, the HOPD falls under the same rules and regulations of the Centers for Medicare & Medicaid Services (CMS) as the ED of the medical center or hospital and must comply with all CMS Conditions of Participation (CoPs). State licensing rules and regulations governing facilities that do not seek CMS approval for Medicare/Medicaid reimbursement for the technical component of their services are often inconsistent, unclear or non-existent.

IFECs can be owned by any individual or business entity. Some states have created licensing criteria to govern IFECs that closely follow the intent of the Emergency Medical Treatment & Labor Act (EMTALA) and other rules and regulations. Many states do not currently address licensing rules for IFECs. At this time, CMS does not recognize IFECs as EDs. Therefore, CMS does not allow for Medicare or Medicaid payment for the technical component of services provided by IFECs.

The American College of Emergency Physicians (ACEP) believes that any FSED facility that presents itself as an ED, regardless of whether it is a HOPD or an IFEC, should:

- Be available to the public 24 hours a day, seven days a week, and 365 days per year.
- Be staffed by appropriately qualified emergency physicians.
- Have adequate medical and nursing personnel qualified in emergency care to meet the written emergency procedures and needs anticipated by the facility.
• Be staffed at all times by a registered nurse (RN) with a minimum requirement of current certification in advanced cardiac life support and pediatric advanced life support.
• Have policy agreements and procedures in place to provide effective and efficient transfer to a higher level of care if needed (ie, cath labs, surgery, ICU).
• Receive the same level of reimbursement for both the physician and technical component fee as a traditional hospital-based emergency department.

ACEP believes that all FSEDs must follow the intent of the EMTALA statute and that all individuals arriving at a FSED should be provided an appropriate medical screening examination (MSE) by qualified medical personnel including ancillary services, to determine whether or not an emergency exists.

The FSED should provide stabilizing treatment within the capability of the facility and should have a mechanism in place to arrange an appropriate transfer to the definitive care facility, if appropriate, for the patient to receive necessary stabilizing treatment regardless of the patient’s ability to pay or method of payment.

FSEDs should have the same standards as hospital based EDs for quality improvement, medical leadership, medical directors, credentialing, and appropriate policies for referrals to primary and specialty physicians for aftercare. Value-based payments should consider the intrinsic differences between FSEDs and hospital-based EDs.

ACEP encourages all states to have regulations regarding FSEDs that are developed in close relationship with the ACEP chapter in the state. ACEP believes that all FSEDs (both HOPDs and IFECs) that adhere to the standards set forth in this policy should be reimbursed by Medicare, Medicaid, and third-party payers.

Reference

Geriatric Emergency Department Guidelines

Approved January 2019

Reaffirmed January 2019

Approved by The American Geriatrics Society October 2013; by the Emergency Nurses Association January 2014; and by the Society for Academic Emergency Medicine October 2013

Originally approved October 2013


Table of Contents

Introduction ...............................................................2

Purpose ........................................................................3

Goals

Benefits

Staffing and Administration ...........................................4

Background

Recommendations

Geriatric Emergency Department Medical Director

Geriatric Emergency Department Nurse Manager

Staff Physicians

Staff Nurses

Medical Staff Specialists

Ancillary Services

Follow up and Transition of Care ....................................6

Background

Recommendations

Education .......................................................................8

Quality Improvement ...................................................9

Geriatric Program Quality Improvement Plan

Sample Geriatric ED Quality Assessment Instrument (Dashboard)

Equipment and Supplies ................................................12

Policies, Procedures, and Protocols .................................14

Sample Policies & Procedures

The Screening of Geriatric Patients ...............................14

Guidelines for the Use of Urinary Catheters ..................16

Geriatric Medication Management .................................18
INTRODUCTION

According to the 2010 Census, more than 40 million Americans were over the age of 65, which was “more people than in any previous census.” In addition, “between 2000 and 2010, the population 65 years and over increased at a faster rate than the total U.S. population.” The census data also demonstrated that the population 85 and older is growing at a rate almost three times the general population. The subsequent increased need for health care for this burgeoning geriatric population represents an unprecedented and overwhelming challenge to the American health care system as a whole and to emergency departments (EDs) specifically. Geriatric EDs began appearing in the United States in 2008 and have become increasingly common.

The ED is uniquely positioned to play a role in improving care to the geriatric population. As an ever-increasing access point for medical care, the ED sits at a crossroads between inpatient and outpatient care (Figure 1). Specifically, the ED represents 57% of hospital admissions in the United States, of which almost 70% receive a non-surgical diagnosis. The expertise which an ED staff can bring to an encounter with a geriatric patient can meaningfully impact not only a patient’s condition, but can also impact the decision to utilize relatively expensive inpatient modalities, or less expensive outpatient treatments. Emergency medicine experts recognize similar challenges around the world. Geriatric ED core principles have been described in the United Kingdom.

![Figure 1. The central role of the ED in geriatric health care in contemporary medicine (reproduced with permission from TeamHealth's Patient Care Continuum Model.)](image-url)
Furthermore, as the initial site of care for both inpatient and outpatient events, the care provided in the ED has the opportunity to “set the stage” for subsequent care provided. More accurate diagnoses and improved therapeutic measures can not only expedite and improve inpatient care and outcomes, but can effectively guide the allocation of resources towards a patient population that, in general, utilizes significantly more resources per event than younger populations. Geriatric ED patients represent 43% of admissions, including 48% admitted to the intensive care unit (ICU). On average, the geriatric patient has an ED length of stay that is 20% longer and they use 50% more lab/imaging services than younger populations. In addition, Geriatric ED patients are 400% more likely to require social services. Despite the focus on geriatric acute care in the ED manifest by disproportionate use of resources, these patients frequently leave the ED dissatisfied and optimal outcomes are not consistently attained.

Despite the fact that the geriatric patient population accounts for a large, and ever increasing, proportion of ED visits, the contemporary emergency medicine management model may not be adequate for geriatric adults. A number of challenges face emergency medicine to effectively and reliably improve post-ED geriatric adult outcomes. Multiple studies demonstrate ED physicians’ perceptions about inadequate geriatric emergency care model training. Many common geriatric ED problems remain under-researched leaving uncertainty in optimal management strategies. In addition, quality indicators for minimal standard geriatric ED care continue to evolve. Older adults with multiple medical co-morbidities, often multiple medications, and complex physiologic changes present even greater challenges. Programs specifically designed to address these concerns are a realistic opportunity to improve care.

Similar programs designed for other age groups (pediatrics) or directed towards specific diseases (STEMI, stroke, and trauma) have improved care both in individual EDs and system-wide, resulting in better, more cost effective care and ultimately better patient outcomes.

**GERIATRIC ED - PURPOSE**

**Purpose**

The purpose of these Geriatric Emergency Department Guidelines is to provide a standardized set of guidelines that can effectively improve the care of the geriatric population and which is feasible to implement in the ED. These guidelines create a template for staffing, equipment, education, policies and procedures, follow-up care, and performance improvement measures. When implemented collectively, a geriatric ED can expect to see improvements in patient care, customer service, and staff satisfaction.

Improved attention to the needs of this challenging population has the opportunity to more effectively allocate health care resources, optimize admission and readmission rates, while simultaneously decreasing iatrogenic complications and the resultant increased length-of-stay and decreased reimbursement.

A goal of the geriatric ED is to recognize those patients who will benefit from inpatient care, and to effectively implement outpatient care to those who do not require inpatient resources. To implement most effectively, the geriatric ED will utilize the resources of the hospital, ED and inpatient, as well as outpatient resources. Making effective and expedient outpatient arrangements available to the geriatric population is of critical importance to the care of this population, recognizing that acute inpatient events are often accompanied by functional decline, increased dependency and increased morbidity. By using providers, including nurse practitioners, nurses, social workers, physician assistants, and physicians to coordinate care in the ED, the inpatient units, and during the immediate post-ED discharge period, the geriatric ED creates the opportunity to care for geriatric patients in the environment most conducive to a positive outcome.
The benefits of the Geriatric ED to the geriatric patient population are multiple and clear. By focusing attention and resources on the most common needs of the geriatric ED patient, care can be optimized. The benefit of a Geriatric ED to a hosting hospital can be multiple as well. These improved patient care standards can become a significant marketing tool for hospitals looking to reach out to the Medicare population and partner with extended care facilities. A Geriatric ED can market the ED to attract a patient population that may also utilize higher reimbursing hospital-based programs, including cardiac, orthopedic, and neurologic care. Further, with Medicare reimbursements decreasing and payment for iatrogenic complications such as wounds, catheter associated infections, etc. impacting hospital reimbursement; the need for special attention to geriatric needs has become even more pressing.

The term “geriatric” has had different definitions over the past decades. In 1985, the term oldest old was coined to identify those 85 years of age and older. Later Fries, et al defined three groups by dividing the older adult population into the young old (often 65-74), the middle old (75-85) and the oldest old (>85). The World Health Organization defined the older population starting at age 60. The guidelines used the construct that age 65 and older would be the geriatric population served by the Geriatric ED. Many hospitals may find that using the age 65 and older does not match the needs of their population and available resources. It may be most appropriate that each hospital identify the age for patients to be seen in their Geriatric ED. Through the continuum of physiologic aging complexity of health care issues increase and as such, the benefits of a Geriatric ED increase concurrently. The age range to be a patient in the Geriatric ED can be based on the literature, meaning age 60 or 65, or can be defined by the specific hospital community. One hospital uses age 55 based on when resources are available; another uses 65 years of age and another uses 75 years of age as the beginning age range for their Geriatric ED.

The recommendations found in this packet represent research and consensus-based best practices from the perspectives of the American College of Emergency Physicians, Society for Academic Emergency Medicine, American Geriatrics Society, and Emergency Nurses Association. With implementation of the following recommendations, hospitals, regardless of size, will positively impact the care of the geriatric emergency patients.

**STAFFING/ADMINISTRATION**

The Geriatric ED staff and administration provides a multi-disciplinary team of care providers focused on the varying needs of the geriatric population. By providing trained staff in the ED, as well as readily available staff for inpatient care and outpatient follow up, the Geriatric ED can optimize ED visits, effectively deliver and/or coordinate care in a less costly and more comfortable outpatient setting when appropriate and coordinate inpatient resources for high-risk patients. An effective program will involve hospital site-specific staff as well as overall local coordination resources.

**Background:**

Although published studies have not been clear on outcomes resulting from staffing modifications for the care of geriatric patients, they have demonstrated high levels of endorsement for ED staffing enhancements in general (94%), for the availability of specialized nurses (85%), pharmacists (74%), social workers (88%), geriatric consults (79%) and a designated professional to coordinate geriatric services (91%). There were moderate levels of endorsement for the availability of physical therapy (59%) and occupational therapy (53%).

One common approach to enhanced older adult ED staffing in the literature is the use of geriatric consultation services in the ED. Yuen, et al. found that over 26 months, there were 2202 geriatric
consultations (85 per month), with admission avoided in 85% (47% discharged home, 38% admitted to a “convalescent hospital”). Foo and colleagues evaluated geriatric assessment and intervention prior to discharge of geriatric patients from an ED observation unit. In the intervention group, 72% of patients had unrecognized needs requiring intervention. This group had fewer ED revisits (IRR 0.59) and hospital admissions (IRR 0.64) at 12 months. However, results are not consistent across studies. Sinoff et al also evaluated an ED geriatric consult service and found a significantly higher admission rate (64%), with a 2-year mortality of 34% and institutionalization rate of 52%. Social workers and case managers are essential to efficient geriatric ED management. Effective geriatric case management strategies continue to evolve. Innovative models using volunteers to assess geriatric ED patients have also been evaluated and are acceptable to ED nurses and physicians.

Recommendations:

- The Geriatric ED will have staffing protocols in place to provide for geriatric-trained providers, including physician and nurse leadership and ancillary services. These protocols should include plans for times when such services may not be available.
- Staff members of the Geriatric ED will participate in educational/training to ensure high-quality geriatric care.
- Although departments may differ in the availability of staffing resources, departments should have available the following positions either as part of a hospital-based Acute Care of Elders (ACE) team or specific for the ED:

**Geriatric Emergency Department Medical Director**

- Qualifications:
  - Best practiced by a board-certified emergency physician with training in geriatrics
  - Completion of eight hours of geriatric appropriate CME every two years
- Responsibilities:
  - Member of hospital ED and Medicine committee
  - Oversight of geriatric performance improvement program
  - Liaison with Medical Staff for geriatric care concerns
  - Liaison with outpatient care partners including Skilled Nursing Facilities (SNFs), Board and Care facilities, home health providers, etc.
  - Identify needs for staff education and implement educational programs when appropriate.
  - Review, approve, and assist in the development of all hospital geriatric policies and procedures

**Geriatric Emergency Department Nurse Manager**

- Qualifications:
  - At least two years of experience in geriatrics (or in an ED that sees geriatric patients) within the previous five years
  - Experience with QI programs is recommended
  - Completion of eight hours of Board of Registered Nursing (BRN) approved continuing education units (CEU) in geriatric topics every two years.
- Responsibilities:
  - Participate in the development and maintenance of a geriatric performance improvement program
  - Liaison with outpatient care partners including, but not limited to SNFs, Board and Care facilities, home health providers, etc.
  - Member of selected hospital-based ED and/or medicine committees
  - Identify needs for staff education and implement educational programs when appropriate.
Staff Physicians
- Provide twenty-four-hour ED coverage or directly supervised by physicians functioning as emergency physicians. This includes senior residents practicing at their respective hospitals only.
- Staff physicians are encouraged to participate in geriatric specific education with a goal of 4 hours of CME annually specifically focused on the care of geriatric patients.

Staff Nurses
- Nursing staff is encouraged to participate in geriatric specific education.

Medical Staff Specialists
- Specialists will be available for consultation either by established medical staff policies or by pre-arranged transfer arrangements. Although each hospital’s medical staff will support different specialist services, it is recommended that the Geriatric ED have access to:
  - Geriatrics
  - Cardiology
  - General Surgery
  - GI
  - Neurology
  - Orthopedists
  - Psychiatry, preferably with a geriatric specialty
  - Radiology

Ancillary Services
- Case management and social services
- Mid-level provider/physician extenders (optional, but recommended)
- Occupational/Physical therapists
- Pharmacists

FOLLOW UP AND TRANSITION OF CARE

Acute hospitalization is associated with increased rates of acute delirium, nosocomial infections, iatrogenic complications, and functional declines in the geriatric adult. Thus, one of the main goals of the Geriatric ED is to decrease hospital admissions. Making effective and expedient outpatient arrangements available to the geriatric population is of critical importance to the care of this population. However, discharge from the ED to the community presents significant challenges to the geriatric population.

Background:
Published studies on ED-based interventions with improved access to community resources have had mixed results. Most demonstrate little effect of these interventions on either ED utilization or prevention of complications. However, effective transition of care is clearly required to facilitate outpatient care after an ED evaluation. This transition process presents many challenges. In an era of daily ED crowding, effective, reliable discharge instructions are a challenge to all populations, particularly for the geriatric population. Older ED patients identify misinformation as a primary course of dissatisfaction with their emergency care, a problem confounded and magnified by ongoing under-recognition of cognitive dysfunction, lower health literacy, and financial impediments for prescriptions and recommended outpatient follow-up.
Recommendations:

- The Geriatric ED will have discharge protocols in place that facilitate the communication of clinically relevant information to the patient/family and outpatient care providers, including nursing homes. Essential information to optimize continuity of care at the time of discharge should include the following data elements:
  - Presenting complaints
  - Test results and interpretation
  - ED therapy and clinical response
  - Consultation Notes (in person or via telephone) in ED
  - Working discharge diagnosis
  - ED physician note, or copy of dictation
  - New prescriptions and alterations with long-term medications
  - Follow-up plan

Clinical information will be presented in a format in a way best suited for elder adults:

- Large font discharge instructions
- Health Insurance Portability and Accountability Act (HIPAA) compliant copied discharge instructions should be provided to family and care providers.

The Geriatric ED will have a process in place that effectively provides appropriate outpatient follow up either via provider-to-patient communication or the provision of direct follow up clinical evaluation.

- Although telephone follow up is the most commonly used, the use of newer technology, including telemedicine alternatives is recommended.

The Geriatric ED will maintain relationships and resources in the community that can be used by patients on discharge to facilitate care.

- Medical follow up
- Primary MD or “medical home”
- Case Manager to assist with compliance with follow up
- Safety Assessments
- Mobility
- Access to care and medical transportation resources
- Medical equipment
- Prescription assistance and education
- Home health, including outpatient nursing resources
- ADL resources including meal programs, etc.

Although a goal of the Geriatric ED should be to maintain older adults in their own homes whenever possible, some patients will require either short term or long-term placement into facilities when care cannot be provided appropriately at home. Thus, the Geriatric ED should have available community resources for the placement of patients to the appropriate level of care, including nursing homes, rehab facilities, board and cares, etc.

**EDUCATION**

The success of the Geriatric ED program rests largely on the education of a multi-disciplinary staff directed toward the needs of the geriatric population. Residency and continuing medical education must take into account the unique physiology, atypical disease presentations, and psychosocial needs of older adults.
Education and training evaluation of emergency personnel should be competency-based. The curriculum should contain interdisciplinary content, and learners should be assessed for interdisciplinary core competencies. Effective instructional methods include a mix of didactic lectures, case conferences, case simulations, clinical audits, journal clubs, web-based materials, and supervised patient care. Hands-on training is strongly preferred by many learners. Education may be effectively organized around the assessment of common and important geriatric chief complaints.

A Geriatric ED educational program is expected to include an initial initiative directed towards program implementation, increasing staff awareness of the geriatric population’s needs, and specific policy and procedure initiatives. Educational programs can be created and implemented internally (specific for each hospital), as part of a larger CME program, or through participation in externally created programs.

An educational program should include:

- Initial “go-live” implementation sessions
  - Involvement of multi-disciplinary teams including hospital-based leadership and outpatient resources
  - Geriatric emergency medicine didactic sessions for physician, nursing, and multi-disciplinary staff focused on geriatric care issues to be assessed and managed in the Geriatric ED
  - In-service education on geriatric-specific equipment
  - Program introduction for community-based organizations caring for geriatric patients with opportunity for input.

- Community awareness, involvement, and outreach
  - Emergency Medical Services (EMS) personnel perceive a deficit in their training as it relates to care of older patients, particularly in the areas of education and psychosocial issues. The Geriatric ED should provide training for EMS personnel who rescue and transport older persons to their facilities.
  - The Geriatric ED should also provide educational self-management materials for older adults and their families.

- Regular educational assessment and implementation of site-specific educational needs
  - QI data review with process improvement implementation
  - Periodic education/re-education of disease specific presentations with updates on policy/procedure changes, community care programs, etc.
  - An important educational goal is to provide familiarity with use of quick, bedside assessment tools.

Educational needs will be assessed on an ongoing basis by the Geriatric Medical Director and Geriatric Liaison nurse and implemented as needed based on staff needs. As the program grows and the competency of staff changes over time, it is expected that educational needs will change. It is highly recommended that education be coordinated with peer review cases, based on cases experienced in the local ED.

Although educational content should be tailored to individual department needs, recommended content includes the following:

- Atypical presentations of disease
- Trauma, including falls and hip fracture
- Cognitive and behavioral disorders
- Modifications for older patients of emergent interventions
- Medication management
- Transitions of care and referrals to services
• Pain management and palliative care, 23, 66, 74
• Effect of comorbid conditions, 23, 58
• Functional impairments and disorders, 58-61, 71
• Management of the group of diseases peculiar to the geriatric adult, including conditions causing abdominal pain, 58-60, 62, 66-68, 75
• Weakness and dizziness, 58, 60, 63, 76
• Iatrogenic injuries, 67, 68, 77
• Cross-cultural issues involving older patients in the emergency setting, 63
• Elder abuse and neglect, 58, 61, 66, 71
• Ethical issues, including advance directives, 58, 61, 62, 69, 78

QUALITY IMPROVEMENT

Implement an effective Quality Improvement (QI) program with the goal to collect and monitor data (Figure 2) in a manner conducive to staff education and program success.

Geriatric Program Quality Improvement Plan

• A geriatric program shall be developed and monitored by the Geriatric Medical Director and Geriatric Nurse Manager.
• A geriatric report shall be generated and delivered to the ED committee no less than quarterly by the Geriatric Medical Director.
• The program shall include an interface with pre-hospital care, ED, trauma, critical care, alternative level care facilities and hospital wide QI activities.
• A mechanism shall be established to easily identify geriatric patient (65 years & older) visits to the ED.
• The geriatric QI program will include identification of the indicators, methods to collect data, results and conclusions, recognition of improvement, action(s) taken, and assessment of effectiveness of actions and communication process for participants.
• A mechanism to document and monitor the geriatric education of the Geriatric ED staff shall be established.
• The geriatric QI program shall include reviews of the following geriatric patients seen in the ED:
  • Geriatric volume
  • Admission rate
  • Readmission rate
  • Deaths
  • Suspected abuse or neglect
  • Transfers to another facility for higher level of care
  • Admissions requiring upgrading of level of care to ICU within 24 hours of admission
  • Return visits to the ED within 72 hours
  • Completion of at-risk screening tool, 79
  • Completion of follow up reevaluation for discharged patients

• In addition to the above, individual disease specific entities that facilities may also monitor include:
  • Falls in the geriatric adult
    • Prevalence
    • Prevalence of traumatic injuries associated with falls
      • Hip fractures
      • Traumatic intracranial hemorrhage
\begin{itemize}
  \item Blunt abdominal injuries
  \item Death
  \begin{itemize}
    \item Poly-pharmacy screening in patients with falls
    \item Screening of those at-risk of falls
    \begin{itemize}
      \item Physical therapy evaluation completed on at-risk patients.
    \end{itemize}
    \item Referral patterns after fall (visual screening, gait rehab, etc.)
  \end{itemize}
  \item Catheter use and catheter associated UTIs (CAUTIs)
  \begin{itemize}
    \item Foley insertion and indication checklist usage data
    \item Days of catheter use in hospital
    \item Automatic discontinuation orders utilized
    \item Total catheter days
    \item ED CAUTI prevalence
  \end{itemize}
  \item Medication reconciliation/pharmacy oversight
  \begin{itemize}
    \item Documentation of high-risk medications
    \item Usage of high-risk medication in ED (See addendum)
    \item Percentage of revisits for medication adverse reaction or noncompliance
  \end{itemize}
  \item Restraint
  \begin{itemize}
    \item Indication documented
    \item Chemical restraint attempted and with which medication
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Figure 2. Sample Geriatric ED Quality Assessment Instrument (Dashboard)

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| DISEASE SPECIFIC |     |     |     |     |     |     |     |     |     |     |     |     |
| FALLS |     |     |     |     |     |     |     |     |     |     |     |     |
| Hip Fractures |     |     |     |     |     |     |     |     |     |     |     |     |
| Traumatic ICH |     |     |     |     |     |     |     |     |     |     |     |     |
| Blunt Abdominal Injury |     |     |     |     |     |     |     |     |     |     |     |     |
| Death |     |     |     |     |     |     |     |     |     |     |     |     |
| Fall-Risk Assessment |     |     |     |     |     |     |     |     |     |     |     |     |
| Physical Therapy Eval |     |     |     |     |     |     |     |     |     |     |     |     |

| URINARY CATHETERS |     |     |     |     |     |     |     |     |     |     |     |     |
| Check List Used |     |     |     |     |     |     |     |     |     |     |     |     |
| Catheter Days |     |     |     |     |     |     |     |     |     |     |     |     |
| Automatic Discontinue |     |     |     |     |     |     |     |     |     |     |     |     |
| CAUTI Stay Length |     |     |     |     |     |     |     |     |     |     |     |     |

| MEDICINE MANAGEMENT |     |     |     |     |     |     |     |     |     |     |     |     |
| High Risk Meds Noted |     |     |     |     |     |     |     |     |     |     |     |     |
| ED High Risk Meds |     |     |     |     |     |     |     |     |     |     |     |     |
| Adverse Reaction Revisit |     |     |     |     |     |     |     |     |     |     |     |     |
| Non-compliance Revisit |     |     |     |     |     |     |     |     |     |     |     |     |

| DELIRIUM |     |     |     |     |     |     |     |     |     |     |     |     |
| Screen Documented |     |     |     |     |     |     |     |     |     |     |     |     |
| Restraint Indications |     |     |     |     |     |     |     |     |     |     |     |     |
| Chemical Restraint Attempt |     |     |     |     |     |     |     |     |     |     |     |     |
| Behavior Physical Restraint Used |     |     |     |     |     |     |     |     |     |     |     |     |
EQUIPMENT AND SUPPLIES

Geriatric patient care requires equipment designed for a patient population with specific needs. Challenges involving mobility, incontinence, behavioral needs, etc. are best met with equipment designed for the effective and comfortable evaluation and treatment of geriatric patients, while minimizing iatrogenic complications. The physical plant of a Geriatric ED should focus on structural modifications that promote improvements in safety, comfort, mobility, memory cues, and sensorial perception both with vision and hearing for elders in the ED. Common key features are those that enhance lighting, colors, enhanced signage – all of these are better, not only for older adults, but for everyone. Although a separate space within an ED, or a separate ED entirely, devoted to geriatrics may be beneficial, most hospitals will be more capable of effectively implementing a program in which any ED bed can be made “geriatric friendly” with the presence of the equipment and supplies listed.

The list below is a suggested starting point for the design and equipping of a Geriatric ED.7,11,80

- Furniture improvements:
  - Exam chairs/reclining chairs – may be more comfortable for some geriatric patients and facilitate transfer processes.81
  - Furniture should be selected with sturdy armrests and ED beds at levels that allow patients to rise more easily for safe transferring. Furniture should be selected using the Evidence-Based Design Checklist. Some studies show that patients often fall when trying to get out of bed unsupervised or unassisted. They also show that bedrails do not reduce the amount of falls and may increase the severity of the fall.
  - Extra thick/soft gurney mattress – decreases possible development of skin break down and decubitus ulcer formation.82
  - Choice of upholstery should be soft and moisture proof to protect the fragile skin of older patients. Should also be selected to reduce surface contamination linked to health care associated infections. “Surfaces are easily cleaned, with no surface joints or seams,” “materials for upholstery are impervious,” “surfaces are nonporous and smooth.” This should hold true especially in the ED where there is a high turnover with a large variety of diseases potentially present.
  - Economic evidence supports early prevention of pressure ulcers in ED patients by the use of pressure-redistributing foam mattresses.83 Another alternative that has been shown to reduce pain and improve patient satisfaction is the use of reclining chairs in the ED instead of ED gurney beds.81
- Special equipment
  - Body warming devices/warm blankets
  - Fluid warmer
  - Non-slip fall mats84
  - Bedside commodes – where necessary to minimize fall risk
  - Walking aids/devices85
  - Hearing aids86
  - Monitoring equipment
  - Respiratory equipment to include a fiberoptic intubation device
  - Restraint devices
  - Urinary catheters to include condom catheters – minimize risk of CAUTI
- Visual Orientation improvements:
  - Lighting – soft light is recommended, but exposure to natural light is also shown to be beneficial for recovery times and decreasing delirium
Light colored walls with a matte sheen and light flooring with a low-glare finish should be used to optimize lighting and reduce glare. While older adults require three to four times as much light as young adults for visual clarity, light scatter also increases with aging eyes. Simply increasing the level of lighting can improve acuity, and it is recommended that lighting consist of a combination of ambient and spot lighting. In contrast, glare and shine along with difficulty seeing the edges of pale colored objects have been shown to be impediments for older adults in their ability to function and confusing for those with cognitive impairments. Thus, improvements that increase lighting while reducing glare can include shielding of illuminating fixtures above the upper visual field. Fixtures that bounce light off the ceiling or of walls increase overall room lighting while glare can be reduced with the use of matte surfaces. Uniform indirect light.

Patients should have control of the lighting in their space if they wish to sleep at a time when the other lights are on, allowing for fewer sleep disturbances.

- Patterns
  - Contrast sensitivity in aging vision can be both confusing and hinder movement in geriatric patients, especially with reduced depth perception. Patterns that have dominant contrasts may create a sense of vertigo or even seem to vibrate for older adults. Others may misperceive patterns as obstacles or objects (eg, leaf patterns on flooring may be seen as real live leaves to avoid when walking).

- Colors
  - Secondary to vision and perception changes, color choice for facilities and structure should be considered. Color can be used to enhance visual function and depth perception. Avoid monochromatic color schemes and allow for colors to contrast between horizontal and vertical surfaces. Similar colors look the same for those with poor vision. Older adults experience a decrease in the ability to differentiate cool colors (greens, blues) as opposed to warm colors (yellows, oranges). In poorly lit areas, yellow is the most visible. Orange and reds are attention grabbing. Blues appear hazy and indistinct and may appear gray due to yellowing of the lens.

- Acoustic Orientation Improvements – private rooms or acoustically enhanced drapes, if necessary, for better communication and decrease levels of anxiety and delirium
  - An enhanced acoustical environment may facilitate communication between patients and staff and between staff. While older adults may have decreased ability to hear certain words secondary to a loss of hearing in high-frequency ranges, they also have increased sensitivity to loud sounds. The use of sound-absorbing materials (eg, carpet, curtains, ceiling tiles) may reduce background noise and can also increase patient privacy. The use of portable hearing assist devices for patients may also enhance communication. Loud noise sources in the hospital should be reduced (eg, overhead paging, machines). There is an increase in the amount of studies showing how music can decrease anxiety, heart rate and blood pressure. Patients could be provided with a way to listen to music and choose their programming without disturbing others.
  - An enhanced acoustical environment can also increase patient privacy and safety. One study performed in an ED found that “percent of the patients in curtained spaces reported they withheld portions of their medical history and refused parts of their physical examination because of lack of privacy. None of the patients in rooms with walls reported withholding information.”

- Enhanced signage – enhance communication
- Miscellaneous safety enhancements
  - Doors should be fitted with handles (not round knobs) for ease of use

Hospitals are expected to utilize their existing resources to meet the needs of this population. With minimal additional expense for equipment suggested above, geriatric care can be optimized.
POLICIES, PROCEDURES AND PROTOCOLS

The policies, procedures, and protocols listed are recommended as a comprehensive, directed, although not exhaustive, approach to many of the challenges involved in the care of geriatric patients in the ED. Emergency departments are encouraged to use, change, or integrate their local policies, procedures, and protocols whenever possible. These policies should be available to be referenced by staff and should be followed as part of the routine care of patients.

- Triage and initial evaluation
  - Family/care provider presence/participation in the triage process is highly encouraged
- Initial screening tool to recognize and evaluate at-risk seniors *
- Patient safety
- Suspected elder/dependent adult abuse and neglect
- Sedation/analgesia in the geriatric patient
- Assessment and evaluation of delirium/agitation *
  - Restraint policies
- DNR/POLST/palliative care
- Patient Death
  - Inclusion of the grieving family in the “code” situation is encouraged
- Urinary catheter placement guidelines *
- Fall risk assessment and clinical guideline for the evaluation of the “geriatric adult fall” *
- Wound assessment and care
- Transition of Care and Follow-up
- Medication reconciliation and pharmacy review *

*Denotes sample policies and procedures included in the next section

Sample Policy and Procedures

The Screening of Geriatric Patients for Risk of Added Needs Assessment, Consultation and Intervention

**Background:** The geriatric population presenting to the ED is a heterogeneous patient population. Although many patients in this population are functional, independent, and generally in good health, it has been shown that a visit to the ED, even for a relatively minor issue, may be a “red flag” event heralding functional decline and the potential need for added health resources. Other patients in this population are frailer. In general, these patients will require longer ED and hospital lengths-of-stay and consume more health care resources than their younger cohorts. Screening of this population in the ED may allow an opportunity to intervene in those patients who require added resources to help improve outcomes.

Previously published studies on the use of prognostic screening tools in this patient population have mixed results. What seems to be clear though is that a team driven, simple to use screening tool can be powerful in helping act to prevent poor outcomes and improve the ED and hospital experience for the geriatric patient.

Goals of an effective screening program include the prevention or limitation of delirium, prevention of functional decline, prevention of iatrogenic injury including adverse drug events and falls, as well as a
more effective transition of care through the care cycle from outpatient to ED to inpatient and back again to outpatient.

Policy: It is the policy of the Geriatric ED to screen all geriatric patients for high-risk features. Those patients screened to be at risk will be referred to health care resources, both inpatient and outpatient, to help improve overall health and functional outcomes.

Recommended Resources:
- Nurse screening tool
- Resource list including, but not limited to:
  - Physical therapy
  - Occupational therapy
  - Home health providers
  - Case managers
- Outpatient follow up resources

Procedure:
- All geriatric patients, regardless of the presenting complaint shall be screened (on the initial index visit, not follow up visits) using the “Identification of Seniors at Risk Tool” or a similar risk screening tool. This is a simple, quick screening tool that should be completed by the treating nurse as part of the initial evaluation. Answers to the screening questions can be provided by the patient, family, care providers, or others involved in the patient’s assessment and care.

Identification of Seniors At-Risk Tool
- Before the injury or illness, did you need someone to help you on a regular basis?
- Since the injury or illness, have you needed more help than usual?
- Have you been hospitalized for one or more nights in the past six months?
- In general, do you see well?
- In general, do you have serious problems with your memory?
- Do you take more than 3 medications daily?

>1 positive response is considered high-risk

- The treating physician will review the results of the initial screening during the index visit.
- Any patient noted to be at-risk (on the ISAR that means one or more positive responses on the initial screening tool) will be provided with appropriate resources focused to the individual needs.
- All patients noted to be at-risk requiring admission to the hospital will be referred to case management upon admission with the risk assessment results communicated.
- All patients noted to be at-risk that are to be treated as an outpatient will be followed up the following day. Although phone consultation may be adequate, in-person evaluations either in the ED, by the primary physician, or by an RN or mid-level provider is preferable.
- Specific at-risk features will be addressed during the index visit in the ED. Recommendations and referrals will be documented as part of the “Medical Decision Making” and will be addressed along with the case-specific discharge instructions.

Performance Improvement: The screening of geriatric patients for general at-risk features will require ongoing education and reinforcement for physician, mid-level, and nursing providers. It is recommended that compliance of the completion of the initial assessment be assessed on a regular basis.
Guidelines for the Use of Urinary Catheters in the Geriatric Population

**Background:** Health care-associated and hospital acquired infections are increasing occurrences and pose a significant risk of morbidity and mortality to affected patients. Between 1990 and 2002 hospital admissions for urinary tract infections soared to 16% of all hospital admissions. Urinary tract infections associated with urinary tract catheter insertion account for the highest percentage (80%) of hospital and health care associated infections and approximately 1 in 5 patients being admitted to the hospital receive an indwelling catheter at some point. The risk of urinary tract infection from an indwelling catheter increase about 5% per day and a small portion of these patients develop bacteremia and sepsis as a result of indwelling urinary tract catheters with a significant increase in health expenditures and length of stay. Several studies suggest that many of these urinary tract catheters are inappropriately placed and needlessly expose patients to the inherent risk of catheter placement without benefit. The Centers for Medicare and Medicaid Services (CMS) has identified these health care-associated infections as preventable and have recommended that hospitals take measures to minimize the catheter related infections. Several groups have identified specific measures aimed at decreasing the incidence of CAUTIs. Yet, despite these proven efforts, national hospital compliance with preventative measures is lacking and lacks uniformity. Of primary importance is the screening and appropriate identification of patients for indwelling catheter placement, proper technique, educating staff and process improvement measures such as infection rate auditing and limited duration of use (references). As an integral part of the health care system the ED recognizes the importance of selecting appropriate patients for catheter insertion.

**Purpose:** The purpose of this policy and procedure is meant to provide a guideline on indications for the appropriate use of indwelling catheter and does not replace the clinical judgment of the physician.

**Procedure:** Insertion of urinary catheters (See Figure 3):

- The patient must have an indication for use of an indwelling catheter and a physician order in the chart. According to the Infectious Disease Society of America and other expert opinion, these indications are as follows:
  - Urinary retention/obstruction
  - Very close monitoring of urine output and patient unable to use urinal or bedpan
  - Open wound in sacral or perineal area with urinary incontinence
  - Patient too ill, fatigued or incapacitated to use alternative urine collection method
  - Patient s/p recent surgery
  - Management of urinary incontinence on patient’s request
  - Other – needs specification and clarification documented

Other acceptable indications also include

- Neurogenic bladder
- Emergent pelvic ultrasound
- Emergent surgery
- Altered mental status or unresponsive
- Urologic procedures
- Hip fracture
- Hospice or palliative care

After receiving a physician order with the appropriate indications documented, nursing will insert the indwelling catheter as per protocol, using sterile technique.
Discontinuation of urinary catheters:
- Indwelling catheters will be removed as soon as feasibly possible. Evidence shows that catheter associated bacteriuria increases and is directly associated with catheter days. Accordingly, daily catheter rounds should prompt for continued use or removal of indwelling catheters.104,109

**Process improvement:**
As part of ongoing efforts to improve use of indwelling catheters in appropriate patients, periodic audits will be performed to check for the following:
- Is a physician order for an indwelling urinary catheter present?
- Was the procedure documented including time and date?
- Was sterile technique used?
- What is the rate of CAUTI?

**Figure 3. Foley Catheter Insertion Algorithm**

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**Geriatric Medication Management**

**Background:** Geriatric patients are at high-risk for adverse events related to medication.4, 26, 112, 113 The aging population tends to take more medications, have more co-morbidities, and have differing responses to medications when compared to their younger cohorts.114 Furthermore, the “normal” aging physiology often leads to changes in metabolism with medications as well as problematic responses to “normal” medication dosing.

Polypharmacy in this population is especially problematic.113, 115 Population studies have indicated that 40% of patients greater than 65 years of age take 5-9 medications daily, and 18% take more than 10. If you consider there is a 50-60% chance of a drug-drug interaction when taking 5 medications and a 90% chance of a drug-drug interaction when taking 10 or more medications, the burden of medications on the evaluation and care of the geriatric population seems clear.
Overall, adverse medication events not only represent a major cause of ED visits and hospital admissions, they can also lead to increased patient morbidity and mortality, increased resource utilization and increased overall ED and hospital length-of-stay.\textsuperscript{115-118}

Current “medication reconciliation” procedures are a good start towards addressing this issue, but do not go far enough in the management of medications in the geriatric population. Implementation of a concise, goal-oriented, team approach to medication management beginning in the ED can potentially increase awareness of adverse drug events as presenting diagnoses, minimize the use of high-risk medications in the geriatric adult, minimize the use of medications with potential interactions, and positively influence the ED care, hospitalization, and subsequent outpatient care of these patients.

**Policy:** It is the policy of the Geriatric ED to address the use of medications in the geriatric population presenting to the ED. A medication list will be obtained and completed as accurately as possible, taking advantage of patients, caretakers, and medical record resources. Patients taking more than 5 medications, any high-risk medications, or presenting with signs or symptoms of adverse drug events will be managed with a multi-disciplinary approach focused on improving patient outcomes.

**Required Resources:**
- Established medication “reconciliation” tool
  - Computer-based resources can be effective for obtaining accurate medication lists when patients or care takers are not able to provide them.
- Pharmacy leadership/involvement
  - Maintenance of high-risk medication list
- A multi-disciplinary team, including geriatric specialists, pharmacists, etc. is recommended.

**Procedure:**
- All geriatric patients presenting to the ED, regardless of presenting complaint, will have a medication list completed.
  - Accuracy is often difficult in the ED scenario. Involving the patient, care providers, and family in this procedure is critical.
  - Computer resources should be developed and utilized whenever possible to maintain accurate medication lists for patients presenting to the ED or hospital.
- The completed medication list will be made available to the attending ED physician and treating nurse as soon as possible.
- The medication list will be screened by both the nurse and attending physician for:
  - Polypharmacy >5 medications
  - Presence of any high-risk medications
    - Hospital pharmacies should develop and maintain a list of high-risk medications. Using “Beers criteria” or other established lists is recommended. Although these lists should be hospital specific, they should at least include:
      - Anti-coagulants and anti-platelet medications
      - Anti-hyperglycemics
      - Cardiac medications including digoxin, amiodarone, B-Blockers, Ca channel blockers
      - Diuretics
      - Narcotics
      - Anti-psychotics and other psychiatric medications
      - Immunosuppressant medications, including chemotherapy agents

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• Patients requiring hospital admission that are noted to have either polypharmacy concerns or the presence of any high-risk medications will be referred to a multi-disciplinary team to include a pharmacist.
  o The multi-disciplinary team will interact with the attending physician with goals of minimizing drug-drug interactions, minimizing polypharmacy and high-risk medications during hospitalization and upon discharge.
• Patients discharged from the ED that are noted to have either polypharmacy concerns or the presence of any high-risk medications will be referred to their primary physician for review of their medications as appropriate for their clinical situation.

Performance Improvement:
• High-risk medication lists will be reviewed annually.
• Consider reviewing the use of a high-risk medication annually. For example, the use of diphenhydramine in the geriatric adult can be reviewed with a goal of limiting its use in the geriatric population.
• Tracking and trending of adverse drug response admissions
• Tracking and trending of pharmacist interventions for admitted patients noted with either polypharmacy or high-risk medications.
American Geriatrics Society Beers Criteria 2012

### TABLE 1: 2012 AGS Beers Criteria for Potentially Inappropriate Medication Use in Older Adults

<table>
<thead>
<tr>
<th>Organ System/Therapeutic Category/Drug(s)</th>
<th>Quality of Evidence (QE) &amp; Strength of Recommendation (SR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anticholinergics (excludes TCAs)</td>
<td>Highly anticholinergic; clearance reduced with advanced age, and tolerance to side effects may occur</td>
</tr>
<tr>
<td>First-generation antihistamines (e.g., diphenhydramine, hydroxyzine)</td>
<td>Not recommended for prevention of anticholinergic symptoms with antihistamines; more effective agents available for treatment of Parkinson disease</td>
</tr>
<tr>
<td>Tricyclic antidepressants (e.g., amitriptyline)</td>
<td>Avoid in patients with permanent atrial fibrillation or heart failure</td>
</tr>
<tr>
<td>Antipsychotic agents (e.g., risperidone)</td>
<td>Avoid in patients with permanent atrial fibrillation or heart failure</td>
</tr>
<tr>
<td>Digoxin &gt;0.125 mg/day</td>
<td>Avoid in heart failure, higher doses associated with no additional benefit and may increase risk of toxicity; decreased renal clearance may increase risk of toxicity</td>
</tr>
</tbody>
</table>

TABLE 1 (continued from page 1)

| Antidepressants | Avoid except in short-term palliative care to decrease oral secretions |
| Tetracyclines | May cause orthostatic hypotension; more effective alternatives available; IV forms acceptable for use in cardiac stress testing |

TABLE 1 (continued from page 1)

| Antiemetics | Avoid if effective alternatives available |

| Calcium channel blockers | Avoid use as an antihypertensive |
| Calcium blockers | Avoid cholesteral as a first-line antihypertensive, avoid others as listed |
| Guanethidine | High risk of adverse CHF effects; may cause bradyarrhythmias; hypertension not recommended as nodal depressor for hypertension |

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American Geriatrics Society Beers Criteria 2012 (continued)

<table>
<thead>
<tr>
<th>Organ System</th>
<th>Therapeutic Category</th>
<th>Drug(s)</th>
<th>Recommendation, Rational(s)</th>
<th>Quality of Evidence (Q)</th>
<th>Strength of Recommendation (SR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrates, immediate release*</td>
<td>Avoid</td>
<td>Potential for hypotension; risk of precipitating myocardial ischemia. Q = High SR = Strong</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eplerenone &gt;25 mg/day</td>
<td>Avoid in patients with heart failure or with a CrCl &lt;36 mL/min. In heart failure, the risk of hyperkalemia is higher in older adults if taking &gt;25 mg/day. Q = Moderate SR = Strong</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Nervous System</td>
<td>Terbutaline (in combination)</td>
<td>Aminophylline</td>
<td>Avoid</td>
<td>Highly anticholinergic, sedating, and cause orthostatic hypotension. The safety profile of low-dose theophylline (&lt;4 mg/kg/day) is comparable to that of placebo. Q = High SR = Strong</td>
<td></td>
</tr>
<tr>
<td>Antipsychotics, first- (conventional) and second- (atypical) generation (see note for atypical)</td>
<td>Avoid use for behavioral problems of dementia unless non-pharmacological options have failed and patient is threat to self or others. Increased risk of cerebrovascular accident (stroke) and mortality in persons with dementia. Q = Moderate SR = Strong</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thiazide Diuretics and Diuretics</td>
<td>Avoid</td>
<td>Highly anticholinergic and greater risk of QT-interval prolongation. Q = Moderate SR = Strong</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzodiazepines Short- and intermediate-acting</td>
<td>Avoid</td>
<td>High rate of physical dependence, tolerance to sleep benefits, greater risk of overdose at low doses. Q = High SR = Strong</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chlorides/alkali, low-</td>
<td>Avoid</td>
<td>May be appropriate for seizure disorders, rapid eye movements, sleep disorders, benzodiazepine withdrawal, ethanol withdrawal, severe generalized anxiety disorder, postprocedural anxiolysis, end-of-life care. Q = High SR = Strong</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chlorides/alkali, high-</td>
<td>Avoid</td>
<td>Avoid benzodiazepines (any type) for treatment of insomnia, risk, agitation, or delirium. Older adults have increased sensitivity to benzodiazepines and decreased metabolism of long-acting agents. In general, all benzodiazepines increase risk of cognitive impairment, delirium, falls, fractures, and motor vehicle accidents in older adults. Q = Moderate SR = Strong</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chlorides/alkali, low-</td>
<td>Avoid</td>
<td>Avoid because occurs within 10 days and risk outweighs the benefits in light of overdose with doses only 3 times the recommended dose. Q = Low SR = Strong</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnesium</td>
<td>Avoid</td>
<td>High rate of physical dependence; very sedating. Q = Moderate SR = Strong</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* These medications are generally avoided in older adults due to increased risk of side effects and drug interactions.
### American Geriatrics Society Beers Criteria 2012 (continued)

#### Table 1: 2012 AGS Beers Criteria for Potentially Inappropriate Medication Use in Older Adults Due to Drug-Drug or Drug-Disease Interactions That May Exacerbate the Disease or Syndrome

<table>
<thead>
<tr>
<th>Organ System</th>
<th>Therapeutic Category/Drug</th>
<th>Recommendation, Rational, Quality of Evidence (QE) &amp; Strength of Recommendation (SR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonsteroidal anti-inflammatory drugs</td>
<td>NSAIDs and COX-2 inhibitors</td>
<td>Avoid. Potential to promote fluid retention and/or exacerbate heart failure. QE = Moderate (NSAIDs, COX-2 inhibitors), High (Thiazide diuretics, clopidogrel); SR = Strong</td>
</tr>
</tbody>
</table>

#### Table 2: 2012 AGS Beers Criteria for Potentially Inappropriate Medication Use in Older Adults Due to Drug-Disease or Drug-Syndrome Interactions That May Exacerbate the Disease or Syndrome

<table>
<thead>
<tr>
<th>Disease or Syndrome</th>
<th>Drug(s)</th>
<th>Recommendation, Rational, Quality of Evidence (QE) &amp; Strength of Recommendation (SR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute cholecystitis/streptococcal peritonitis and pneumonia in the elderly</td>
<td>Doxycycline, ceftriaxone, gentamicin, vancomycin, metronidazole, piperacillin,tazobactam</td>
<td>Avoid. Increases risk of orthostatic hypotension or bradyarrhythmias. QE = High (Alpha blockers, Moderate AGS Drugs, TCAs and antipsychotics); SR = Strong (ACEIs and ARBs), Weak (diuretics and antihypertensives)</td>
</tr>
<tr>
<td>Central nervous system</td>
<td></td>
<td>Avoid. Lowers seizure threshold, may be acceptable in patients with well-controlled seizures in whom alternative agents have not been effective. QE = Moderate; SR = Strong</td>
</tr>
<tr>
<td>Cholinergic dysfunctions, including antipsychotics</td>
<td>Atypical antipsychotics (see online for full list)</td>
<td>Avoid. Antipsychotics are associated with an increased risk of cerebrovascular accidents (stroke) and mortality in persons with dementia. QE = High; SR = Strong</td>
</tr>
<tr>
<td>CVA/SAH/CVA drugs</td>
<td></td>
<td>Avoid. Avoid due to adverse CNS effects. Antipsychotics for behavioral problems of dementia unless non-pharmacologic options have failed and patient is a threat to himself or others. QE = Moderate; SR = Strong</td>
</tr>
<tr>
<td>Cerebrovascular accident</td>
<td></td>
<td>Avoid. Avoid unless safer alternatives are not available. Ability to produce ataxia, impaired psychomotor function, syncope, and additional side effects. QE = Moderate; SR = Strong</td>
</tr>
<tr>
<td>Diabetic neuropathy, lactic acidemia, and cramping</td>
<td></td>
<td>Avoid. Oral decongestants. QE = Moderate; SR = Strong</td>
</tr>
<tr>
<td>Parkinson's disease</td>
<td></td>
<td>Avoid. Dyskinesia receptor antagonists with potential to worsen parkinsonian symptoms. QE = Moderate; SR = Strong</td>
</tr>
</tbody>
</table>

---

**Table 1** continues from page 4.

**Table 2** continues from page 5.
TABLE 2. 2012 AAG Beers Criteria for Potentially Inappropriate Medication Use in Older Adults Due to Drug-Disease or Drug-Syndrome Interactions That May Exacerbate the Disease or Syndrome

<table>
<thead>
<tr>
<th>Drug(s)</th>
<th>Recommendation, Rational, Quality of Evidence (QE) &amp; Strength of Recommendation (SR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhaled anticholinergic agents</td>
<td>May decrease urinary flow and cause urinary retention. QE = Moderate; SR = Strong (inhaled agents). Weak (all others).</td>
</tr>
<tr>
<td>Alpha blockers</td>
<td>Aggravation of incontinence. QE = Moderate; SR = Strong.</td>
</tr>
</tbody>
</table>

TABLE 3. 2012 AAG Beers Criteria for Potentially Inappropriate Medications to Be Used with Caution in Older Adults

<table>
<thead>
<tr>
<th>Drug(s)</th>
<th>Recommendation, Rational, Quality of Evidence (QE) &amp; Strength of Recommendation (SR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use with caution in adults 80 years old.</td>
<td>Lack of evidence of benefit versus risk in individuals 80 years old. QE = Low SR = Weak.</td>
</tr>
<tr>
<td>Use with caution in adults ≥75 years old or if CrCl &lt;30 mL/min.</td>
<td>Increased risk of bleeding compared with warfarin in adults 75 years old; lack of evidence for efficacy and safety in patients with CrCl &lt;30 mL/min. QE = Moderate; SR = Weak.</td>
</tr>
<tr>
<td>Use with caution in adults ≥75 years old.</td>
<td>Greater risk of bleeding in older adults; risk may be offset by benefits in highest-risk older patients (eg, those with prior myocardial infarction or diabetes). QE = Moderate; SR = Weak.</td>
</tr>
<tr>
<td>Use with caution.</td>
<td>May exacerbate or cause SIADH or hyponatremia; need to monitor sodium levels closely when starting or changing dosages in older adults due to increased risk. QE = Moderate; SR = Strong.</td>
</tr>
<tr>
<td>Use with caution.</td>
<td>May exacerbate episodes of syncope in individuals with history of syncope. QE = Moderate; SR = Strong.</td>
</tr>
</tbody>
</table>
Geriatric Fall Assessment

Background: Trauma is one of the leading causes of death in the geriatric population. Falls, even relatively minor impact falls, often represent a major traumatic mechanism in the geriatric population and can lead to significant morbidity and mortality compared to younger patients. As the population continues to age these falls will continue to increase disproportionately to other age groups. In fact, over a five-year period between 2005 and 2009, fall-related visits to the ED increased approximately 37.5%\(^1\). These falls are increasingly common, occurring in up to 1/3 of the population over 65 years old and surge to 51% in those older than 85.\(^2\) Furthermore, the financial burden of fall-related injuries and hospitalizations are estimated to be more than 28 billion dollars each year.\(^3\)

The appropriate evaluation of a patient who either has fallen or is at high risk of falling involves not only a thorough assessment for traumatic injuries, but an assessment of the cause of the fall and an estimation of future fall risk. This assessment is often a complex and time-consuming evaluation and usually involves a multifaceted and multi-disciplined approach. For those geriatric patients who present to the ED after a fall, traumatic injuries may be "occult," presenting without "classic" signs or symptoms. High-risk injuries such as blunt head trauma, spinal fractures and hip fractures warrant a higher degree of suspicion and extensive workups.\(^4\) Furthermore, the cause of the fall is often multifactorial, resulting from a complex combination of causes, described as the “geriatric syndrome.”

The goal of the evaluation of a patient who has fallen or is at increased risk of falling is therefore to diagnose and treat traumatic injuries, discover and manage the predisposing causes of the fall, and ultimately to prevent complications of falling and future falls. Unfortunately, predicting future falls in geriatric ED patients is challenging.\(^5\) The ED plays a critical role in initiating appropriate evaluation, disposition, and follow up in order to meet these goals.\(^6\) However, in spite of this safety-net position within the health care system, few fall assessments are initiated appropriately from the ED.\(^7\)

Policy: It is the policy of the Geriatric ED to initiate a comprehensive evaluation for geriatric patients presenting after a fall or for those who may be at high risk for a future fall. Patients will be evaluated for injuries, including those injuries that may be “occult” in the geriatric population. Furthermore, patients will be evaluated for causes of and risk factors for falls. Patients will be assessed prior to disposition for safety with the goal to prevent further injury and falls.

Required Resources:

- Fall risk assessment tool: Although many hospitals have a comprehensive fall assessment tool for inpatients, these are often not appropriate for implementation in the ED setting.\(^8\) An appropriate tool is a direct, easily implemented tool to screen for risk of falls. Specific policies and procedures should be in place for the assessment and evaluation of patients presenting to the ED with a high risk of fall or those who have suffered a fall. Assessment should include both intrinsic and extrinsic risk factors for falls.
- Radiology imaging protocols focused on the special evaluation of the geriatric population.\(^9\)
- A multi-disciplinary team including PT/OT, social work, nursing, physician and “mid-level” providers (where appropriate) is recommended.
- In order to better facilitate the care of seniors, EDs should make an effort to align their physical and personnel resources with the physical needs of the geriatric patient. Several elements have been suggested as possible interventions for the prevention of fall within the ED.\(^10\)
- Equipment to prevent falls in the ED should include:
• Rubber or nonskid flood surfaces/mats
• Even floor surfaces
• Handrails on walls and hallways
• Aisle lighting
• Bedside commodes and grab bars in restrooms
• Bedrails properly positioned and functioning
• Patient gown and hospital clothing that minimize fall risk (long, baggy, loose tie strings, etc)

• Expedited outpatient follow-up for those patients discharged from the ED/hospital to include home safety assessments is recommended.
• Walkers and other gait assistance devices should be available for patients on discharge.

Procedure: All geriatric patients presenting after a fall will be assessed by the attending physician. Although the cause of the fall may be straightforward, a thoughtful assessment begins by answering the question “if this patient was a healthy 20-year-old, would he/she have fallen?” If the answer is “no,” then an assessment of the underlying cause of the fall should be more comprehensive and should include:

• History is the most critical component of the evaluation of a patient with or at risk for a fall. Several studies and authorities have suggested that there are several key elements to an appropriate history in the patients with a fall. These key historical elements are as follows:
  o Age greater than 65
  o Location and cause of fall
  o Difficulty with gait and/or balance
  o Falls in the previous (XX time)
  o Time spent on floor or ground
  o Loss of Consciousness/AMS
  o Near/syncope/orthostasis
  o Melena
  o Specific comorbidities such as dementia, Parkinson’s, stroke, diabetes, hip fracture and depression
  o Visual or neurological impairments such peripheral neuropathies
  o Alcohol use
  o Medications
  o Activities of daily living
  o Appropriate foot wear
• Medication assessment should be performed on all patients at risk or who have suffered from a fall. Special attention should be to those patients currently taking any of the following classes of medications: vasodilators, diuretics, antipsychotics sedative/hypnotics, and other high-risk medications.
• Orthostatic blood pressure assessment
• Neurologic assessment with special attention to presence/absence of neuropathies and proximal motor strength
• Although there is no recommended set of diagnostic tests for the cause of a fall, a threshold should be maintained for obtaining an EKG, complete blood count, standard electrolyte panel, measurable medication levels and appropriate imaging.
• Evaluation of the patient for injury should include a complete head to toe evaluation for ALL patients, including those presenting with seemingly isolated injuries.
• Safety assessment prior to discharge should include an evaluation of gait, and a “get up and go test” (reference). Patients not able to rise from the bed, turn, and steadily ambulate out of the ED should be reassessed. Admission should be considered if patient safety cannot be assured.
• All patients admitted to the hospital after a fall will be evaluated by PT/OT.
**Performance Improvement:**
Home assessments for safety for all patients evaluated for a fall.145, 146

**Delirium and Dementia in the Geriatric Emergency Department**

**Background:** Delirium and agitation are among the most common problems in the geriatric adult, occurring in approximately 25% of hospitalized geriatric patients.147, 148 Consequences of delirium include increased mortality, morbidity, extended hospital length-of-stay, increased need for restraints and/or added staffing (sitters), and increased potential for lasting functional decline and subsequent need for nursing home placement.149, 150

The ED is challenged with providing a comprehensive, thoughtful evaluation of patients presenting with delirium.51, 151-153 One issue is that dementia and mild cognitive impairment are common in geriatric ED patients and often undetected.52, 152, 154 Routine cognitive screening and documentation provides a formal assessment of mental status at the index ED evaluation, but also provides a baseline for future ED visits. Several dementia screening instruments have been validated in ED settings.155 When done well, this assessment can lead to directed interventions that can positively affect the duration of the patient’s hospitalization. The features that distinguish dementia and delirium are presented in the Table. Often the cause of a delirium is multifactorial, including acute medical illness overlying baseline cognitive dysfunction, medication effects and interactions, and decompensating co-morbidities. An appropriate evaluation and management of each of these factors is critical to a positive outcome.156

Another challenge for the ED is the effective management of agitated geriatric patients. Medications and restraints (both chemical and physical) are critical interventions that, when used well, can improve patient health and safety, but when used inappropriately can actually increase the severity or length of a delirium. Fundamentally, the treatment of the geriatric patient with this concern is very different from that of a younger patient with similar concerns.

**Policy:** It is the policy of the Geriatric ED to comprehensively evaluate geriatric adults presenting with delirium, encephalopathy, or an altered mental status. Coordination of care, with special attention to directing interventions towards improving reversible causes and limiting factors that extend or cause delirium is the main goal.

It is the policy of the Geriatric ED to limit the use of chemical and physical restraints to only those situations in which they are absolutely necessary. Appropriate use of medications and alternative safety measures will be maximized to manage the agitated geriatric patient.156

**Procedure:**
Validated screening tools will be used to identify patients presenting with dementia and delirium. The assessment for delirium will use a two-step process. Step 1 (Figure 4) is the highly sensitive delirium triage screen. Step 2 is the highly specific Brief Confusion Assessment Method.157 A variety of ED-appropriate dementia and mild cognitive impairment screening instruments have been validated, but all are most useful to reduce the probability of non-delirium cognitive impairment (dementia or mild cognitive impairment) rather than to rule-in the diagnosis. An assessment for dementia should be conducted after delirium screening. One of the most accurate dementia screening instruments is reproduced below in Figure 5.155, 158
Figure 4. Delirium Screening Instruments

**Step 1: Delirium Triage Screen**

*Rule-out Screen: Highly Sensitive*

- **Altered Level of Consciousness (RASS)**
  - Yes: DTS Positive
  - No: Inattention

- **Inattention**
  - "Can you spell the word 'LUNCH' backwards?"
  - 0 or 1 error: ED-DTS Negative
  - >1 errors: Confirm with bCAM

- **ED-DTS Negative**
  - No Delirium

**Step 2: Brief Confusion Assessment Method**

*Confirmation: Highly Specific*

- **Feature 1 - Altered Mental Status or Fluctuating Course**
  - Yes: bCAM Positive
  - No: No Delirium

- **Feature 2 - Inattention**
  - "Can you name the months backwards from December to July?"
  - 0 or 1 error: bCAM Negative
  - >1 errors: No Delirium

- **Feature 3 - Altered Level of Consciousness (RASS)**
  - Yes: bCAM POSITIVE
  - No: DELIRIUM PRESENT

- **Feature 4 - Disorganized Thinking**
  - 1. Will a stone float on water?
  - 2. Are there fish in the sea?
  - 3. Does one pound weigh more than two pounds?
  - 4. Can you use a hammer to pound a nail?
  - Command: "Hold up this many fingers" (Hold up two fingers). "Now do the same thing with the other hand" (Do not demonstrate).

- **bCAM Negative**
  - No Delirium
Figure 5. The Short Blessed Test (SBT) for ED Dementia Screening


Instructions to the patient: “Now I would like to ask you some questions to check your memory and concentration. Some of them may be easy and some of them may be hard.”

1) What year is it now? __________ Correct (0) Incorrect (1)
2) What month is this? __________ Correct (0) Incorrect (1)

Please repeat this name and address after me:
John Brown, 42 Market Street, Chicago
John Brown, 42 Market Street, Chicago
John Brown, 42 Market Street, Chicago

(underline words repeated correctly in each trial)
Trials to learning ____ (if unable to do in 3 trials = C)

3) Without looking at your watch or the clock, tell me what time it is.
   (If response is vague, prompt for specific response)

   (within 1-hour) ________ Correct (0) Incorrect (1)
   Actual time: __________

4) Count aloud backwards from 20 to 1

   (mark correctly sequenced numerals)
   If subject starts counting forward or forgets the task, repeat instructions and score one error.

   20 19 18 17 16 15 14 13 12 11
   10 9 8 7 6 5 4 3 2 1

5) Say the months of the year in reverse order.
   If the tester needs to prompt with the last name of the month of the year, one error should be scored.
   (Mark correctly sequenced months.)

   D N O S A J L J N M Y A P M R F J

6) Repeat the name and address you were asked to remember.

   (John Brown, 42 Market Street, Chicago)

   ____ , ____ , ____ , ____________, ______

   0 1 2 3 4 5 Errors
Scoring the Short Blessed Test

<table>
<thead>
<tr>
<th>Item</th>
<th>Errors (0-5)</th>
<th>Weighting Factor</th>
<th>Final Item Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>x 4</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>x 3</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>x 3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>x 2</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>x 2</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>x 2</td>
<td></td>
</tr>
</tbody>
</table>

Sum Total = ____________
(Range 0-28)

0-4 Normal Cognition
5-9 Questionable Impairment
10 Impairment consistent with dementia

The evaluation of a mental status change should begin with an understanding of the difference between a delirium and a progression of an underlying dementia.

The following criteria can be helpful to diagnose an acute delirium:

**TABLE: Distinguishing Features Between Delirium and Dementia**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Delirium</th>
<th>Dementia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onset</td>
<td>Acute</td>
<td>Insidious</td>
</tr>
<tr>
<td>Course</td>
<td>Fluctuating</td>
<td>Constant</td>
</tr>
<tr>
<td>Attention</td>
<td>Disordered</td>
<td>Generally Preserved*</td>
</tr>
<tr>
<td>Consciousness</td>
<td>Disordered</td>
<td>Generally Preserved*</td>
</tr>
<tr>
<td>Hallucinations</td>
<td>Often Present</td>
<td>Generally Absent*</td>
</tr>
</tbody>
</table>

* = Variable in Advanced Dementia

- As mental status changes may wax and wane, delirium screening will be reevaluated on a regular basis.
- Upon diagnosis of an acute delirium, attention will be paid to underlying causes including, but not limited to:
  - Infections
    - UTI, pneumonia most commonly
  - Medications
    - Anti-cholinergic medications
    - Sedative/hypnotics
    - Narcotics
    - Any new medication, especially if multiple medications have been recently added
  - Electrolyte imbalances
  - Alcohol/drug use or withdrawal
  - New focal neurologic findings should guide an evaluation for stroke syndromes
Any geriatric patient being admitted to the hospital, regardless of primary diagnosis, should be evaluated for the presence/absence of the following risk factors for the development of a delirium while hospitalized:
  - Decreased vision or hearing
  - Decreased cognitive ability
  - Severe illness
  - Dehydration/pre-renal azotemia

*The presence of 1-2 factors increases the risk of inpatient delirium by 2.5x, the presence of 3-4 factors increases the risk of inpatient delirium by 9x.

Patients presenting with agitated delirium should be managed in a manner that improves safety and decreases the likelihood of injury. A therapeutic environment should be provided whenever possible. Preventative measures should include:
  - Eliminate or minimize identified risk factors
  - Avoid high-risk medications
  - Prevent/promptly and appropriately treat infections
  - Prevent/promptly treat dehydration and electrolyte disturbances.
  - Provide adequate pain control
  - Maximize oxygen delivery (supplemental oxygen, blood, and BP support as needed).
  - Use sensory aids as appropriate.
  - Foster orientation: frequently reassure and reorient patient (unless patient becomes agitated); use easily visible calendars, clocks, caregiver identification; carefully explain all activities; communicate clearly
  - Regulate bowel/bladder function.
  - Provide adequate nutrition
  - Increase supervised mobility
  - Increase awareness and vision whenever possible.
  - The use of restraints should be minimized whenever possible.
  - Chemical restraint/sedation should be minimized whenever possible.
    - When necessary, haloperidol is recommended over lorazepam for acute treatment.
  - Provide appropriate sensory stimulation: quiet room; adequate light; one task at a time; noise-reduction strategies
  - Foster familiarity: encourage family/friends to stay at bedside; bring familiar objects from home; maintain consistency of caregivers; minimize relocations
  - Communicate clearly, provide explanations
  - Reassure and educate family
  - Minimize invasive interventions

Recommended Resources:
- Sitters
- Dry erase boards and markers to increase communication and orientation

Performance Improvement:
- Physical restraint utilization hours/days
- Use of benzodiazepines in geriatric patients with agitated delirium
- Utilization rates of orientation techniques including dry erase boards

Palliative Care in the Geriatric ED

Background: The provision of appropriate end-of-life care in the geriatric population is essential to a
successful Geriatric ED program. The ED will provide access to palliative care and end-of-life care for medically complex patients in the Geriatric ED. By providing multidisciplinary teams for palliative care interventions, recent literature suggests this will improve quality of life, reduce hospital length of stay, and ED recidivism, improve patient and family satisfaction, result in less utilization of intensive care, and provide significant cost savings.

Policy: It is the policy of the Geriatric ED to recognize the role of palliative and end-of-life care. This includes several aspects of emergency practice already in place such as symptom management and discussion of critical decisions with family/caregivers.

Required Resources:
- Establish clinical protocol to identify ED patients who might benefit from palliative interventions
  - Pain management
  - Non-pain symptom management
  - Comfort care
  - Coordination of in-house palliative care team

REFERENCES


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Gifts to Emergency Physicians from Industry

The practice of the pharmaceutical and medical device industries to give gifts to physicians has come under increasing scrutiny in recent years. Prominent professional associations have issued reports recommending a ban on accepting gifts from industry. Many US academic medical centers have implemented policies prohibiting acceptance by physicians, other health care professionals, and trainees, of any gifts from industry representatives. The leading trade associations of the pharmaceutical and medical device industries have adopted revised guidelines for interaction with health care professionals that impose new voluntary restrictions on the practice of giving gifts.

Opponents of the practice of giving and accepting gifts cite neurobiological and psychosocial evidence that even small favors may create a subliminal sense of gratitude or loyalty that can influence physicians’ medical treatment choices. The American College of Emergency Physicians believes that treatment choices should be based on an impartial assessment of the benefits, risks, and costs of the treatment for the patient, and not on a physician’s relationship with industry representatives. For this reason, acceptance of gifts from the biomedical industry should be carefully limited, as detailed below.

The College also recognizes that emergency physicians should be free to interact with industry representatives if they choose, and that physicians may receive useful information about particular products from industry representatives. Emergency physicians may receive compensation at fair market value from pharmaceutical and biomedical device companies for legitimate professional services rendered, including participation in research and service as faculty in continuing education programs.

Whenever a gift is offered to them, emergency physicians should carefully consider the purpose of the gift and the likely consequences of accepting it. Emergency physicians should not accept any gift that they believe may inappropriately influence their treatment decisions.

Some gifts offered to emergency physicians serve the purpose of professional or patient education. Emergency physicians may accept educational gifts that are not of substantial value ($100 or less). Examples include:
• Occasional modest meals in an office, clinic, or hospital setting that accompany an educational presentation
• Evidence-based clinical care guidelines or pocket handbooks
• Anatomical models designed for patient education
• Informational materials to facilitate patient understanding of a disease or treatment

“Reminder items” of minimal value, such as pens, pencils, and note pads, are sometimes offered to emergency physicians. Since they may subconsciously influence future behavior, emergency physicians should exercise caution and individual judgment when accepting or refusing such items of minimal value.

Because of their potential to influence treatment decisions without compensating benefit for patients, emergency physicians should not accept as gifts any items that do not have a direct educational purpose and that are of more than minimal value. Examples of gifts that should not be accepted include:

• Meals provided for physicians or their family members, staff, or guests (other than modest meals accompanying educational presentations, as noted above)
• Personal or recreational items, such as tickets to theatrical or sporting events
• Direct subsidy of any expenses (such as registration, travel, lodging, meals) incurred in attending CME events or other educational or professional meetings (All industry support for such activities should be provided directly to the activity provider to offset program costs or to a general fund for continuing education programs.)
• Cash or cash equivalents such as gift certificates or vouchers
• Gifts offered in exchange for prescribing or using a product
• Medical equipment, such as stethoscopes or otoscopes
• Payment for token consultant or advisory arrangements
• Medical products for the personal use of the physician, the physician’s staff, or family members
The American College of Emergency Physicians (ACEP) supports good Samaritan protection legislation designed to reduce liability exposure. ACEP also supports the extension of existing good Samaritan legislation to provide protection from liability for emergency physicians who respond to emergencies outside the emergency department, including but not limited to in-hospital and out-of-hospital emergencies, mass casualty incidents, and other disasters.
Recent literature highlights the need for improved education on probe (transducer) cleaning materials and processes.\(^1\)\(^5\) The clinician sonographer must be aware of the various disinfection protocols with each associated transducer type to ensure patient safety.

Principles of transducer cleaning policy include:
1. A stratified hierarchy of disinfection based on the use and pathogens encountered.
2. Adequacy of disinfection, not sterilization.
3. Adequacy of probe covers which protect beyond the size of common pathogens
4. Emphasis on initial cleaning, including removal of gel with manual care, and disinfection at the correct level

According to the American Institute of Ultrasound in Medicine (AIUM), “Infection control is an integral part of the safe and effective use of ultrasound in medicine.”\(^6\) In recognizing the importance of infection control, this ACEP statement provides membership with recommendations for the use of ultrasound gels, protective covers, probe cleaning and disinfection. More information may be found in the chapter on ultrasound safety and infection control within the *Ultrasound Program Management* textbook.\(^7\)

The American College of Emergency Physicians (ACEP) does not endorse or recommend any specific commercial products. It recommends following manufacturer instructions, local law and institutional infection control regulations, as well as knowledge of CDC, OSHA and Joint Commission guidelines. The ACEP Clinical Ultrasound Accreditation Program (CUAP) ensures that quality and safety processes are demonstrated by accredited programs.\(^8\)

1. Definitions regarding types of ultrasound transducers:
   a) Critical Devices: instruments that penetrate skin or mucous membranes (not used in ultrasound)
   b) Semicritical Devices: transducers that come into contact with mucous
membranes but do not penetrate membranes (endocavitary/endovaginal probes, transesophageal probes, etc.)

c) Noncritical Devices: instruments that come into contact with intact skin, but not mucous membranes (linear, curvilinear and phased array transducers)

2. Definition of types of disinfection
   a) Low-Level Disinfection will destroy most bacteria, some viruses and some fungi. Use of:
      i) soap and water
      ii) quaternary ammonia sprays or wipes
   b) High-Level Disinfection removes all microorganisms except for bacterial spores, unless used under specialized conditions. Use of:
      i) chemical sterilants or germicides
      ii) physical sterilization

According to the Centers for Disease Control and Prevention (CDC) Guideline for Disinfection and Sterilization in Healthcare Facilities (2008)⁹:

"Cleaning is the removal of visible soil (e.g., organic and inorganic material) from objects and surfaces and normally is accomplished manually or mechanically using water with detergents or enzymatic products. Thorough cleaning is essential before high-level disinfection and sterilization because inorganic and organic materials that remain on the surfaces of instruments interfere with the effectiveness of these processes."

"Disinfection describes a process that eliminates many or all pathogenic microorganisms, except bacterial spores, on inanimate objects."

3. Protective barriers
   a) Protective barriers such as medical gloves, condoms and probe covers are regulated by an "acceptable quality level" (AQL), which is interpreted as an acceptable quality limit.
   b) Probe covers with pore sizes < 30 nm are available, and block most viruses including HPV (50 nm).
   c) Sterile adhesive film dressing (e.g., Tegaderm, OPSITE) may be considered a barrier and is effective against > 27 nm organisms. Prudent judgement regarding the potential for probe surface contact with non-intact skin should be made. Referral to manufacturer recommendations is warranted.

4. Ultrasound Gel
   Both sterile and nonsterile gel exists. Non-sterile ultrasound gel has been implicated in outbreaks of nosocomial infections. Sterile gel is recommended where there is concern for potential infection. If nonsterile gel is used, care should be taken to discard multidose containers when empty (i.e., avoid refilling) and to avoid direct contact between the dispensing tips of gel containers and surfaces of transducers or skin. They should also be discarded after 28 days from opening or less depending on use. Single-use packets (sterile and/or bacteriostatic) are also an option.

   Gel used on a patient under droplet or contact precautions should be discarded after use, including both multidose containers and single-use packets.

5. Recommendations
   a) Linear, curvilinear and phased array transducers placed on clean, intact skin are considered
noncritical devices and require low-level cleaning after each use.

b) Transducers which are used during percutaneous procedures (vascular access, thoracentesis, paracentesis, arthrocentesis, pericardiocentesis, lumbar puncture, regional anesthesia and other procedures) should be covered with a single-use sterile probe cover during the procedure, then cleaned with low-level disinfection between uses.

c) Internal transducers (endocavitary probe for intra-oral procedures / transvaginal examinations and transesophageal probes) are semicritical devices that should be covered with a single-use probe cover and undergo high-level disinfection between uses.

i) The operator should be properly gloved while performing internal examinations, removing probe covers, and cleaning internal probes. During probe cover removal, care should be taken to avoid probe contamination with patient fluids. After completion of the exam, the operator should perform adequate hand hygiene.

ii) Operators should be aware of institutional high-level disinfection procedures and workflow which may include communication with supply technicians, adoption of equipment covers, or probe tracking systems.

d) Single-use sterile gel packets should be used when infection is a concern. These include:

i) Invasive procedures that involve cutaneous puncture

ii) Ultrasound examinations performed on nonintact skin or near fresh surgical sites

Summary

1. Probes used only for external use on intact skin without contamination of blood or bodily fluids should be cleaned using low-level disinfection between each use.

2. Probes used externally for percutaneous procedures should be covered with single-use protective covers and sterile gel applied. They should subsequently be cleaned using low-level disinfection.

3. Probes used internally on mucous membranes and internal orifices should be covered with high-quality single-use probe covers during each examination, followed by high-level disinfection between each use.

References


8. ACEP Clinical Ultrasound Accreditation Program (CUAP). Frequently Asked Questions. [https://webapps.acep.org/cuap/#/faq](https://webapps.acep.org/cuap/#/faq)

POLICY STATEMENT

Approved April 2017

Guidelines for Emergency Physicians on the Interpretation of Physician Orders for Life-Sustaining Treatment (POLST)

The ethical principle of respect for patient autonomy and the legal principle of patient self-determination, gives individuals the right to make their own health care decisions. Advance directives and Do-Not-Resuscitate (DNR) documents were designed to allow people the opportunity to express their treatment preferences for situations when they cannot communicate those preferences themselves. Unfortunately, clinicians may not be able to honor those wishes because the documents are either unavailable or the wording is too vague or value based to apply to specific conditions encounters. As a result, emergency physicians may in good faith initiate or withhold treatments that are contrary to a patient’s wishes.1

Physician Orders for Life-Sustaining Treatment (POLST) are portable medical orders designed to help health care professionals honor and implement the treatment wishes of their patients in any setting. POLST helps physicians, nurses, long-term care facilities, hospices, home health agencies, emergency medical services, hospitals, and other health care professionals to:

- Promote patient autonomy by documenting treatment preferences and converting them into medical orders;
- Clarify specific patient treatment preferences, minimize confusion;
- Facilitate appropriate treatment by emergency personnel; and
- Enhance the Health Insurance Portability and Accountability Act (HIPAA) compliant transfer of patient records between health care professionals and health care settings. 1

The POLST form is not intended to replace a living will or health care power of attorney form. Rather, the POLST form is designed to implement patient wishes by translating the patient’s treatment wishes into medical orders, centralizing information, facilitating record keeping, and ensuring transfer of appropriate information among health care professionals and across care settings. 1
When Should a POLST be Used?

A POLST form is primarily intended for seriously ill or frail patients who have an advanced chronic or progressive life-limiting illness. POLST orders may also be used by patients who are at risk for impaired decision-making capacity and by anyone with strong treatment preferences.\(^2\)

Different states have adopted different names and acronyms for POLST-type orders, including Physician Orders for Scope of Treatment (POST), Medical Orders for Scope of Treatment (MOST), and Medical Orders for Life-Sustaining Treatment (MOLST); these orders all share the same core elements with similar form and design. A National POLST Paradigm Task Force and Office coordinates state-specific efforts to adopt and disseminate these orders, and the order set with these specified set of common elements are referred to as POLST Paradigm orders.\(^3\)

Specific Orders:

POLST Paradigm order forms differ among the states that have adopted them—the order of the sections or the options within a section may be different—but all of them include a number of essential elements. Orders commonly address four different medical treatments or services, in Sections A-C.\(^4\)

- Section A addresses Cardiopulmonary Resuscitation (CPR)
- Section B addresses Medical Interventions
- Section C addresses Medically Administered Fluids and Nutrition

Sections A and B are outlined in red as those sections are POLST relevant in emergency situations and need to be easily identified.

Many states also include a section on “Goals of Care.” Patient goals of care should provide guidance to medical professionals filling out a POLST form and to those interpreting a POLST form, as they provide important information that can translate patient preferences and values into medical orders that are more easily understood and specific enough to apply to most medical encounters.

A final section provides information on who discussed and agreed to the orders with the health care professional, followed by fields for the name, signature, date, and phone number of the physician (MD/DO), physician assistant, or nurse practitioner issuing the order, and fields for the name and signature of the patient or the patient’s legally authorized representative.

Section A – CPR

These orders apply only to the circumstance in which a person experiences cardiopulmonary arrest, which means that the person has no pulse and is not breathing. This section does not apply to any other medical circumstances. If a patient is in respiratory distress but is still breathing or has a pulse, a first responder or emergency physician should refer to sections B and C for corresponding orders.\(^4\)

Beware of the possibility of the completion of POLST forms with contradictory orders—for example, if the patient wants CPR in Section A, but wants limited interventions only in Section B. The performance of CPR requires full treatment, and resuscitation protocols involve intubation to secure a patient’s airway and support breathing. If the patient does not want full treatment including intubation and mechanical ventilation in an intensive care unit (ICU), then the patient should not receive CPR. Patients and families sometimes misunderstand CPR. Patient education regarding invasive treatments, ramifications, and expectations is essential to optimal communication regarding patient wishes.\(^1\)
In contrast to these inconsistent POLST orders, some patients may not desire CPR if they experience a cardiac arrest, but they may still reasonably desire ICU care for serious illness or elective intubation for respiratory failure without cardiac arrest. This choice may be a rational one, as ICU care may provide a patient significant benefit, even if, despite those benefits, the patient would choose to avoid CPR given its low likelihood of benefit.

Section B – Medical Interventions

These orders apply to emergency medical circumstances when a person has not experienced cardiopulmonary arrest; in other words, these orders are for a person who has a pulse and/or is breathing.

Full Scope of Treatment:

If full treatment by emergency personnel or other appropriate health care professionals is indicated and desired, the “Full Scope of Treatment” box is checked. Treatment includes use of advanced airway interventions such as endotracheal intubation, mechanical ventilation, central venous line placement, vasopressor support, and electrical therapies such as defibrillation, cardioversion, and pacing. If the patient is not already at the hospital, transfer to the hospital and use of intensive care may be indicated.

Limited Additional Interventions:

This option is for patients who prefer to receive basic medical treatments for reversible conditions or exacerbations of underlying disease with the goal of restoring the patient to his/her current state of health. It directs that medical treatment, antibiotics, IV fluids, and cardiac monitoring be used as indicated for secondary or incidental complications such as pneumonia, but that intubation and mechanical ventilation be omitted. This option does allow the use of less invasive airway support such as bilevel positive airway pressure (BiPAP) or continuous positive airway pressure (CPAP), and it directs that appropriate comfort measures be provided.

Section B also has an area to indicate “Other Instructions.” This may be helpful to clarify other interventions as appropriate for individual patients.

Comfort Measures:

Selection of this option indicates a desire for only those interventions that enhance comfort through symptom management. The use of medication by any route, positioning, wound care, and other measures to relieve pain and suffering is appropriate. The use of oxygen, suction, and manual treatment of airway obstruction should be administered as needed for comfort.

Hospitalization should be avoided when the “Comfort Measures” option is selected. Patients should only be transferred to a hospital if comfort needs cannot be met adequately in the current location. In some cases, hospice care and outpatient palliative care may be appropriate to consider. Sometimes more specific instructions may be recorded in “Other Instructions.”

Section C – Medically Administered Fluids and Nutrition

These orders pertain to a person who cannot take fluids and food by mouth. Oral fluids and nutrition always should be offered to a patient if medically feasible. Section C of the POLST form requires a single choice among three options for tube feedings, including fluids and nutrition provided via intravenous (IV), nasogastric (NG) or percutaneous endoscopic gastrostomy (PEG) routes.
Long-Term artificial nutrition by tube if indicated – A patient (or his/her representative) may decide to receive IV fluids if indicated. When this box is checked, IV fluids should be administered whenever clinically indicated.

Defined trial period of artificial nutrition by tube – A patient (or his/her representative) may prefer to receive IV fluids for a defined trial period when clinically indicated. For example, a patient may desire a brief trial of IV hydration if they become dehydrated. In this case, the IV fluids would be a temporary intervention with the goal of treating a potentially reversible acute illness over a few days to a week.

No artificial nutrition – A patient (or his/her representative) may prefer to forgo the use of medically provided fluids and nutrition. Again, oral fluids and nutrition always should be offered to a patient if medically feasible and desired by the patient.

“Other Instructions” allows for further clarification in this section as well.¹

Final Section – Discussed with and Agreed by: Signatures

The signatures section of the POLST form must be completed. The persons or class of persons who can issue or consent to POLST orders varies from state to state but should be listed on the POLST form. If the patient is an adult and is able to make and communicate health care decisions, then the patient is the only person who can consent to the physician issuing the orders of the POLST form. The patient’s signature of consent may be required for the form in some states, with a few having a requirement for a witness for the signature or the conversation. If the patient is a minor, then a parent or guardian may consent to the physician’s completion of a POLST form. Some states may currently limit use of POLST to patients 18 years of age or older.⁴

If the patient is an adult who no longer has the capacity to make and communicate health care decisions, the POLST form may be discussed with and agreed to by the legally authorized representative of the patient, as indicated by the form.⁴

Signature of the Appropriate Decision-Maker:

The National POLST Paradigm Task Force strongly recommends evidence that the patient or the patient’s representative has reviewed the form and agrees that the orders reflect the patient’s preferences.³

If the patient has the capacity to make and communicate health care decisions, he or she must agree to the orders. When the patient lacks the capacity to make or communicate health care decisions, then the appropriate patient representative signature should be present and is sometimes required by law to sign the form, depending on the state in which it is being signed. In situations where the patient representative cannot be physically present to sign the form, some states allow the medical provider to discuss the details over the phone with the appropriate patient representative.

Healthcare Professional Signature:

Since the form is the issuance of a medical order, the signature of a health care professional is mandatory. Which group of healthcare professionals can sign a properly filled out POLST form varies by state, and may include physicians, nurse practitioners, and physician assistants. Without this signature, the orders in the POLST form are not valid. The date and printed name of the health care professional should be provided. Social workers, and chaplains may initiate a discussion and educate a patient about POLST, but the signature must be that of the practitioner who is issuing the order.

¹ "Other Instructions” allows for further clarification in this section as well.

⁴ The signatures section of the POLST form must be completed. The persons or class of persons who can issue or consent to POLST orders varies from state to state but should be listed on the POLST form. If the patient is an adult and is able to make and communicate health care decisions, then the patient is the only person who can consent to the physician issuing the orders of the POLST form. The patient’s signature of consent may be required for the form in some states, with a few having a requirement for a witness for the signature or the conversation. If the patient is a minor, then a parent or guardian may consent to the physician’s completion of a POLST form. Some states may currently limit use of POLST to patients 18 years of age or older.

³ The National POLST Paradigm Task Force strongly recommends evidence that the patient or the patient’s representative has reviewed the form and agrees that the orders reflect the patient’s preferences.

⁴ If the patient is an adult who no longer has the capacity to make and communicate health care decisions, the POLST form may be discussed with and agreed to by the legally authorized representative of the patient, as indicated by the form.

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Back Side of the POLST Form

The back page of the POLST form generally provides space for contact information. Fields for the patient’s name and birth date (on every page for accuracy in case the form is faxed on individual pages), the health care professional who signed the document, the patient’s representative or surrogate, the relationship to the patient, and phone numbers. This allows health care professionals to attempt early contacts with this person when the patient’s health status changes.

Explanations for use of the form and provisions for reviewing or revoking the form may also appear.

Revoking the POLST Form

A patient with decision making capacity or the patient’s representative (if the patient lacks capacity) can revoke the POLST when faced with new information or changes to the patient’s condition and request alternative treatment based on known preferences of the patient or, if unknown, the patient’s best interests.

Depending on the state, a POLST form may also be revoked in a number of ways including destruction, putting a line through the front page and writing void on the form, or by indicating in the review section on the back that POLST orders have been revoked.

POLST Orders that are not Medically Feasible or are Inconsistent

POLST forms provide significant additional guidance that is not contained in portable DNR orders and advance directives for honoring patient treatment preferences and communicating those preferences in a clear manner to medical personnel. However, a small number of POLST forms will reflect patient preferences and order sets that may not be medically feasible or may be logically inconsistent. For example, “attempt resuscitation” and “comfort measures only” are inconsistent with one another. Some POLST forms might require more interpretation than time allows during an emergency (eg, attempt CPR, but limit interventions).

If emergency healthcare personnel are presented a POLST form like this, and time allows, the provider should describe the problem and seek clarification from the patient, provided the patient has decision-making capacity. If the patient lacks capacity, however, every effort should be made to contact the medical provider or the patient’s representative, in order to clarify the patient’s end-of-life care preferences and goals of care. Those efforts may fail, however, or the patient’s medical condition may be such that there is not enough time to seek clarification. In such circumstances, the provider should, in good faith, act in light of expressed patient values (e.g. specified in an advance directive) if available; when expressed patient values are not available, the provider should act in the patient’s best interests based upon his or her own medical judgment.

Legal Protection for Emergency Physicians Honoring POLST Medical Orders

Although most states have either an established or developing POLST program, many have not yet provided explicit statutory protection of physicians who honor patient wishes in good faith through a POLST form (as is frequently provided for in the setting of pre-hospital DNR orders and advance directives). As a result, many physicians are concerned about the legal liability involved in using the forms. Even in those states without explicit statutory protection, however, physicians are protected by common law when they follow generally accepted standards of practice in their area. Furthermore, the federal government takes a strong position on the hospital’s obligation to honor patient decisions concerning their care. Finally, we are not aware of a single suit brought against a physician who followed the wishes of a patient as documented by a
POLST form in the more than 10 years of its use, while there has been at least one suit against an emergency physician for not following a POLST form.6,8

References
8. DeArmond v Permanente Medical Group Et. Al. (Superior Court of California 2011).
The American College of Emergency Physicians (ACEP) believes that decisions regarding smallpox vaccinations for health care workers in response to possible terrorist threats or acts should be based on sound clinical judgment, sound public health principles, and local threat assessment information.

Health care workers, especially physicians and nurses, must be educated about and have access to appropriate resources regarding the recognition and treatment of smallpox, as well as the indications and contraindications for vaccination. Any smallpox vaccination initiative needs to be well considered, and careful screening of all participants is critical. In the absence of an index case or confirmation that a smallpox attack is imminent, vaccination should remain voluntary. If vaccination is considered likely by the government, ACEP urges the government to promote research into developing more effective vaccines with a higher patient safety profile.
1. Introduction
The American College of Emergency Physicians (ACEP) has developed these criteria to assist practitioners performing emergency ultrasound studies (EUS) of the heart using transesophageal echocardiography during cardiac arrest.

Ultrasound has been shown in cardiac arrest to accurately identify the presence or lack of intrinsic cardiac activity and in some cases the cause of arrest, including left ventricular failure, right ventricular failure, pulmonary embolism, pericardial tamponade, and hypovolemia. These findings can lead to life-saving changes in management such as administration of IV fluids, blood products, vasopressors, thrombolytics, or performance of a pericardiocentesis. For these reasons cardiac ultrasound is endorsed by ACEP policy. However transthoracic echocardiography (TTE) has been shown to have significant limitations in critically ill patients, particularly those in cardiac arrest. TTE image acquisition is technically difficult due to ongoing CPR, air in the stomach from bag masked ventilation, and the presence of defibrillator pads. Furthermore, TTE imaging may prolong pulse checks and lead to reduced coronary perfusion pressure due to inadequate CPR. Transesophageal echocardiography (TEE) allows the emergency physician to maintain the standard of an ultrasound-informed resuscitation in the scenario of cardiac arrest, where TTE is significantly limited.

2. Objectives/Limitations
   a. Objectives
      i. Identification of presence/absence of cardiac activity
      ii. Identification of cardiac rhythm
      iii. Evaluation of left ventricular function
      iv. Evaluation of right ventricular function
      v. Identification of pericardial effusion/tamponade
b. Contraindications
   i. Esophageal injury or stricture
   ii. Lack of a definitive airway

c. Limitations
   i. Cardiac EUS is a focused examination and does not evaluate all aspects of cardiac function. Some findings that may contribute to hemodynamic compromise but are generally considered outside of the scope of EUS include valvular pathology, diastolic dysfunction, septal defects, intracardiac thrombus or mass.

   ii. Examination of the heart may be technically limited by
      1. Inability to pass the TEE into esophagus
      2. Presence of excessive air in the esophagus
      3. Excessive mitral annular calcification

d. Pitfalls
   i. When technical factors prevent an adequate examination, these limitations should be identified and documented. As usual in emergency practice, such limitations may mandate further evaluation by alternative methods, as clinically indicated.

   ii. Images should be optimized to avoid foreshortening of the ventricles and to include the appropriate structures for each view.

   iii. Pericardial effusions must be taken into clinical context, as small effusions can cause tamponade if accumulated rapidly, while large effusions can be well tolerated if they accumulate slowly.

   iv. Clotted hemopericardium may be isoechoic with the myocardium, making it difficult to identify.

   v. Right ventricular failure is not specific to pulmonary embolism and can be due to pulmonary hypertension or other etiologies such as right sided myocardial infarction.

   vi. Pleural effusions can be mistaken for pericardial effusions. Multiple views should be used to corroborate findings.

   vii. Fat pads can be mistaken for pericardial effusions, but these are hypechoic rather than anechoic and limited to the anterior and apical regions of the heart, not circumferential.

3. Qualifications and Responsibilities of the Clinician Performing the Examination
Since 2001, clear and succinct ultrasound credentialing recommendations in emergency medicine have been specifically established by the ACEP Ultrasound Guidelines and recommend a benchmark minimum of 25-50 quality-reviewed scans per modality to demonstrate technical and interpretive ability. Conversely, for ultrasound guided procedures, 10 quality-reviewed procedures with ultrasound guidance are recommended. Along the same lines, the guidelines recommend a similar pathway for “different techniques” (such as performing transvaginal ultrasound once competency with transabdominal ultrasound has been achieved). Just as with procedures, if performing a “different technique” for image acquisition, 10 quality-reviewed exams using that technique are required to establish competency.

TEE credentialing is unique in this regard, such that image interpretation will have already been achieved through credentialing in transthoracic echocardiography. In this respect, TEE credentialing is more a question of technical ability and image acquisition. TEE is highly dependent on hand-eye coordination and reliant on image acquisition, making proctoring and Standardized Direct Observational Tools (SDOTs) ideal for this modality. For this reason, providers seeking credentialing
in transesophageal echocardiography of cardiac arrest applications should have completed training and met competency standards in transthoracic echocardiography and:

- completed a minimum of 2-4 hours of TEE-specific CME or didactics;
- performed a minimum of 10 proctored TEE examinations (including probe insertion) on live patients and simulation models; and
- completed a standardized assessment by a credentialed TEE provider.

4. Specifications for Individual Examinations
   a. General - Images are obtained and interpreted in real time. Video clips should be recorded rather than still images. Particular attention should be paid to capturing clips during pulse checks in order to evaluate the underlying cardiac function.

   b. Technique
      i. Real-time scanning technique.
         1. Overview. The goals of this imaging protocol are to limit the complexity of the exam and to maximize the efficiency of the exam and the information acquired. Each of the three TEE views has an analogous TTE view with which emergency physicians are already familiar.

         2. Details of technique. The transesophageal probe has 4 possible movements. Rotation can be performed by rotating the probe either clockwise or counterclockwise. The large wheel causes flexion of the probe either anteriorly (anteflexion) or posteriorly (retroflexion) while the small wheel causes flexion left or right. The multiplane is controlled by two smaller buttons on the TEE probe and adjusts the beam angle anywhere between 0° and 180°. While in the midesophageal position, a multiplane of 0° or 180° are both parallel to the diaphragm while 90° would be perpendicular to the diaphragm. Probe insertion should be performed cautiously, with care taken to avoid dental trauma and never forced to avoid injury to the oropharynx or esophagus. Neck flexion if possible may ease the passage of the probe if resistance is met.

         a. The midesophageal 4-chamber view is the first most intuitive view to obtain. After advancing the probe to the thoracic esophagus, the heart will come into view and with the multiplane at 0-20° all four chambers can be visualized. This view is analogous to the familiar apical 4 chamber view in TTE and is defined by visualizing both the left and right ventricles and atria as well as the tricuspid and mitral valves in the same plane. Some retroflexion of the probe is usually necessary to avoid foreshortening of the ventricles. This view is useful for evaluation of RV and LV systolic function as well as size and is the preferred view during a pulse check to visualize the presence or absence of a perfusing rhythm.

         b. The midesophageal long-axis view is obtained by leaving the probe in the same location as the midesophageal 4-chamber but increasing the multiplane to between 110° and 160°. This view is analogous to the parasternal long-axis view, as it is defined by visualizing the mitral and aortic valves in the same plane along with the left atrium, left ventricle, and the outflow tract of the right ventricle. This view is useful for evaluation of left ventricular systolic function, and during compressions helps evaluate compression adequacy and location, with quality compressions causing maximal compression of the LV and opening of the aortic valve.

         c. The transgastric short axis is obtained by first moving the multiplane back to 0°, then advancing the probe into the stomach and anteflexing the probe so that the left ventricle and right ventricle are visualized in cross-section. This view is analogous to
the parasternal short-axis in TTE, with the difference being the location of the inferior wall closest to probe in TEE rather than the anterior wall being closest to the probe as in TTE. This view is useful for providing additional information regarding LV systolic function, evaluation of regional wall motion abnormalities that can suggest acute myocardial infarction, and the presence of septal flattening that can indicate increased right ventricular pressures.

5. Documentation
   EUS of the heart should be obtained and interpreted by the treating physician and used to guide decision-making in real time. These findings should be documented in the medical record. Documentation should include the indication, description of the exam performed, and pertinent findings. Images should be stored as part of the medical record in accordance with facility policy requirements.

6. Equipment Specifications
   A phased array TEE probe should be used with multiplane capability. Compatibility with the emergency department’s existing point of care ultrasound equipment is important to ensure prior to purchase.

7. Quality Control and Improvements, Safety, Infection Control and Patient Education
   Since TEE probes come into contact with mucous membranes, a high level of disinfection is required after use. Policies and procedures related to quality, safety, infection control and patient education should be developed in accordance with existing hospital policies for TEE probes.
Guidelines for Undergraduate Education in Emergency Medicine

Approved June 2015

Reaffirmed October 2001
Originally approved September 1986

ACEP believes that all medical students should be taught the basic principles of emergency medicine in order to recognize a patient requiring urgent or emergent care and initiate evaluation and management.

ACEP further believes that every medical student should receive clinical exposure to emergency department patients and care. ACEP also believes that the public expects all medical students to be able to provide basic emergency care and disaster management.

The curricular basics can be accomplished by a specific curriculum designed by emergency medicine faculty, or by incorporating essential topics of emergency medicine into the existing curriculum. The emergency medicine environment places a premium on focused history and physical exam skills, functioning as part of a healthcare team, and diagnostic reasoning and critical thinking. These skills are essential for students entering any clinical specialty.

The general educational objectives for all graduating medical students include general assessment skills for the undifferentiated patient, recognition and stabilization of life threatening illnesses, injury prevention and disease identification, unique content areas, management of the healthcare system and basic procedural competency.

An appropriate curriculum incorporates these six elements to create a progressive learning environment over the entire undergraduate educational experience from the pre-clinical to the clinical years. The exact format of teaching emergency medicine to medical students can take a variety of designs and should be tailored to local abilities, resources or curriculum needs.
Guidelines Regarding the Role of Physician Assistants and Nurse Practitioners in the Emergency Department

Physician assistants (PAs) and nurse practitioners (NPs) can serve an integral role as members of the emergency care team, but do not replace the medical expertise provided by emergency physicians. With the aim of assuring that all patients presenting to emergency departments (EDs) receive high quality care, the American College of Emergency Physicians (ACEP) endorses the following policies for EDs that utilize PAs and/or NPs.

Education and Training

- The gold standard for care in an ED is that performed or supervised by a board-certified/board-eligible emergency physician.

- As PAs and NPs have variable training and experience, there should be systems and processes to ensure that PAs and NPs working in EDs receive supervised orientation, ongoing professional assessment, and continuous education in emergency care.

- As PAs and NPs come from diverse backgrounds and educational paths, each PA/NP must be assessed, guided, and supported based upon their individual knowledge and emergency medical experience. Level of supervision, scope of practice, and privileges must match individual capabilities.

- The ED medical director or their designee should be responsible for the ongoing professional practice evaluation of each PA and NP. This should be an open process in which PAs and NPs are able to gain feedback and identify areas for continuous quality improvement.

- ACEP supports the development of emergency medicine-specific post-graduate training programs for PAs and NPs to further develop personal knowledge and skills, as well as to improve the overall quality of care. Though encouraged, these post-graduate training programs do not replace the need for emergency physician supervision.
Physician Supervision

- PAs/NPs should not perform independent unsupervised care in the ED. This holds true regardless of state laws or hospital regulations. In the case of rural and underserved areas, supervision may require telehealth services or real-time off-site emergency physician consultation.

- Emergency physicians must have the real-time opportunity to be involved in the care of any patient presenting to the ED and seen by a PA or NP. Local physician leadership should create guidelines for the types of supervision required or provided for specific categories of conditions, patients, and clinical scenarios. Such guidelines may include direct or indirect supervision.

  o Direct Supervision: When the supervising physician is physically present in the department and personally examines/evaluates the patients for which he or she is the supervisor.

  o Indirect Supervision: When the supervising physician discusses or reviews the management of patients for which he or she is the supervising physician but does not necessarily personally examine the patient.

    ▪ Onsite: When the supervising physician is physically present in the department and is available for real-time consultation
    ▪ Offsite: When the supervising physician is not onsite but is available for real-time consultation such as by phone or telehealth

- Multiple staffing models utilizing PAs and NPs exist. The use of PAs and NPs in the ED should be determined at the site level by local ED leadership, who are responsible for PA/NP hiring, staffing and supervision. These physician leaders, along with the PA and/or NP leadership, should be responsible for establishing processes and practice standards that ensure both sufficient physician availability for PA and NP supervision as well as adequate physician opportunity to supervise.

- Emergency physicians should never be limited or prohibited from being involved in the care of any patient presenting to the ED and seen by a PA or NP while they are on duty. Emergency physicians must be allowed to determine their minimum level of interaction, care, and involvement for patients seen by a PA or NP under their supervision.

- Emergency physicians should not be required to sign the chart of a patient unless they have a real-time opportunity to be involved in the patient’s care. Though state and hospital policies may occasionally require a physician signature on all patient charts regardless of physician involvement or supervision, it should be clearly noted in these cases that the physician was not actively involved in the patient’s care.

  o Asynchronous review of charts by an emergency physician after care is completed by a PA or NP is an important quality assurance activity but does not constitute active patient management or patient care.

- All charting should clearly reflect the role and involvement of the emergency physician and any PAs or NPs who have actively participated in the care of a patient. In particular, the physician should carefully document findings that differ from the PA or NP.

- Emergency physicians should be trained to effectively supervise PAs and NPs and be expected to engage in the care of any patient for whom physician involvement is requested by the PA/NP.
Revised June 2019, June 2013, October 2006


Handling of Hazardous Materials

The American College of Emergency Physicians (ACEP) believes that nuclear, chemical, and biological hazardous materials pose a significant risk to individuals and communities if improperly handled or if released accidentally or intentionally into the environment.

- Individuals who are at risk, including emergency personnel, have the right to know when these materials are used in or transported through their communities.
- Emergency personnel must have immediate access to all information necessary to treat victims, protect themselves, and prevent exposure of others.
- Hazardous materials should be clearly and appropriately marked.
- Vehicles transporting hazardous materials should be clearly marked that they are used for such purposes, and drivers of those vehicles should be educated in the safe transport of hazardous materials.
- Emergency personnel responsible for the care and treatment of victims of exposure to hazardous materials should be appropriately educated and trained in methods of self-protection, patient protection, and resuscitation.
- Administrative and clinical guidelines should include principles of decontamination of personnel, patients, and vehicles, including minimum equipment requirements for personal protective equipment and recommended safety procedures.
- Emergency personnel and facilities should be updated by local, regional, state and/or federal authorities or agencies as needed to allow preparation when a defined threat is identified.

ACEP supports state and federal policies that promote adherence to these principles.
It cannot be denied that there are unhealthy choices, products, and services which create societal costs, including uncompensated health care expenditures. ACEP believes that, to the extent practicable, those health care costs should be primarily offset by funding from those individuals making such choices and using such products and services.
POLICY STATEMENT

Health Care Guidelines for Cruise Ship Medical Facilities

The American College of Emergency Physicians believes that appropriate emergency care and health care maintenance for passengers and crew members aboard ships sailing in international waters are desirable. The cruise ship industry and its medical departments should retain medical personnel who can:

- Provide quality maritime medical care for passengers and crew members aboard cruise ships;
- Initiate appropriate stabilization, diagnostic, and therapeutic maneuvers for critically ill or medically unstable patients;
- Support, comfort, and care for patients on board ship; and
- Assist, in conjunction with the cruise line, in the medical evacuation of patients in a timely fashion when appropriate.
The American College of Emergency Physicians (ACEP) believes that:

- Emergency departments, as principal portals of entry into crowded health care systems, are increasingly faced with the challenge of ensuring patients have access to care during periods when demand exceeds available resources. This challenge is magnified when mass casualty incidents or epidemics occur.

- Surge capacity is a measurable representation of ability to manage a sudden influx of patients. It is dependent on a well-functioning incident management system and the variables of space, supplies, staff and any special considerations (contaminated or contagious patients, for example).

- Health care systems must develop and maintain outpatient and inpatient surge capacity for the triage, treatment, and tracking of patients at the facility or in alternative sites of care or alternative hospitals during infectious disease outbreaks, hazardous materials exposures, and mass casualty incidents.

- Health care facility and system plans should maximize conventional capacity as well as plan for contingency capacity (adapting patient care spaces to provide functionally equivalent care) and crisis capacity (adapting the level of care provided to the resources available when usual care is impossible).

- Development of surge capacity requires augmenting existing capacity as well as creating capacity by limiting elective appointments and procedures and practicing "surge discharge" of patients that can be effectively managed in non-hospital environments.
• Effective surge capacity planning integrates facility plans with a regional disaster response program involving other area health care institutions and considers hazard vulnerability assessments (HVAs) and historical natural disaster threats.

• Funding sources should be available for surge capacity planning, training, research, equipment, supplies, oversight, and process improvement at the local, state and federal levels.

• Legislation should be enacted where necessary to mitigate provider liability issues during crisis situations.
The American College of Emergency Physicians endorses the need for comprehensive litigation reform and supports the concept of health courts as an alternative to the current process.

Health courts use specialized adjudicators, independent expert witnesses, and produce more predictable damage awards.
Health Information Technology

ACEP believes that:

1. Health Information Technology (HIT) presents ongoing opportunities to improve the quality of emergency care, promote patient safety, reduce medical errors, and enhance the efficiency of emergency departments (ED).

2. Hospitals have a duty to patients, staff, and the community to provide HIT that is suitable for use in the ED. HIT should facilitate the delivery of patient care, conform to relevant standards, and comply with applicable privacy and security constructs to ensure the secure availability of relevant health care information.

3. Evaluation, selection, implementation, and ongoing assessment of HIT that impacts emergency care is best accomplished with active involvement of emergency physicians, nurses, and other emergency care providers. Emergency physicians should have a role in the selection and approval of any HIT that impacts the ED or the local emergency medicine community.

4. Emergency Department Information Systems (EDIS) include best-in-breed (standalone) and ED modules of larger enterprise electronic medical record (EMR) systems, specifically designed to manage data in support of Emergency Department patient care and operations. EDIS should be properly implemented, sufficiently integrated, and well-maintained.

5. Emergency physicians must have a role in the selection and configuration of EDIS. Clinical functionality, usability, efficiency, and interoperability should be the primary criteria by which systems are evaluated. Preference should be given to systems that ensure support for ED workflow, clinical accuracy, patient safety, and operational support. System costs and assessment of return-on-investment should take into account the impact on physician and staff productivity.
6. Access to historical patient information, including data in Electronic Health Records and Personal Health Records, should be available for ED patients. Interoperability with external systems and participation by hospitals in health information exchanges should be encouraged. Provisions and policies for emergency access (i.e., “break-glass”) to critical health information should be in place for emergency physicians to access protected health information when necessary to prevent harm or risk to life.

7. Access to on-line tools including the Internet, hospital policies and procedures, medical reference materials, regional status of hospitals, EMS, mass casualty, and other pertinent information should be readily available.

References
1. The 2015 Interoperability Standards Advisory from the Office of the National Coordinator for Health Information Technology (ONC). http://www.healthit.gov/standards-advisory

The American College of Emergency Physicians (ACEP) believes medical care is optimized when all pertinent patient information is available in a timely, usable, and secure manner. Seamless integration of data from within and amongst health care systems and personal health records is vital for proper patient care. ACEP supports the adoption of information standards and the meaningful use of health information technology (HIT) as defined by the Office of the National Coordinator of Health Information Technology (ONC). ACEP also encourages its members to become active proponents for interoperable systems prior to their institutions making information technology purchasing decisions.
HIV Testing and Screening in the Emergency Department

Early diagnosis and treatment for human immunodeficiency virus (HIV) can prolong life, reduce transmission, and is a cost-effective public health intervention.

HIV screening has substantial net benefits to individuals and the public health as recognized by the US Preventive Services Task Force (USPSTF) Level A Grading.1

The USPSTF recommends that clinicians screen for HIV infection in the following populations:

- Adolescents and adults aged 15 to 65 years.
- All pregnant women including those who present in labor who are untested and whose HIV status is unknown.
- Younger adolescents and older adults who are at increased risk for HIV infection.

Emergency department (ED) HIV screening programs deliver the greatest public health impact when:

- Local prevalence of HIV infection is ≥ 0.1%.
- Screening procedures are practical, feasible, and do not interfere with the primary acute care mission of emergency medicine.
- Integration exists between the ED and the resources of the entire health care system.
- Policies and procedures clearly address patient confidentiality, informed consent (state dependent), provider training, opportunities for counseling, and linkage to care.
- Adequate funding or reimbursement is available to meet the operational and personnel costs required for programs sustainability.
- All local and state requirements are met.

HIV testing in the evaluation for acute care conditions in the ED should be available in a timely and efficient fashion similar to testing and results for other conditions.

The American College of Emergency Physicians (ACEP) believes that all hospitals should have a process in place which allows emergency privileging of additional physician staff in the event of activation of the hospital disaster (emergency preparedness) plan. Should it be necessary to activate the disaster plan, additional physician support may be needed immediately to supplement the existing medical staff. A Hazard Vulnerability Assessment (HVA) or other similar evaluation should be undertaken to proactively identify potential emergencies, including any circumstances unique to the particular hospital that could suddenly affect physician demand or supply. It should also include the hospital’s role in the community and the potential of displacing the medical staff in the event of hospital evacuation to an alternate site or hospital through community and mutual aid agreements.

The Joint Commission (TJC) has put forth standards (TJC Standard EM.02.02.13) to address the issue of Hospital Disaster Physician Privileging. During disasters, the hospital may grant disaster privileges to volunteer licensed independent practitioners (LIP). As defined by TJC: A disaster is an emergency that, due to its complexity, scope, or duration, threatens the organization’s capabilities and requires outside assistance to sustain patient care, safety, or security functions.

Therefore, ACEP agrees with and reaffirms the TJC Hospital Accreditation Standards, EM.02.02.13 recommendations.
Physicians who answer the call to serve as an EMS medical director make significant investments to provide that necessary leadership to an EMS agency or system. These physicians provide vital oversight of EMS and often perform clinical activities in the EMS environment. Just as the EMS medical director provides significant support to an EMS program or system, EMS must also appropriately support the role of the EMS medical director.

The NAEMSP, ACEP, and AAEM believe that:

- **CONTRACT**: The role of an EMS medical director should be explicitly and contractually defined between the EMS service and the EMS physician. Elements of the position that require explicit description in a written agreement include qualifications, authority, reporting structure or chain of command, responsibilities, protection, compensation, term of service, and severability.

- **AUTHORITY**: EMS medicine is a recognized subspecialty practice of medicine. As such, the EMS medical director should be assured a scope of authority that encompasses all clinical aspects of EMS, is commensurate with their level of responsibility, and that is contractually defined.

- **COMPENSATION**: The EMS service must provide compensation to the EMS medical director at a mutually agreeable value commensurate with the responsibilities held by the EMS medical director.

- **PROTECTION**: The EMS service should ensure the EMS medical director has appropriate protection commensurate with their
responsibilities and risk profile. Such protection must include medical malpractice insurance and liability protection, errors and omissions coverage, and may include line of duty injury and death benefits and hazardous duty compensation commensurate with the exposure and risk assumed by the physician. These protections must specifically cover the responsibilities and activities of the EMS medical director as defined in contract. Such protections must either be agency-provided or the agency should provide remuneration to the physician for physician-owned coverage. Securing these protections is paramount to the EMS medical director.

- DUE PROCESS: An EMS medical director must be afforded appropriate due process if performance or professional concerns are identified by the EMS service.
Human trafficking is a human rights violation affecting individuals of all ages and has significant implications for the physical, sexual, and psychological health of those affected. Trafficking victims are treated for acute injuries and illnesses in emergency departments more often than in any other health care facility and thus emergency physicians are in the best position to assess, intervene, and refer for assistance. Identification and assessment of victims can be difficult, as human trafficking can encompass abuse in many different forms including neglect, intimidation, physical, sexual, emotional, and financial abuse.

ACEP recommends that:

- Emergency physicians be familiar with potential signs, symptoms and indicators of human trafficking in both adult and pediatric patients.
- Emergency personnel maintain a high index of suspicion when evaluating patients of any age who appear to be at risk for abuse and violence and assess for specific indicators of trafficking.
- In order to minimize the potential for re-traumatization, potential victims of human trafficking should be evaluated using an age appropriate, culturally relevant and survivor-centered approach with an understanding of how trauma may affect an individual’s response to care.
- Hospitals and emergency departments (EDs) have protocols in place to address the medical, psychological, safety, and legal needs of the victims of human trafficking. As many of the needs of victims of human trafficking may not be addressed in an ED visit, this includes referral to appropriate resources.
- Emergency practitioners be aware of institutional protocols and resources to guide a safe and multidisciplinary approach to helping identified victims, including appropriate referrals.
- Emergency medical services (EMS), medical schools, and emergency medicine residency curricula should include education and training in recognition, assessment, documentation, and interventions for patients surviving human trafficking.
- ED and EMS staff receive ongoing training and education in the identification, management, and documentation of human trafficking victims.
• Hospitals, EDs, and EMS maintain appropriate education regarding state and federal legal requirements for reporting human trafficking, with particular attention to mandated reporting duties related to child abuse, elder abuse, and abuse of persons with disability.
• Emergency personnel be afforded protected or anonymous reporting.
• Emergency physicians give adult victims of trafficking autonomy to choose when and how to report or seek help.

ACEP supports:
• Appropriate measures to prevent human trafficking in the community.
• Hospital, ED, and EMS participation in collaborative interdisciplinary approaches for the recognition, assessment, and assistance of human trafficking victims. These approaches include the development of policies and protocols that account for the potential need to interface with outside entities such as local government agencies, law enforcement agencies, and other relevant legal and social service organizations.
• Epidemiological research regarding the incidence and prevalence of human trafficking, as well as clinical research to identify best practice approaches and interventions in the prevention, detection, assessment, and assistance of human trafficking victims.
The American College of Emergency Physicians (ACEP) recognizes that vaccine-preventable infectious diseases have a significant effect on the health of adults and children. The emergency department (ED) is used frequently for health care by many inadequately vaccinated adults and children who are at risk for such diseases. EDs serve as a primary interface between hospitals and the community at large and are likely to be called on to play a prominent role in the event of an emerging infectious or biological threat. To promote the health and well-being of individual patients and the population, ACEP thus supports the following principles.

- Annual immunization of ED health care providers against influenza should be strongly encouraged in the absence of an appropriate contraindication or exemption.
- EDs should establish relationships with public health entities, urgent care and retail clinics, managed health care organizations, private physicians, and local pharmacies to ensure the rapid referral of undervaccinated patients.
- If there is no readily available resource for vaccinating undervaccinated patients in other health care settings, consideration should be given to providing vaccinations to such patients in the ED.
- In cases of outbreaks or epidemics of vaccine-preventable diseases (including emerging infections and biological threats), emergency physicians should assist health care facilities in partnering with public health agencies to develop and implement mass vaccination programs.
- Whenever possible, patients who receive immunization(s) in the ED should be provided with appropriate education regarding the vaccine(s) (e.g., CDC Vaccine Information Statement).
- Electronic vaccination records should be accessible to emergency physicians.
Climate change has significant impact on human health, health care systems, and public health infrastructure.\textsuperscript{1,2,3} Human health is impacted by the increased frequency and severity of diseases exacerbated by changes in the environment and extreme weather events, in addition to the introduction of unprecedented pathology and worsening of existing chronic disease. Many of these associated health impacts have a direct result in the provision of emergency medical care and, therefore, are directly relevant to the practice of emergency medicine.

As such, the American College of Emergency Physicians (ACEP) supports collaborating with public health agencies and other stakeholders to:

- Raise awareness of the short- and long-term implications of climate change in population health and its effect in the practice of emergency medicine.
- Engage in research examining the effects of climate change on human health, health care systems, and public health infrastructure.
- Advocate for policies and practices to mitigate and address the effects of climate change on human health, health care systems, and public health infrastructure.
- Expand and improve upon regional surveillance systems of emerging diseases related to extreme weather events linked to climate change.
- Advocate for initiatives to reduce the carbon footprint of emergency departments and their affiliated institutions through energy conservation and health care waste reduction and/or recycling.
- Educate patients on appropriate precautions in extreme weather, avoidance of exacerbation triggers, early identification of exacerbations, and temporizing measures when needed.

References


The American College of Emergency Physicians (ACEP) supports the international development of emergency medicine as a clinical and academic specialty. ACEP supports the development and promotion of emergency medicine internationally by taking a leading role as a founding member of the International Federation for Emergency Medicine (IFEM), with the stated purpose of “promoting at an international level, interchange, understanding, and cooperation among physicians practicing emergency medicine.”

ACEP supports the following international initiatives:

- The availability of appropriate emergency services in all countries;
- Global activities focusing on injury control;
- Development and promotion of standards of care in resuscitation;
- Development of out-of-hospital care systems;
- Development of emergency medicine as an academic specialty;
- Collegial exchange and collaboration among emergency physicians of all countries; and
- Advocacy for international health issues.

ACEP encourages the promotion of emergency medicine in other countries and supports expanding membership in IFEM to those countries that can meet the membership criteria set by IFEM.
The American College of Emergency Physicians (ACEP) believes that the communication of diagnostic study results is critical to the evaluation and management of emergency department (ED) patients. Such communication should be performed contemporaneously with the ED visit to guide ongoing treatment decisions and promote effective provider and patient communication. Organizations should create service standards and operating procedures that clarify testing availability, timeliness, interpretation responsibility (including the role of residents), communication methods for preliminary and final results, as well as quality assurance, discrepancy follow-up, and incidental finding communication.

Interpretation of critical testing must be available 24 hours per day, 7 days per week. Interpretation should be completed by a provider who meets or exceeds the requirements of the institution in which the patient is receiving care. Off-site interpretation may be utilized, provided the process follows institutional and American College of Radiology (ACR) guidelines. It is preferred that off-site radiologists be credentialed by the hospital medical staff where the studies are performed. Contemporaneous interpretation may be done by the emergency medicine providers or by another specialist within the limits of the training, experience, and competence of that physician. Quality assurance of non-radiology interpretations should follow institutional guidelines.

Per U.S. Centers for Medicare & Medicaid Services (CMS) guidance, the provider performing contemporaneous interpretations of diagnostic studies is entitled to reimbursement for such interpretations.

Interpretations should be available immediately to the ordering provider or their designee in accordance with institutional guidelines. Organizations utilizing electronic medical records (EMR) and picture archiving and communication systems (PACS) should consider full integration, allowing for bidirectional communication, full versioning of results reporting, and full access to digital images.

Organizations should make allowances for the importation, interpretation, and storage of outside images and/or results when critical or beneficial to patient care or safety. Reinterpretation of outside images should be available when
dictated by patient care needs or at the request of the treating provider.

Organizations should assure that results are communicated in a method commensurate with their criticality. Results suggesting the need for immediate or urgent interventions, or otherwise considered critical, must be readily identifiable in the radiologist’s report and verbally communicated in real-time via closed loop communication to the ordering provider or their designee. Non-routine communications should follow ACR practice parameters.4

When patient needs dictate, preliminary reports may be required. Organizations must assure that all radiologist preliminary reports are readily identifiable, time stamped and permanently archived in the versioning of the final report accompanying the study. The radiologist must report any changes from the preliminary report in a timely, reliable, time stamped fashion to the ordering provider or their designee and document this in their report. Findings that may be seriously adverse to the patient’s health but do not require immediate attention must be communicated in a reliable, time stamped fashion to the ordering provider or their designee and documented in their report. Organizations should provide clear guidance and support for the management of patient communication as it pertains to changes in findings, diagnosis, or need for further intervention, including the communication of incidental findings that were not available when the patient was in the ED.

If the emergency physician believes that an urgent consultation with a radiologist is needed for the interpretation of a diagnostic study, that consultant must be immediately available for discussion and/or consultation with the treating physician.

Whether the consultation is provided from a hospital staff physician or by an external contracted consultant, this physician should be board certified in radiology and licensed in the state where the images are obtained and should meet or exceed the credentialing requirements for physicians credentialed by the local health care facility.

References:
The Emergency Medical Treatment and Labor Act (EMTALA) prohibits the discharge or transfer of medically unstable, emergency department patients from one hospital to another unless the benefit of the transfer outweighs the potential risk. Patients may be transferred, upon their request, once they have undergone a medical screening examination and been stabilized within the capabilities of the emergency department and available ancillary services. In addition, a patient may be transferred in order to obtain a higher level of care not available at the transferring facility. The original intent of the law was to prevent the “dumping” of medically unstable, indigent patients for economic reasons (e.g. inability to pay).

Over the years, potential uncertainty has arisen regarding the meaning of the terms “emergency medical condition” and “to stabilize.” EMTALA investigators, as well as trial courts dealing with medical malpractice litigation, have broadened the interpretation of these terms far beyond the legislative intent and legal definitions cited in Title 42, Chapter 7, Subchapter 18, Part E, Section 1395dd of the U.S. Code, “Examination and Treatment for Emergency Medical Conditions and Women in Labor:”

“e) Definitions

In this section:

(1) The term “emergency medical condition” means—

(A) a medical condition manifesting itself by acute symptoms of sufficient severity (including severe pain) such that the absence of immediate medical attention could reasonably be expected to result in—

(i) placing the health of the individual (or, with respect to a pregnant woman, the health of the woman or her unborn child) in serious jeopardy,

(ii) serious impairment to bodily functions, or

(iii) serious dysfunction of any bodily organ or part; or

(B) with respect to a pregnant woman who is having contractions—

(i) that there is inadequate time to effect a safe transfer to another hospital before delivery, or
(ii) that transfer may pose a threat to the health or safety of the woman or the unborn child.”

“(3)(A) The term “to stabilize” means, with respect to an emergency medical condition described in paragraph (1)(A), to provide such medical treatment of the condition as may be necessary to assure, within reasonable medical probability, that no material deterioration of the condition is likely to result from or occur during the transfer of the individual from a facility, or, with respect to an emergency medical condition described in paragraph (1)(B), to deliver (including the placenta).”

It is the policy of the American College of Emergency Physicians that the Emergency Medical Treatment and Labor Act should not be interpreted to extend beyond the actual statutory language with respect to an EMTALA investigation or when considered in conjunction with medical malpractice litigation.
The American College of Emergency Physicians (ACEP) supports efforts involving public education and legislation to ensure safe and responsible operation of motorized recreational vehicles* and watercraft. Operators and passengers should be educated about the dangers of intoxication with drugs or alcohol while engaged in motor vehicle or watercraft operation. Legislation should be enacted enabling the use of reasonable actions, including impoundment of property to assure safe operation of motorized vehicles and watercraft.

ACEP supports the adoption and enforcement of legislation prohibiting drug- or alcohol-impaired operation of motorized vehicles and watercraft. Such legislation should mandate that a blood alcohol concentration (BAC) of 0.08 g/dl or greater is per se evidence of operating a motorized vehicle or watercraft while impaired and that any measurable level of BAC while operating a motorized vehicle or watercraft shall be illegal in persons younger than the legal drinking age in each state.

*Motorized recreational vehicles and watercraft can include mopeds, mini-bikes, all-terrain vehicles (ATV), go-karts, snowmobiles, ultralight aircraft, boats, jet skis, and other such vehicles.
Law Enforcement Information Gathering in the Emergency Department

The American College of Emergency Physicians (ACEP) believes that emergency physicians have a fundamental professional responsibility to protect the confidentiality of their patients' personal health information. Federal and state laws, including the federal health information privacy regulations implemented under the Health Insurance Portability and Accountability Act (HIPAA), articulate and reinforce this responsibility.

ACEP recognizes that law enforcement officials perform valuable functions in the emergency department (ED), and that one of these functions is investigation of criminal acts. As part of these investigations, law enforcement officials may request personal health information gathered in the ED. Emergency physicians may honor these requests only under the following circumstances:

1. The patient consents to release of the requested personal health information to law enforcement officers, or
2. Applicable laws or regulations mandate the reporting of the requested personal health information to law enforcement officers, or
3. Law enforcement officers produce a subpoena or other court order requiring release of the requested information to them.

Law enforcement officers may, in some situations, present search warrants or other court orders as grounds for requesting or directing that emergency physicians perform physical examinations, collect physical evidence, perform diagnostic tests, or conduct body cavity searches on ED patients who refuse these interventions. These situations present emergency physicians with difficult conflicts between obligations to respect patients' refusals of treatment, to promote trust in the therapeutic relationship, and to protect patients from harm, on the one hand, and obligations to obey legal authorities and to carry out socially imposed mandates to promote public health and public safety, on the other hand. ACEP believes that emergency physicians must make considered judgments regarding which set of obligations is more compelling in these specific situations.
physicians may conscientiously refuse to carry out or comply with legal orders that violate the rights or jeopardize the welfare of their patients, recognizing that there may be legal repercussions for these decisions. These repercussions may include contempt of court or malpractice claims.

In their interactions with ED patients, law enforcement officers may use video or audio recording devices. These recordings may include interaction or communication between ED patients and physicians or other ED staff only with the consent of all parties.

Law enforcement information gathering activities in the ED should not interfere with essential patient care.
Management of the Patient with the Complaint of Sexual Assault

The sexually assaulted patient, who may be an adult or child of either sex, presents special medical, psychological, and legal needs. ACEP believes that all patients who report a sexual assault are entitled to prompt access to emergency medical care and competent collection of evidence that will assist in the investigation and prosecution of the incident. ACEP has therefore developed the following guidelines:

- With the cooperative efforts of local governments, law enforcement agencies, hospitals, courts, and other relevant organizations, each county, state or other geographic area should establish a community plan to deal with the sexually assaulted patient. The plan should ensure that capable, trained personnel and appropriate equipment are available for treating sexual assault patients.
- Each community plan should address the medical, psychological, safety, and legal needs of the sexually assaulted patient. The plan should provide for counseling and should specifically address pregnancy and testing for and treatment of sexually transmissible diseases, including HIV.
- Each hospital should provide for access to appropriate medical, technical, and psychological support for the patient. A community may elect to establish, under the supervision of a physician, an alternative medical site, which specializes in the care of the sexually assaulted patient and provides medical and psychological support capabilities when no other injuries are evident.
- A victim of sexual assault should be offered prophylaxis for pregnancy and for sexually transmitted diseases, subject to informed consent and consistent with current treatment guidelines. Physicians and allied health practitioners who find this practice morally objectionable or who practice at hospitals that prohibit prophylaxis or contraception should offer to refer victims of sexual assault to another provider who can provide these services in a timely fashion.
- Specially trained, nonphysician medical personnel should be allowed to perform evidentiary examinations in jurisdictions in which evidence collected in such a manner is admissible in criminal cases.
• Physicians and trained medical staff who collect evidence, perform in good faith, and follow protocols should be immune from civil or criminal penalties related to evidence collection, documentation of findings, and recording of the patient's subjective complaints.
• For the special diagnostic and therapeutic needs of the pediatric patient, a community plan should provide for primary referral centers with expertise and ancillary social services that support a multidisciplinary approach.
• As part of its ongoing quality management activities, the hospital should establish patient care criteria for the management of the sexually assaulted patient and monitor staff performance.
• ED staff should have ongoing training and education in the management of the sexually assaulted patient.
• ACEP supports appropriate measures to prevent sexual assault in the community.
The American College of Emergency Physicians (ACEP) is committed to supporting women over the course of their emergency medicine careers and recommends that employers adopt policies and practices that will enable women to have productive and sustained careers. Such policies will enable our specialty to maintain a diverse and talented workforce, thereby strengthening the field as a whole.

- Employers should implement policies and practices aimed at ensuring unbiased recruitment and hiring along with parity in advancement and compensation among employees.
- Employers should promote and support networking and mentorship opportunities for their women physicians.
- Employers should strive to implement family-supportive practices* that further the professional advancement and retention of employees who have childcare and other dependent care responsibilities.
- Employers should seek to create a culture in which family-supportive policies are visible, easily accessible, and are used without fear of penalty or stigma. This culture should be evident at the time of recruitment.
- Employers should adopt policies to support physicians during significant life events (e.g., pregnancy, childbirth, adoption, major medical illness).
- The needs of pregnant and postpartum women should be supported with flexible scheduling options and adequate lactation facilities.
- ACEP believes that physicians should not have to choose between their careers and their families and that employers’ efforts to recognize and consider all aspects of physicians’ lives ultimately furthers a medical career.

* ACEP Policy Statement: Family and Medical Leave.
Airway management is a cornerstone of emergency medicine practice and one of the expert skills of the emergency physician. The emergency physician should not only be adept at endotracheal intubation but also familiar with the strategies involved in the initial management of mechanical ventilation. Choosing an appropriate ventilator strategy will ensure the best clinical outcome and avoid complications, such as barotrauma, oxygen toxicity, and ventilator-associated pneumonia. This is particularly relevant in the setting of crowding, prolonged emergency department (ED) boarding times, and rise in the number of ED-based critical care units. A collaborative team effort that includes nursing and respiratory care is essential to providing optimal care of the ventilated patient.

The American College of Emergency Physicians (ACEP) is the authoritative body for the establishment of guidelines for rapid sequence intubation and mechanical ventilation in the emergency setting. To promote the safe and effective use of mechanical ventilation in ED patients, ACEP recommends the following:

- The mechanical ventilation strategy should be individualized with consideration of the patient’s underlying disease process. Consider lung protective strategies that include limiting tidal volume, maintaining lung recruitment, limiting airway pressures, and minimizing oxygen toxicity. Providers may also follow measures of lung compliance, such as plateau pressure or driving pressure, to help reduce incidence of barotrauma and lung injury.

- Continuous quantitative waveform capnography (end tidal carbon dioxide) monitoring is recommended and a post-intubation blood gas measurement may be obtained to ensure appropriate ventilator settings (e.g., respiratory rate, tidal volume, fraction of inspired oxygen [FiO₂]).

- Patients should be maintained on appropriate doses of analgesia and sedation to maintain comfort while on mechanical ventilation.

- Unless contraindicated, elevate the head of the bed to at least 30 degrees to prevent ventilator-associated pneumonia.
The American College of Emergency Physicians (ACEP) believes that scientifically valid and well-controlled clinical trials conducted under federal investigational new drug applications are necessary to assess the safety and effectiveness of all new drugs, including cannabis and cannabis derivative products, for medical use. Currently, in many states, cannabis and related cannabinoids are being recommended for patient use by physicians when little evidence has been provided regarding appropriate indications, efficacy, dosages, and precautions of these drugs. ACEP supports the rescheduling of cannabis and encourages the Food & Drug Administration (FDA), Drug Enforcement Administration (DEA), and other appropriate organizations to facilitate scientifically valid, well-controlled studies of the use of cannabis and cannabis derivative products for treatment of disease and of its impact on societal health.
• As prolonged periods of hyperoxia may lead to iatrogenic injury, titrate down the FiO₂ to maintain appropriate oxygen saturation.

Resources


The American College of Emergency Physicians (ACEP) endorses the following principles regarding medical opinions about the appropriateness and/or quality of medical care which are made for purposes other than the delivery of medical care:

- Opinions regarding the appropriateness and quality of medical care, including but not limited to expert witness testimony, peer review, utilization review and decisions regarding insurance coverage involving care authorization or care denial, should constitute the practice of medicine as defined in state Medical Practice Acts and should be limited to currently licensed physicians whose practice is governed by the respective state’s Board of Medicine.

- Opinions, not related to internal group operations, regarding the appropriateness of medical care should be made by physicians who practice or have practiced in the same specialty, who possess an active, unrestricted license (preferably in the same state), and with at least comparable certification and expertise as the physician whose medical care is under review.

- Baseless, knowingly false, or materially misleading opinions regarding diagnoses, treatment decisions, and the standard of care are a violation of a physician’s professional code.

- Physicians engaged in reviewing the quality of medical care provided by another physician should be members of a recognized professional organization that conducts or supports peer review, and their opinions, decisions, testimony and qualifications should be subject to review.

- Opinions regarding the appropriateness of medical care that are without basis, that are knowingly false, or that are materially misleading should be subject to disciplinary actions by medical licensing boards and/or specialty societies.

ACEP supports working in conjunction with state medical boards to address any variation in medical practice that falls outside accepted professional standards or that violates state Medical Practice Acts.
Given the establishment of a uniform transaction code set by the Healthcare Insurance Portability and Accountability Act of 1996 (HIPAA), the American College of Emergency Physicians (ACEP) believes that all private, state, and federal health care payers should employ a national uniform system for identifying, measuring, and reporting physician or other qualified health care professional services. Consequently, there should be ongoing efforts to develop and maintain procedures and performance codes, definitions, documentation requirements, and other associated policies regarding medical services in accordance with the following:

- Utilizing appropriate physician or other qualified health care professional experience and expertise in such processes;
- Fostering the implementation of reasonable definitions and recognition policies among all payers nationwide;
- Establishing, modifying, or deleting codes in a timely manner, based on changing medical practice; and
- Having such codes, definitions, documentation requirements, and other associated utilization and reporting policies readily available whenever requested.
POLICY STATEMENT

Approved October 2017

Medical Transport Advertising, Marketing, and Brokering

A joint policy statement of the American College of Emergency Physicians, the National Association of EMS Physicians®, the Air Medical Physician Association, the Association of Air Medical Services, and the National Association of State EMS Officials

Position
Patient care and outcomes are optimized by using medical transport services that are officially recognized by the appropriate regulatory health care authority and have robust physician medical oversight and ongoing quality management. Only medical transport services with these credentials should advertise and/or market themselves as providing medical transport services. Brokers should not advertise as medical transport services and must identify themselves as brokers, admitting that another entity completes the transport and providing transparency regarding their involvement with arranging the transport.

Recommendations

• Every national or state regulatory authority should develop statutes regulating the advertising and/or marketing of medical transport services.
• These statutes should only allow an entity to advertise and/or market as a medical transport service if the entity possesses a valid medical transport license or certificate.
• These statutes should require brokers to disclose their role in arranging the transport and inform the client at the time the transport is arranged which licensed medical transport service will complete the transport, including providing the name, contact information, and licensure/certification information of that medical transport service.
• Active physician medical oversight and ongoing performance improvement through quality management must be a required component of medical transport service licensure/certification.
Meeting Conduct Policy

Background

The American College of Emergency Physicians (ACEP) is committed to providing a safe, productive and harassment-free environment at its Scientific Assemblies, educational meetings, conferences, and other ACEP-sponsored events. These events are designed to enable clinicians and researchers to convene for informational and educational sessions regarding the latest advances in treatment and care, and to promote learning, professional development, and networking opportunities. ACEP meetings also allow attendees to learn about and debate the latest scientific advances and to enjoy the company of professional colleagues in an environment of mutual respect. ACEP promotes equal opportunities and treatment for all participants. All participants are expected to treat others with respect and consideration, follow venue rules, and alert staff or security when they have knowledge of dangerous situations, violations of this Meeting Conduct Policy, or individuals in distress.

Prohibited Behavior

ACEP prohibits any form of harassment, sexual or otherwise, as set forth in its Non-Discrimination and Harassment Policy. Accordingly, some behaviors are specifically prohibited, whether directed at other attendees, ACEP staff, speakers, exhibitors, or event venue staff:

- Harassment or discrimination based on race, religion, gender, sexual orientation, gender identity, gender expression, disability, ethnicity, national origin, or other protected status.
- Sexual harassment or intimidation, including unwelcome sexual attention, stalking (physical or virtual), or unsolicited physical contact.
- Yelling at, threatening, or personally insulting speakers (verbally or physically).

Participants asked to stop engaging in hostile or harassing behavior are expected to comply immediately.

Application of Rules

These conduct rules apply to all attendees and participants at any ACEP-sponsored event, as well as ACEP-sponsored meeting social events (for example,
opening and closing parties at Scientific Assembly). **All who register to participate, attend, speak at, or exhibit at an ACEP event agree to comply with this Policy.**

**Reporting Prohibited Behavior**

Harassment or other violations of this Meeting Conduct Policy should be reported immediately to ACEP Meetings staff either in person, in writing by email at conduct@acep.org or other means of reporting. ACEP may involve event security and/or local law enforcement, as appropriate based on the specific circumstances. Event attendees and participants must also cooperate with any ACEP investigation into reports of a violation of this Meeting Conduct Policy by providing all relevant information requested by ACEP.

**Potential Consequences**

- ACEP reserves the right to remove any participant whose social attentions become unwelcome to another and who persists in such attentions after their unwelcome nature has been communicated.
- ACEP also reserves the right to remove any participant or attendee who appears inebriated and who engages in conduct that interferes with the ability of other attendees to participate in and enjoy the conference.
- ACEP may remove any individual from attendance or other participation in any ACEP-sponsored event, without prior warning or refund, if in its reasonable judgment, ACEP determines a violation of this Meeting Conduct Policy has occurred.
- If ACEP, in its reasonable judgment, determines that an individual has violated this Meeting Conduct Policy, ACEP may also prohibit the individual from attending or participating in future ACEP events.
- ACEP will also report on the outcome of any investigation to individuals who have reported a violation of this Meeting Conduct Policy.
Military Considerations in Emergency Medical Services (EMS)

The American College of Emergency Physicians (ACEP) recognizes that some members of the United States military may be trained and assigned in EMS-related roles and that all members of the military, their families, and/or visitors on military installations could require EMS care while within these non-warfare military-oriented geographic areas. ACEP supports the following related concepts:

- Military installation EMS systems must, at minimum, meet prevailing standards of clinical care existing within the surrounding geographic area, to include similar standards of education, credentialing, response times to potentially life-threatening situations and provisioning of medical equipment. Data-driven staffing standards are highly encouraged to promote optimal clinical outcomes while simultaneously achieving fiscal responsibilities.

- National certification requirements as well as local credentialing processes should be in place to assure military medics, corpsmen, and medical technicians are able to attain and maintain contemporary education standards.

- Military installation EMS systems should utilize a formal system of emergency medical dispatch, including enhanced 911, geospatial addressing per national standards, pre-arrival care instructions, dispatchers credentialed via physician medical director oversight, and emergency medical dispatch center accreditation by a relevant accreditation organization. Emergency medical dispatch center physician medical director oversight should include the ability to specify response configuration (ie. number and types of apparatus dispatched) and response modality (eg. lights/sirens or no lights/no sirens) based upon type and prioritization of medical condition information garnered through standardized caller interrogation.

- Military installation EMS system physician medical director oversight must be equivalent with qualities established by the ACEP policy statement on “The Role of the Physician Medical Director in EMS Leadership.

Approved September 2018

Originally approved September 2018, replacing the following rescinded policy statements:

- Support for Transition of Military Medics into Civilian EMS Careers (2017-2018)

As an adjunct to this policy statement, ACEP has prepared a policy resource and education paper (PREP) titled, “Military Considerations in Emergency Medical Services (EMS)”
Military installations should have EMS working groups involving, at minimum, Disaster & Emergency Services, Emergency Management, Installation Emergency Operations Center, and Installation Command. Communications by the EMS working group should align with the chain of command and be tested routinely. When EMS Medicine board-certified physicians are available, they should be integrally involved in EMS working groups. Military installation EMS working groups should address, at minimum, the following aspects of pre-hospital care: emergency care system organization, medical oversight including the role(s) of the physician medical director(s), operations policies, EMS facilities, communications, transportation, destinations of care, public education, continuous quality improvement, mass casualty/major incident/disaster planning and management (to include volunteer management and emergency credentialing), professional education, credentialing programs designed for initial and ongoing competency verification, and human resources.

Military EMS systems should be fully integrated and participating in relevant local geographic area EMS system design, planning, and memorandums of understanding development.

Retiring or end-of-service military members with EMS training and certifications should be afforded a timely, efficient transition method to equivalent civilian EMS certifications if they so desire. With continual needs for highly skilled and experienced clinicians in civilian EMS, utilization of willing former military EMS personnel helps to fulfill these needs.

ACEP encourages collaboration within appropriate governmental agencies and EMS organizations to further develop efficient, effective military-to-civilian EMS certification, licensing, and credentialing.
Motor Vehicle Safety

Traumatic injury from motor vehicle crashes is one of the most frequent causes of injury to patients treated by emergency physicians. A multifaceted approach involving collaborative efforts between public and private organizations is essential to improve motor vehicle safety and thereby reduce society's burden of disability, death, and costs related to motor vehicle trauma.

Emergency physicians must be knowledgeable about motor vehicle crash data, injury mechanisms, and the management of time-critical injuries. The American College of Emergency Physicians (ACEP) encourages its members to take the lead in motor vehicle safety activities at the local, state, and national levels.

ACEP encourages relevant patients be screened for misuse of alcohol and other substances and provided with referral and treatment when indicated.

In addition, public education, laws and enforcement, and engineering enhancements have all been shown to play an important part in reducing motor vehicle trauma. The following legislative and law enforcement interventions should be fully implemented.

- Adopt and enforce primary safety belt use laws and extend them to cover all seating positions in all motorized vehicles where feasible.
- Adopt and enforce state legislation to prohibit alcohol-impaired driving, specifically mandating that: a blood alcohol concentration (BAC) of 0.08 g/dL is per se evidence of driving while impaired; a BAC of 0.05 g/dL is presumptive evidence of impaired driving; and any measurable level of BAC while driving shall be illegal in persons younger than the legal drinking age in each state.
- Encourage research into driver alcohol detectors to help prevent vehicle’s operation by an alcohol-impaired driver.
- Educate, encourage, adopt, and enforce universal laws requiring all motorcyclists, bicyclists, in-line skaters, skateboarders, and scooter users to wear helmets.
• Enforce existing speed limits and oppose further increases in speed limits.
• Strengthen and enforce existing child safety seat laws and their use in appropriate locations within motor vehicles, consistent with current guideline recommendations (i.e., rear-facing child seats until children are 2 to 4 years old, rear seat use until children are 14 years old).

1 American College of Emergency Physicians. Addressing the public safety dangers associated with impaired or distracted driving [policy statement]. Approved October 2011.
The American College of Emergency Physicians (ACEP) supports the development and implementation of programs, policies, legislation, and regulations that will increase the safety of individuals using motorized recreational vehicles* and watercraft. These measures should emphasize the shared responsibility of owners, operators, passengers, and manufacturers to ensure the safety of riders and bystanders and must include the prohibition of children operators, the mandatory use of safety equipment and mandatory safety training and testing of all operators.

ACEP encourages a coordinated effort by recreation enthusiasts, manufacturers, federal and state agencies, and the medical community to reduce injury and death associated with the use of motorized recreational vehicles and watercraft. The manufacturer should specify vehicle and watercraft-specific required protective equipment, minimum driver training, and minimum height, weight and age requirements for operators.

*Motorized recreational vehicles and watercraft can include mopeds, mini-bikes, all-terrain vehicles (ATV), go-karts, snowmobiles, ultra-light aircraft, boats, jet skis, and other such vehicles.
Naloxone Access and Utilization for Suspected Opioid Overdoses

The American College of Emergency Physicians (ACEP), the National Association of EMS Physicians (NAEMSP), and the American College of Medical Toxicology (ACMT) affirm their commitment to emergency care for victims of suspected opioid overdose and support the following:

Naloxone access and administration should be allowable but not required for administration by public safety/health professionals, including but not limited to law enforcement officers, firefighters, emergency medical responders, emergency medical technicians, advanced emergency medical technicians, and paramedics. Public safety/EMS agencies that contemplate the utilization of naloxone are advised that:

- **Provision and administration should be overseen by physician(s) knowledgeable about the agency’s service area, patient care needs, and its public safety and health capabilities.** The physician most appropriate for such oversight is the EMS medical director for the service area. Medical toxicologists and/or a Poison Control Centers may add value to the EMS physician as subject matter experts regarding opioid overdose patterns and model treatment expertise.

- Naloxone may not be appropriate for all agencies. Specifically, in situations in which timely and effective access to naloxone in the out of hospital setting is already present, additional purchasing and provisioning of naloxone may well be clinically unwarranted and fiscally unwise.

- Naloxone should not be deployed as the sole intervention for treatment of opioid overdose by public safety/EMS agencies. Instead, it should be deployed as part of a comprehensive opioid toxicity protocol that encompasses management of the patient’s airway artificial (eg. bag-valve-mask ventilation) regardless of whether naloxone is immediately available.

- Public safety/EMS personnel should complete an educational program regarding the signs and symptoms of opioid overdose, utilization of EMS for victims of suspected opioid overdoses, naloxone effects and side effects, and indications for naloxone administration.
• Public safety agencies considering administering naloxone should include training in basic life support airway management and cardiopulmonary resuscitation as an integral part of any naloxone administration program.
• Public safety/EMS naloxone training should include an overview of pertinent state laws. Laws should include liability protection for any public safety/emergency medical services personnel administering naloxone without gross negligence and with good intent.
• Naloxone administration by public safety/EMS personnel should be achieved in a needleless manner whenever feasible and clinically appropriate to reduce the potential for needle-stick injury and infectious disease exposure.
• Programs should be developed to track and report distribution and usage of naloxone both by public safety/EMS personnel and bystander/public access individuals.

ACEP, NAEMSP, and ACMT further affirm that emergency physicians may have an important role in promoting access to naloxone via prescription whenever a patient’s risk profile suggests potential benefit for the ready availability of naloxone in that patient’s anticipated future out-of-hospital emergency health care needs. Appropriate related indemnification should be extended to such prescribing physicians and/or other prescribing healthcare professionals.

ACEP, NAEMSP, and ACMT additionally affirm their collective belief that pharmacists should be allowed, but not required, to dispense naloxone over the counter, and laypersons should be allowed to administer this medication for cases of suspected opioid overdose. As with prescribing healthcare professionals, appropriate related indemnification should be extended to involved laypersons and pharmacists. If a pharmacist chooses to distribute/dispense naloxone, the following information should be provided to the direct recipient(s):

• Layperson-oriented education regarding the signs and symptoms of opioid overdose, the importance of promptly accessing emergency medical services via 911, naloxone effects and side effects, indications for naloxone administration, and at minimum, chest compressions for suspected cardiopulmonary arrest.
The number of deaths attributed to prescription opioids now exceeds 16,000 annually in the U.S.\(^1\) With increased restrictions on prescription opioids, there has been a simultaneous rise in heroin deaths. Regardless of etiology, some opioid deaths may be avoided through early antidote administration prior to activation and arrival of out-of-hospital emergency medical services. Multiple communities have established lay naloxone administration programs with resultant cases of opioid reversals and potential decreased mortality. This has not been accompanied by increased opioid abuse and overdose.

ACEP recognizes the importance of the role of bystander use of naloxone in reversing opioid toxicity. An effective naloxone program requires guidelines for prescribing naloxone. As per the U.S. Substance Abuse and Mental Health Services Administration recommendations,\(^2\) physicians may prescribe naloxone to at-risk patients such as the following:

- Discharged from the emergency department following opioid intoxication or poisoning
- Taking high doses of opioids or undergoing chronic pain management
- Receiving rotating opioid medication regimens
- Having legitimate need for analgesia combined with history of substance abuse
- Using extended release/long-acting opioid preparations
- Completing mandatory opioid detoxification or abstinence programs
- Recent release from incarceration and past abuser of opioids

A list of tentative conditions for naloxone prescribing cannot exist alone. ACEP recognizes that for successful bystander naloxone programs to be effective, health care providers need:

- Continued research to target the more effective approaches to prescribing naloxone including the optimal route of delivery.
• Medical and lay community support in education of overdose recognition and safe naloxone administration by non-medical providers.
• Legislation making health care providers and lay users of naloxone immune from liability for failure or misuse of bystander naloxone.


Emergency physicians may encounter situations, often near the end of life but also during any patient encounter, in which a patient or surrogate requests or expects tests and treatments that, in the physician's judgment, have no realistic likelihood of providing benefit to the patient.

Regarding such treatments ACEP believes:

- Physicians are under no ethical obligation to render interventions that they judge have no realistic likelihood of benefit to the patient.
- Emergency physicians' judgments to withhold or withdraw requested interventions should be unbiased and should be based on available scientific evidence and societal and professional standards.
- Emergency physicians should recommend the interventions they believe to be the most appropriate depending on the circumstances. In cases of uncertainty or disagreement regarding the benefit of an intervention, temporizing interventions and admission are acceptable to allow additional time and resources to aid in decision-making. These resources may include patient and family communication, ethics consultation, social services, or spiritual guidance.
- Additional information that becomes available may necessitate alteration of previous clinical decisions.
- When determining the utility of any emergency procedure, diagnostic test, or other intervention, emergency physicians should remain sensitive to differences of opinion among physicians, patients, and families regarding the value of such interventions.
- Emergency physicians caring for patients in cardiac arrest who have no realistic likelihood of survival should consider withholding or discontinuing resuscitative efforts, in both the prehospital and hospital settings.
- When a decision is made to forgo interventions considered nonbeneficial, special efforts should be made to assure ongoing communication and the provision of comfort, support, and counseling for the patient, family, and friends.
- Emergency physicians should advocate for implementation of institutional strategies to promote proactive patient and family communication,
development of interdisciplinary review committees and expert consultation availability, regarding appropriate limitations on requested medical tests and interventions.
POLICY STATEMENT

Non-Discrimination and Harassment

Approved June 2018

Revised June 2018 and April 2012 with current title

Originated as CR41 titled, “Non-Discrimination” and approved as a policy statement October 2005

The American College of Emergency Physicians advocates tolerance and respect for the dignity of each individual and opposes all forms of discrimination against and harassment of patients and emergency medicine staff on the basis of an individual’s race, age, religion, creed, color, ancestry, citizenship, national or ethnic origin, language preference, immigration status, disability, medical condition, military or veteran status, social or socioeconomic status or condition, sex, gender identity or expression, sexual orientation, or any other classification protected by local, state or federal law.
Emergency physicians, hospital administrators, and managers often receive requests for outside individuals to be present and observe patient encounters in the emergency department or prehospital care settings. Observers may be members of the institution’s healthcare team or enrolled in the institution’s health care professional educational programs, such as those for medical, mid-level provider, paramedic or other health practitioner students. As these programs are part of the institution’s educational mission, such learners should usually be permitted access as observers.

Health care professionals and students from outside the institution may also request observer status. These often include medical students seeking residency training positions at the institution and international medical students seeking a U.S. medical experience. Other individuals seeking observer status may have commercial, business, educational, artistic, scientific, or other interests. This group often includes drug or equipment company representatives, actors, writers, or friends or children of physicians or other healthcare professionals.

Requests for outside observation should include careful consideration of the ethical concepts of privacy, confidentiality, autonomy, beneficence, non-maleficence, distributive justice, and truthfulness (honesty). Observers must adhere to all institutional policies.

ACEP believes:

- Institutions should have policies in place that address:
  - the definition of observers and its applicability;
  - the duration, scope, and purpose of observation;
  - the observer’s, healthcare team’s, and institution’s responsibilities to each other;
  - the protection of patient confidentiality and privacy interests.

- Emergency physicians who administratively approve observerships should understand the ethical principles and professionalism issues involved and the relevant hospital policies and have the authority to
terminate any observership, if warranted.

- The hospital legal counsel, privacy officer, or other comparable administrative personnel should also approve the policies and processes for granting observerships.
- The institution’s policy should be easily available to the public (potential patients), staff, and potential observers.

Non-discrimination

- Observerships should be offered under specific institutional guidelines that guarantee no individual applicant or observer will face discrimination. There should also be no discrimination as to who can be observed.

Observer education and limits

- Before beginning an observership, individuals should receive HIPAA training and education on institutional policies, particularly informed consent, confidentiality, privacy, and the permissible level of their involvement (if any) in clinical activities.

Consent

- When there is adequate justification for granting a person observer status, consent for the presence of observers must be sought and obtained from patients or, if incapacitated, their legally authorized representatives (LAR).
- Patients or their LAR should have the capacity to comprehend information and give consent prior to observation and not be under duress.
- Observation of resuscitation where consent is not possible may be permissible if allowed explicitly by institutional policy and with protections of patient confidentiality. This is ultimately under the purview of the governing structures and leadership of the institution.

Fees

- To avoid institutional or physician conflicts of interest, charges for observers generally should not be permitted. Although less desirable, institutions with extensive programs may charge a fee to cover bona fide costs, including those of administering the program, parking, or meals, but not for the supervision itself. Programs should not be designed to generate a profit.
The American College of Emergency Physicians (ACEP) opposes the imposition of copays for Medicaid beneficiaries seeking care in the emergency department.
Opposition to Routine Culturing of Skin and Soft Tissue Abscesses

The American College of Emergency Physicians (ACEP) opposes any recommendation and/or requirement that skin and soft tissue abscesses be cultured routinely.

Consider obtaining abscess cultures in selected patients, including patients with signs and symptoms of systemic illness, recurrent infection, or immunosuppression.

ACEP is supportive of notifying patients with positive cultures; however, ACEP opposes federal or state legislation and/or regulation that requires an attending physician to be the person who contacts and notifies patients of positive cultures.
A joint policy statement of the American College of Emergency Physicians, the American Academy of Emergency Nurse Practitioners, the Emergency Nurses Association, and the Society of Emergency Medicine Physician Assistants

The American College of Emergency Physicians seeks to improve acute pain management for patients in the emergency department (ED) and recognizes the need for prompt, safe, and effective pain management. **Although a very important topic, treatment of patients with chronic pain, especially those receiving hospice, palliative or end-of-life care, is beyond the scope of this document.**

Optimal acute pain management is patient-specific and pain syndrome-targeted when feasible, using a multimodal approach that includes pharmacological and non-pharmacological interventions. Base the assessment of pain and need for therapy on an overall accounting of patient status, including functional assessment, rather than solely on patient reported pain scores.

**Acute Pain Management in the ED**

**Pharmacologic Treatments:**

- Pharmacologic treatment of many acutely painful conditions should optimally begin with a non-opioid agent.

- Choose non-steroidal anti-inflammatory drugs (NSAIDs) based on their analgesic ceiling dose (which is lower than the anti-inflammatory maximal doses) and prescribe at the lowest effective dose for the shortest expected duration to avoid complications. Use NSAIDs with added caution in those with pre-existing renal insufficiency, heart failure, a predisposition to gastrointestinal hemorrhage, and in elderly patients.

- Oral (or rectal) acetaminophen is a good initial analgesic for mild-moderate pain. Intravenous acetaminophen (APAP) has similar effects as
oral, however is much more expensive, making it best reserved for those who cannot take medications by mouth or per rectum.¹

- Regional anesthesia (nerve blocks), with or without ultrasound guidance, may be used for certain acutely painful conditions, either alone or as part of a multimodal approach to pain relief.

- Administration of sub-dissociative dose ketamine (SDK) may be used either alone or as part of a multimodal approach to pain relief for traumatic and non-traumatic pain. Emergency care providers should disclose to patients that SDK administration may trigger generally minor, transient side effects. Administration of sub-dissociative ketamine should commence under the same procedures and policies as other analgesic agents administered by the nursing staff in the ED setting.

- Intravenous lidocaine may be beneficial for specific, acutely painful conditions (e.g., renal colic, acute radicular back pain, herpetic/post-herpetic neuralgia) in patients without known structural heart disease or rhythm disturbances.

- Topical lidocaine patches may be used for certain pain syndromes, such as post-herpetic neuropathic pain and myofascial pain.

- Opioid analgesics are commonly used to manage acute severe pain in the ED as well as pain refractory to non-opioids. Before prescribing, assess risks of harm and counsel patients regarding serious adverse effects, such as sedation, respiratory depression, risk of tolerance and hyperalgesia, and potential risk of opioid use disorder. Risks of co-prescribing opioids with other CNS depressants, such as benzodiazepines, and the patient's individual risk of abuse should also be considered.

  o Patients can benefit from knowing opioid alternatives before receiving these agents, allowing shared analgesic planning.

  o In severe acute pain, titrate parenteral opioids in incremental doses based on response targeting comfort and function rather than complete pain relief.

  o As a general principle, those being prescribed opioids should only receive immediate-release opioids in the lowest effective dose for the shortest reasonably practical course.

  o Emergency care providers should generally not initiate therapy with extended-release (ER) (e.g., OxyContin, Opana ER, fentanyl patch) or long-acting (LA) opioids (eg, methadone).

  o Patients presenting to the ED for acute exacerbation of chronic pain should generally not receive an opioid analgesic or opioid prescription. When feasible, coordinate treatment with the patient’s primary pain management provider. Individualized treatment plans and contracts may be effectively used to guide treatment. If deemed necessary, the emergency care provider should only prescribe the minimal amount needed for a reasonable follow-up interval.

  o Prescription-monitoring programs allow emergency providers to identify and counsel patients with aberrant use patterns; this helps limit opioid abuse potential and identify those who may benefit from addiction treatment.²

  o Patients should also be counseled about safe medication storage and disposal.
Non-pharmacologic treatments:

- Given the adverse effects associated with many analgesics, it is particularly important to understand and employ non-pharmacologic treatments, including patient-centered communication techniques, physical interventions, ice/heat, topical coolant sprays, recommendations for activity and exercise, and relaxation techniques. Effective use of these modalities can improve care and lessen risk of harm from pharmacologic therapy.

- Empathic patient-centered communication is a core competency for emergency care providers. Patient-physician interactions characterized by empathy and trust are more likely to lead to optimal outcomes.3

- Mind-body therapies (MBT), alone or in combination with other modalities, have documented efficacy in the management of some types of pain; however, there is no evidence regarding their efficacy for ED patients.4-6

- There is a need for well-designed studies that examine the effect of behavioral therapy in the treatment of pain in ED patients.7

Appendix/Definitions:

Tolerance: "Tolerance is a state of adaptation in which exposure to a drug induces changes that result in a diminution of one or more of the drug’s effects over time."8

Physical Dependence: Physical dependence is a state of adaptation that often includes tolerance and is manifested by a drug class specific withdrawal syndrome that can be produced by abrupt cessation, rapid dose reduction, decreasing blood level of the drug, and/or administration of an antagonist.8

Addiction: Addiction is a primary, chronic, neurobiological disease, with genetic, psychosocial, and environmental factors influencing its development and manifestations. It is characterized by behaviors that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving.8

“Opioid-induced hyperalgesia”: "Opioid-induced hyperalgesia (OIH) is defined as a state of nociceptive sensitization caused by exposure to opioids. The condition is characterized by a paradoxical response whereby a patient receiving opioids for the treatment of pain could actually become more sensitive to certain painful stimuli."9 OIH is difficult to differentiate from tolerance and cannot be reliably diagnosed in the ED.

Pain Classification:

Acute: Pain related to acute injury, harm or repair, and often shorter duration (typically less than 30 days). The cause may be known or unknown. Acute pain usually occurs as part of a single and treatable event. It is often (not always) associated with autonomic nervous system responses (tachycardia, hypertension, diaphoresis). Acute pain typically decreases with time.

Examples of diagnoses that are associated with acute pain include the following: long bone fractures, appendicitis, burns, and procedural pain.

Acute exacerbation of a recurring painful condition: Pain can occur over any duration of time. Pain is due to chronic organic nonmalignant pathology. Examples of diagnoses that include acute exacerbation of a
recurring painful condition are the following: sickle cell pain episodes and migraine headache. There are pain-free episodes between the exacerbations.

**Chronic/persistent pain:** Chronic (persistent) pain is pain that lasts longer than the expected time of healing. There is continuous pain or the pain recurs at intervals for months or years. In some cases, there are acute exacerbations of chronic pain problems. The cause is often unknown. Examples of chronic/persistent pain include the following: low back pain, diabetic neuropathy, postherpetic neuralgia, multiple sclerosis, and phantom pain.

**Cancer pain:** Pain caused by "conditions that are potentially life-threatening." The causes of cancer pain are cancer itself, treatment of cancer, and concurrent disease. Examples of cancer pain include the following: cancer of the pancreas, spinal cord compression caused by tumor infiltration, postsurgical pain associated with cancer treatment, and postmastectomy syndrome.

**References:**

Orders Received from Outside the Emergency Department

Emergency physicians are available to provide care to patients in the emergency department (ED) 24 hours per day, 7 days per week, 365 days per year. The American College of Emergency Physicians (ACEP) believes that orders for ED patients that are received from a provider not physically present in the ED might interfere with patient care. Outside orders could create legal liability and restrict appropriate assessment and treatment in the ED.

Therefore, ACEP endorses the following principles:

- Hospital policy should specify the criteria for receiving telephone, electronic, or written orders from providers outside the ED.
- Orders regarding ED patients received from providers not physically present in the ED should be communicated to and coordinated with the treating emergency physician and may be modified by the emergency physician before implementation.

The scope of this policy does not include hospital admitting orders given by a provider outside the ED following completion of ED assessment and treatment. Transmittal of hospital admitting orders establishes the transfer of care from the emergency physician to the admitting physician. Such orders should be governed by applicable hospital policy and state law.
The American College of Emergency Physicians (ACEP) believes that the direction of out-of-hospital care at the scene of a medical emergency should be the responsibility of the individual in attendance who is most appropriately trained and knowledgeable in providing out-of-hospital emergency care and transport. This is typically a certified EMS provider acting as part of the responding EMS agency.

During routine operations, the out-of-hospital provider is responsible for management of the patient and acts as an agent of the EMS medical director.

This document should guide but not usurp local protocols specifically addressing these issues. This position does not apply when the intervener is an EMS physician within the given EMS system.

Notwithstanding the special situations noted below, the out-of-hospital provider:

• shall act only within the provider’s scope of practice.
• has a duty to re-establish medical direction with the on-line physician if the out-of-hospital provider believes that the emergency care rendered by the scene physician is inconsistent with standard of care.
• reverts to off-line medical direction (ie, existing EMS protocols) or on-line medical direction for the continued management of the patient
  - at any time when the scene physician is no longer in attendance.
  - if the treatment at the emergency scene differs from existing EMS protocols and is contradictory to quality patient care.

However, in some cases, a physician on scene may assume responsibility for patient care and provide medical direction.

If the private physician is present (as may occur in a physician’s office) and assumes responsibility for the patient’s care:
The out-of-hospital provider should defer to the orders of the private physician. On-line medical direction, if that capability exists, should be contacted for record keeping purposes and possible collaboration with the treating physician.

*If an intervener physician is present and on-line medical direction is not available:*

The out-of-hospital provider at an emergency scene should relinquish responsibility for patient management when the intervener physician has:

1. been properly identified
2. agreed to assume responsibility
3. agreed to document the intervention in a manner acceptable to the local emergency medical services system (EMSS)
4. agreed to accompany the patient to the hospital, with the potential exception of a mass casualty incident or disaster.

When all of these conditions exist, the out-of-hospital provider should defer to the wishes of the physician on the scene. Despite the presence of this physician on scene, the out-of-hospital provider shall only act to the limit of their scope of practice.

*If an intervener physician is present and on-line medical direction is available:*

The on-line physician is ultimately responsible. It is the on-line physician’s option to manage the case entirely, work with the intervener physician, or allow the intervener physician to assume responsibility.

In the event:

1. of disagreement between the intervener physician and the on-line physician, the out-of-hospital provider should take orders from the on-line physician and place the intervener physician in contact with the on-line physician.
2. the intervener physician assumes responsibility, all orders to the out-of-hospital provider should be repeated over the radio for purposes of recording. The intervener physician should document the intervention in a manner acceptable to the local EMSS.
3. the out-of-hospital provider or on-line medical direction believes that the emergency care rendered by the intervener physician is inconsistent with EMS protocols and quality patient care, on-line medical direction should be reestablished. The decision of the intervener physician to accompany the patient to the hospital should be made in consultation with the on-line physician.

*If a disaster or mass casualty situation exists:*

An EMS physician shall provide medical oversight within the established command and control system.
June 2018

Patient Autonomy and Destination Factors in Emergency Medical Services (EMS) and EMS-Affiliated Mobile Integrated Healthcare/Community Paramedicine Programs

The American College of Emergency Physicians (ACEP) believes that patients with medical decision making capacity (or legal guardians, health care agents or surrogates when applicable) should actively participate in treatment plans formulated by healthcare professionals utilizing standing order protocols and/or contemporaneous medical oversight in the provision of care by EMS systems and EMS-affiliated mobile integrated healthcare/community paramedicine (MIH/CP) programs, and supports the following principles:

- **Medical Decision-Making Capacity**: EMS systems and EMS-affiliated MIH/CP programs must utilize a formal process for establishing a patient’s (or legal guardian’s, health care agent’s or surrogate’s when applicable) medical decision-making capacity for dissent to medical assessment, treatment, and/or transportation. Key components in possessing medical decision-making capacity include the ability to understand the medical condition as presently assessed, the recommended further assessment, treatment, and/or transportation, and the alternatives, the benefits, and the refusal related risks of recommended further assessment, treatment, and/or transportation. Informed refusals, made with medical decision-making capacity, should be carefully documented in accordance with EMS and EMS-affiliated MIH/CP programs physician medical director established policies and involved patients/legal guardians/health care agents/surrogates should be provided reasonable health educational materials, including their right to future ability in accessing EMS (or EMS-affiliated MIH/CP programs when applicable).

Adherence to EMS and EMS-affiliated MIH/CP programs physician medical director established policies relating to medical decision-making capacity assessment and informed refusals should be measured elements in the continuous quality improvement activities within EMS systems and EMS-affiliated MIH/CP programs.
Alternatives to Emergency Department Destination: Emergency departments are the most typical destinations for patients cared for by EMS systems and frequent destinations for patients cared for by EMS-affiliated MIH/CP programs. Some patients with focused, differentiated healthcare needs, including those with established care providers willing to see them on an unscheduled, acute care basis, may potentially be safely and efficiently navigated to non-emergency department locations, utilizing local EMS and EMS-affiliated MIH/CP programs physician medical director established policies. These policies should substantively factor clinical necessity and continuity of care plans, particularly when advocating for patients with chronic illness in the complex infrastructure of health care delivery. Patients must be treated equitably in all treatment and destination considerations, avoiding discrimination by payor type, healthcare coverage/insurance status, or any social/demographic element.

When considering alternatives to ambulance response, ambulance transportation and/or non-emergency department destinations, patient safety must always be the primary defining element. Destinations should be licensed with oversight by applicable authorities (state, federal, and/or tribal) and be staffed with qualified healthcare providers, also with oversight by applicable licensing authorities. The EMS and EMS-affiliated MIH/CP programs physician medical director must be integrally involved in the spectrum of such considerations, from dispatch center algorithms to on-scene patient assessment protocols to alternative transport mode and alternative destination criteria.

ACEP’s core beliefs include that patients utilizing a prudent layperson standard of a medical emergency should always have access to emergency care services, including accessing emergency care via 911 (or equivalent) public safety answering points. These patients wanting emergency department-based evaluation and management should not be precluded or unfairly dis-incentivized from those services by EMS systems, EMS-affiliated MIH/CP programs, or payers. EMS systems and EMS-affiliated MIH/CP programs should not be financially influenced and incentivized to specifically direct patients to lowest available levels of care. In other words, the patient clinical concerns and needs must predominate the services provided over any level of care-based remuneration potentials for EMS systems and/or EMS-affiliated MIH/CP programs.

Patients utilizing a prudent layperson standard of a medical emergency accessing emergency care via 911 (or equivalent) public safety answering points with acute, unscheduled, and undifferentiated medical conditions should be transported to an emergency department with clinical capabilities consistent with emergency care needs. Similar patients, but with stable, differentiated medical conditions that may be suitable for transportation to a destination other than an emergency department (e.g. mental health facility, sobering center, physician’s clinical office) must be afforded at that alternative destination a medical screening exam (MSE) and stabilizing treatment by a qualified medical professional in accordance with the Emergency Medical Treatment and Active Labor Act (EMTALA).

Adherence to EMS and EMS-affiliated MIH/CP programs physician medical director established policies relating to destination should be measured elements in the continuous quality improvement activities within EMS systems and EMS-affiliated MIH/CP programs.
POLICY STATEMENT

Patient- and Family-Centered Care and the Role of the Emergency Physician
Providing Care to a Child in the Emergency Department

ABSTRACT
Patient- and family-centered care (PFCC) is an approach to health care that recognizes the role of the family in providing medical care, encourages collaboration between the patient, family, and health care professionals; and honors individual and family strengths, cultures, traditions, and expertise. Although many opportunities exist for providing PFCC in the emergency department, several challenges are also present. The American College of Emergency Physicians supports the following: promoting patient dignity, comfort, and autonomy; recognizing the patient and family as key decision makers in the patient's medical care; recognizing the patient's experience and perspective in a culturally sensitive manner; acknowledging the interdependence of child and parent as well as the pediatric patient's evolving independence; encouraging family member presence; providing information to the family during interventions; encouraging collaboration with other health care professionals; acknowledging the importance of the patient's medical home; and encouraging institutional policies for PFCC.

Key words: patient and family-centered care, family-centered care, family member presence, cultural sensitivity, pediatric patient's medical home.

INTRODUCTION
Patient- and family-centered care (PFCC) is an approach to health care that recognizes the integral role of the family and encourages mutually beneficial collaboration among the patient, family, and health care professionals. PFCC ensures the health and well-being of children and their families through a respectful family-provider partnership. It honors the strengths, cultures, beliefs, values, traditions, and expertise that all members of this partnership bring to the relationship. PFCC is the a practice that results in high-quality services.1 PFCC embraces the concepts that 1) we are providing care for a person, not a condition; 2) the patient is best understood in the context of his or her family, culture, beliefs, values, and goals; and 3) honoring that context will result in better health care, safety, and patient experience.
BACKGROUND

Although many opportunities exist for providing PFCC in the emergency department (ED), significant challenges are also present in doing so. Overcrowding and acuity in the ED may result in delay or disruption of care, challenging the ability of ED staff to provide care that is seen as respectful and sensitive to patient wishes. The lack of a prior relationship between patient/family and health care professionals and the stress of an emergency visit can also make it difficult to create an effective patient-provider partnership. The many cultural and societal variations in family structure among families can increase the difficulty in identifying a child's legal guardian(s). Situations unique to the ED, such as the arrival of a child by ambulance without family, the unaccompanied minor seeking care without the knowledge of family, visits related to abuse or violence, time-sensitive invasive procedures including resuscitation efforts, and the unanticipated death of a child can further affect delivery of effective PFCC and require thoughtful advanced planning. The goal of PFCC is to allow for respect for the privacy of the patient and acknowledgment of the pediatric patient's evolving independence, especially with regard to reproductive issues.

Communication between health care professionals in the ED and the child's medical home or a community-based accessible primary care physician who offers coordinated, comprehensive, continuous, culturally effective care will enhance support of PFCC in the ED. Furthermore, recognition of patient and family needs both within the ED and at home may include additional resources such as language and interpretation services, social services, and case management care coordination. Informed shared decision making among patients, family members/guardians, and providers should be a primary goal in providing caring, thoughtful, culturally sensitive care.

Family member presence during invasive procedures including resuscitation efforts has been recommended in a statement by the Ambulatory Pediatric Association, which was endorsed by the American Academy of Pediatrics (AAP) in November 2004. It is also well established that parent presence with less invasive procedures (IV placement, laceration repair, lumbar puncture, fracture reduction etc.) may actually improve the care provided. Studies have shown that most parents observe quietly from a distance and they rarely interfere with medical care.

PFCC includes engaging the family to help prepare the child for minor procedures, either with the assistance of child-life specialists, or other ED providers with experience in this realm. Consistent preparation, positioning, and distraction, in conjunction with parental input, provide the foundation for enabling the child to best cope with minor procedures. In addition, addressing these issues can help significantly alleviate pain and anxiety, resulting in better care, as well as enhanced family and staff experience.

The AAP and American College of Emergency Physicians have a long tradition of supporting PFCC and have issued independent and joint policy statements in the past. This policy statement addresses the particular challenges in, and opportunities for, providing PFCC in the ED setting and is in concert with and as an adjunct to earlier statements.

RECOMMENDATIONS

The American College of Emergency Physicians supports the following:

1. Knowledge of the patient's experience and perspective is essential to practice culturally effective care that promotes patient dignity, comfort, and autonomy.
2. The patient and family are key decision makers regarding the patient's medical care.
3. The interdependence of child and parent, patient and family wishes for privacy, and the evolving independence of the pediatric patient should be respected.
4. The option of family member presence should be encouraged for all aspects of ED care.
5. Information should be provided to the family during interventions regardless of the family's decision to be present or not.
6. PFCC encourages collaboration with other health care professionals along the continuum of care and acknowledgment of the importance of the patient's medical home to the patient's continued well-being.

7. Institutional policies should be developed for provision of PFCC through environmental design, practice, and staffing in collaboration with patients and families.

An earlier version of this policy statement has been approved by the American College of Emergency Physicians Board of Directors and the American Academy of Pediatrics Board of Directors.15

REFERENCES


The American College of Emergency Physicians (ACEP) recognizes that patient experience of care surveys that are methodologically and statistically sound can be a valid measure of the patient’s perception of health care value and that patient outcome can be related to perceived patient experience of care.

Patient experience of care survey tools should be:

- Standardized and validated for the average education level of those being surveyed.
- Administered and tabulated as close to the date of service as possible.
- A measure of the specific components of service received in the emergency department (ED) with discrete data points.
- Based on a statistically valid sample size free from selection bias.
- Transparent in the administration and analysis methodologies.
- Explicit in the intended purpose and use.
- Addressing meaningful aspects of the patient’s perception of care in the ED.

Due to the difficulty in segregating whether patient experience of care scores are a result of physician performance or due to demands and restrictions of the current health care system or other factors out of the control of the physician, patient experience of care methods that have not been validated should not be used for purposes such as credentialing, contract renewal, and incentive bonus programs.

Using patient experience of care scores for credentialing, contract renewal, and incentive bonus programs could have potential negative impacts on quality patient care, including safe prescribing of controlled substances, use of antibiotics and imaging. Emergency department patient experience of care measurement should incorporate the experience of admitted patients, to whom emergency physicians provide timely and intensive critical services.

ACEP recommends that the topic of patient experience of care measurement be incorporated into the training of residents in emergency medicine.
The American College of Emergency Physicians (ACEP), understanding the importance of having accurate patient information when providing medical care, supports the development and use of systems that provide appropriate, easily accessible and readily available patient information to a patient's health care providers. Such systems include, but are not limited to, electronic medical records, medical alert badges, bracelets, wallet cards, portable electronic devices, medication databases, and health information exchanges. ACEP recognizes the patient's right to confidential treatment of such information, including adherence to Health Insurance Portability and Accountability Act (HIPAA) requirements.
The American College of Emergency Physicians (ACEP) believes that high-quality emergency department (ED) medical records promote improved patient care. Many types of medical records are currently used including handwritten, dictated/transcribed, scribed, templated, and electronic medical records. Emergency physicians should play a lead role in the selection of all medical record documentation aspects for the health care system.

An effective ED medical record assists with:

- documentation of clinically relevant aspects of the patient encounter including laboratory, radiologic, and other testing results
- efficiency in the patient encounter continuum
- legibility
- communication with other providers
- coordination of follow-up care
- identification of who entered data into the record
- discharge instruction communication
- ease of data collection and data reporting

When implemented successfully, a high-quality ED medical record should accurately capture the process of evaluation, management, medical decision making and disposition related to a patient encounter. It should facilitate quality assessment, quality improvement, meaningful use, and risk management activities and not interfere with physician productivity. The ED medical record should be promptly available after the patient encounter. For EMR systems, technological assistance should be available immediately 24/7 and plans should be in place to manage records in the event of an EMR system failure.

Hospitals should provide a plan for appropriate and timely review of technology and software updates.

Hospitals should provide emergency physicians the same access to dictation and transcription services as is provided to other hospital medical staff.

ED medical records should be managed in compliance with applicable state and federal regulations, including the Health Insurance Portability and Accountability Act (HIPAA) of 1996.
After discharge, patients seen in the emergency department frequently require access to community resources for medical and social reasons. ACEP recognizes the impact of social determinants, including poverty and food insecurity, violence, poor medical literacy and inadequate access to health care, as well as substance use disorders and other psychiatric comorbidities, on the health and well-being of our patients.

ACEP supports that hospitals develop and maintain partnerships with community-based organizations, governmental agencies, and other appropriate entities to ensure prompt access to community resources for its patients, to include reliable 24/7 lines of communication, in order to facilitate and enhance care after discharge from the emergency department.

Examples of such resources include, but are not limited to:

- Community-based behavioral health and chemical dependency assessment and treatment services
- Local housing and food service agencies
- Assistance with access to qualifying medical coverage
- Local federally qualified healthcare institutions
- Peer and other support groups
- Domestic violence shelters and hot-line information
Payment for Ultrasound Services in the Emergency Department

The American College of Emergency Physicians (ACEP) believes that emergency physicians have the training and expertise to perform and interpret diagnostic ultrasound examinations and ultrasound guidance procedures in the emergency department (ED) setting and should be fairly paid for providing those services. ACEP recognizes clinical ultrasonography as a modality that provides clinically significant data not obtainable by inspection, palpation, auscultation, or other components of the physical examination. Clinical ultrasonography is a distinct clinical modality, not an adjunct to or extension of the physical examination such as a hand held portable device (e.g. a pocket Doppler).

AMA current procedural terminology (CPT) clearly indicates that the actual performance and/or interpretation of ultrasound studies performed during a patient encounter are not included in the levels of evaluation and management (E/M) service and may be separately reported:

“The actual performance and/or interpretation of diagnostic tests/studies ordered during a patient encounter are not included in the levels of E/M services. Physician performance of diagnostic tests/studies for which specific CPT codes are available may be reported separately, in addition to the appropriate E/M code. The physician’s interpretation of the results of diagnostic tests/studies (i.e., professional component) with preparation of a separate distinctly identifiable signed written report may also be reported separately, using the appropriate CPT code with modifier 26 appended.”

Emergency physician use of ultrasound provides timely and cost efficient means to accurately diagnosis ED presenting illness and injury in order to provide higher quality lower cost care. ED ultrasound use can often reduce the need for more expensive studies such as CTs or MRIs and reduce unnecessary admissions for more comprehensive diagnostic work ups. Ultrasound use in the ED should be appropriately recognized and fairly compensated.
The American College of Emergency Physicians (ACEP) believes that providers of acute care to adults and children injured in pedestrian accidents have a responsibility to promote programs that prevent and control pedestrian injuries. Pedestrian injuries are a worldwide problem, and there are many established best practices for prevention.

ACEP supports the following educational, engineering, and policy strategies to improve the walking environment and decrease pedestrian injuries.

- Public engagement, education, and outreach to promote a unified, coordinated approach to pedestrian safety.
- Working with government engineers to identify and redesign hazardous intersections as well as to reengineer pedestrian and traffic flow to enhance safety.
- Specific safety measures such as reduced speed limits, physical barriers to prevent contact between pedestrians and vehicles, and improved road lighting.
- Increased police enforcement of moving violations such as speeding, failure to yield to pedestrians, and texting while driving or walking. Public safety officials should provide redirection of traffic flow and barricades to keep vehicles away from large crowds during parades or other mass gatherings along roadways.
- Fully-integrated emergency medical services and trauma care systems to enhance survival and rehabilitation of injured pedestrians.
POLICY STATEMENT

Pediatric Medication Safety in the Emergency Department

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AMERICAN ACADEMY OF PEDIATRICS
Committee on Pediatric Emergency Medicine

AMERICAN COLLEGE OF EMERGENCY PHYSICIANS
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ABSTRACT. Pediatric patients cared for in emergency departments are at high risk of medication errors for a variety of reasons. A multidisciplinary panel was convened by the Emergency Medical Services for Children program and the American Academy of Pediatrics Committee on Pediatric Emergency Medicine to initiate a discussion on medication safety in the emergency department. Top opportunities identified to improve medication safety include using kilogram-only weight-based dosing, optimizing computerized physician order entry using clinical decision support, developing a standard formulary for pediatric patients while limiting variability of medication concentrations, using pharmacist support within emergency departments, enhancing training of medical professionals, systematizing the dispensing and administration of medications within the emergency department, and addressing challenges for home medication administration before discharge.
BACKGROUND

Despite a national focus on patient safety since the publication of the Institute of Medicine report “To Err is Human” in 1999, medical errors remain a leading cause of morbidity and mortality across the United States. Medication errors are by far the most common type of medical error occurring in hospitalized patients, and the medication error rate in pediatric patients has been found to be as much as 3 times the rate in adult patients. Because many medication errors and adverse drug events (ADEs) are preventable, strategies to improve medication safety are an essential component of an overall approach to providing quality care to children.

The pediatric emergency care setting is recognized as a high-risk environment for medication errors because of a number of factors, including medically complex patients with multiple medications who are unknown to emergency department staff, a lack of standard pediatric drug dosing and formulations, weight-based dosing, verbal orders, a hectic environment with frequent interruptions, lack of clinical pharmacists on the emergency department (ED) care team, inpatient boarding status, use of information technology systems that lack pediatric safety features, and numerous transitions in care. In addition, the vast majority of pediatric patients seeking care in EDs are not seen in pediatric hospitals but rather in community hospitals, which may treat a low number of pediatric patients. Studies also outline the problem of medication errors in children in the prehospital setting. A study of 8 Michigan emergency medical services agencies demonstrated errors for commonly used medications, with up to one third of medications being dosed incorrectly. Medication error rates reported from single institutions with dedicated pediatric EDs range from 10% to 31%, and a study by Shaw and colleagues from a pediatric tertiary care center network showed that medication errors accounted for almost 20% of all incident reports, with 13% of the medication errors causing patient harm. Another study examined medication errors in children at 4 rural EDs in northern California and found an error rate of 39%, with 16% of these errors having the potential to cause harm. The following discussion adds to the broad topic of medication safety by introducing specific opportunities unique to pediatric patients within EDs to facilitate local intervention on the basis of institutional experience and resources.

STRATEGIES FOR IMPROVEMENT

A multidisciplinary expert panel was convened by the Emergency Medical Services for Children program and the American Academy of Pediatrics, through its Committee on Pediatric Emergency Medicine, to discuss challenges related to pediatric medication safety in the emergency setting. The panel included emergency care providers, nurses, pharmacists, electronic health record industry representatives, patient safety organization leaders, hospital accreditation organizations, and parents of children who suffered ADEs. The panel outlined numerous opportunities for improvement, including raising awareness of risks for emergency care providers, trainees, children, and their families; developing policies and processes that support improved pediatric medication safety; and implementing best practices to reduce pediatric ADEs. Specific strategies discussed by the panel, as well as recent advances in improving pediatric medication safety, are described.

Decreasing Pediatric Medication Prescribing Errors in the ED

Computerized Physician Order Entry

Historically, the majority of pediatric medication errors were associated with the ordering phase of the medication process. Specific risks related to pediatric weight-based dosing include not using the appropriate weight, performing medication calculations based on pounds instead of the recognized standard of kilograms, and making inappropriate calculations, including tenfold dosing errors. Childhood obesity introduces further opportunity for dosing error. In addition to the lack of science to guide medication dosing in obese patients, frequent underdosing is reported, and currently available resuscitation tools are
commonly imprecise. Furthermore, there are limited opportunities for prescription monitoring or double-checking in the ED setting, and many times calculations are performed in the clinical area without input from a pharmacist. The implementation of computerized physician order entry (CPOE) and clinical decision support (CDS) with electronic prescribing have reduced many of these errors, because most CPOE systems obviate the need for simple dose calculation. However, CPOE systems have not fully eliminated medication errors. Commercial or independently developed CPOE systems may fail to address critical unique pediatric dosing requirements. Kilogram-only scales are recommended for obtaining weights, yet conversion to pounds either by the operator or electronic health record may introduce opportunity for error into the system. In addition, providers may override CDS, despite its proven success in reducing errors. Prescribers frequently choose to ignore or override CDS prescribing alerts, with reported override rates as high as 96%. Allowing for free text justification to override alerts for nonformulary drugs may introduce errors. The development of an override algorithm can help reduce user variability. As the use of CPOE increases, one can expect that millions of medication errors will be prevented. For EDs that do not use CPOE, preprinted medication order forms have been shown to significantly reduce medication errors in a variety of settings and serve as a low-cost substitute for CPOE.

**Standardized Formulary**

The IOM recommends development of medication dosage guidelines, formulations, labeling, and administration techniques for the pediatric emergency care setting. Unfortunately, there are currently no universally accepted, pediatric-specific standards with regard to dose suggestion and limits, and dosing guidelines and alerts found in CPOE are commonly provided by third-party vendors that supply platforms to both children’s and general hospitals. The development of a standard pediatric formulary, independent from an adult-focused system, can reduce opportunities for error by specifying limited concentrations and standard dosage of high-risk and frequently used medications, such as resuscitation medications, vasoactive infusions, narcotics, and antibiotics as well as look-alike and sound-alike medications. A standard formulary will allow for consistent education during initial training and continuing medical education for emergency care providers, creating a consistent measure of provider competency. At least one large hospital organization has successfully implemented this type of change. In addition, the American Society of Health-System Pharmacists (ASHP) is working with the Food and Drug Administration to develop and implement national standardized concentrations for both intravenous and oral liquid medications.

**ED Pharmacists**

Currently, many medications are prepared and dispensed in the ED without pharmacist verification or preparation, because many EDs lack consistent on-site pharmacist coverage. In a survey of pharmacists, 68% reported at least 8 hours of ED coverage on weekdays, but fewer than half of EDs see this support on weekends, with a drastic reduction in coverage during overnight and morning hours. The American College of Emergency Physicians supports the integration of pharmacists within the ED team, specifically recognizing the pediatric population as a high-risk group that may benefit from pharmacist presence. The Emergency Nurses Association supports the role of the emergency nurse as well as pharmacy staff to efficiently complete the best possible medication history and reduce medication discrepancies. The ASHP suggests that ED pharmacists may help verify and prepare high-risk medications, be available to prepare and double-check dosing of medications during resuscitation, and provide valuable input in medication reconciliation, especially of medically complex children whose medications and dosing may be unknown to ED staff and who present without a medication list or portable emergency information form (EIF). Medically complex patients typify the difficulty with medication reconciliation with an error rate of 21% in a tertiary care facility. In this study, no one source of either the parent, pharmacy, or primary provider was available, appropriately sensitive or specific in completing medication reconciliation. Pharmacist managed reconciliation has had a positive impact for admitted pediatric patients and may translate to the emergency setting. ED pharmacists can also help monitor for ADEs, provide drug information, and provide information regarding medication ingestions to both providers and patients/families.
Dedicated pharmacists can be integrated through various methods, such as hiring dedicated pharmacy staff for the ED,7 having these staff immediately available when consulted, or having remote telepharmacy review of medication orders by a central pharmacist.47,48 Although further research is needed on the potential outcomes on medication safety and return on investment when a pharmacist is placed in the ED, current experience indicates improvements in medication safety when a pharmacist is present.49 Studies from general EDs suggest significant cost savings as well,50 with one study in a single urban adult ED identifying more than $1 million dollars of cost avoidance in only 4 months.51

Training in Pediatric Medication Safety
Dedicated training in pediatric medication safety is highly variable in curricula of professional training programs in medical, nursing, and pharmacy schools.52 Although national guidelines support the training of prehospital personnel with specific pediatric content and safety and error-reduction training,53 a nearly 35% prehospital medication error rate for critical medications for pediatric patients remains.14 At the graduate medical education level, the curricula of pediatric and emergency medicine residency programs and pediatric emergency medicine fellowship programs do not define specific requirements for pediatric medication safety training.54,55,56 The same is true for pharmacy programs.57 Although schools of pharmacy include pediatric topics in their core curricula, pediatric safety advocates believe there is an opportunity for enhanced and improved training.58

Experts in pediatric emergency care from the multidisciplinary panel recommend development of a curriculum on pediatric medication safety that could be offered to all caregivers of children in emergency settings. A standard curriculum may include content such as common medication errors in children, systems-improvement tools to avoid or abate errors, and the effects of developmental differences in pediatric patients. Demonstrating competency on the basis of this curriculum is one means by which institutions may reduce risks of medication errors.

Decreasing Pediatric Medication Administration Errors in the ED
The dispensing and administration phases serve as final opportunities to optimize medication safety. Strategies to reduce errors include standardizing the concentrations available for a given drug, having readily available and up-to-date medication reference materials, using premixed intravenous preparations when possible, having automated dispensing cabinets with appropriate pediatric dosage formulations, using barcoded medication administration,59 pharmacists and ED care providers working effectively as a team, and having policies to guide medication use.60,61 Although yet to be studied in the ED environment, smart infusion pumps have shown promise in other arenas in reducing administration errors for infusions.62

Nurses are held accountable by each state’s nurse practice act for the appropriateness of all medications given. Nursing schools teach the 5 rights of medication administration; the right patient, the right medication, the right dose, the right time, and the right route.63 Elliott and Liu expand the 5 rights to include right documentation, right action, right form, and right response to further improve medication safety.64 Simulated medication administration addresses opportunities beyond those captured within these rights and may have implications within the ED.65 Additionally, given the association of medication preparation interruptions and administration errors,66 the use of a distraction-free medication safety zone has been shown to enhance medication safety.67,68 Implementation of an independent 2-provider check process for high-alert medications, as suggested by The Joint Commission, also reduces administration errors.69 Both the Institute for Safe Medication Practices and The Joint Commission provide excellent guidance on these topics.70

Decreasing Pediatric Medication Errors in the Home
Recognizing and addressing language barriers and health literacy variability in the ED can affect medication safety in the home. Nonstandardized delivery devices continue to be used in the home, and dosing error rates of greater than 40% are reported.71 Advanced counseling and instrument provision in the ED are proven to
decrease dosing errors at home. Pictograms provided to aide in medication measurement have also been shown to decrease errors and may be considered as part of discharge instructions. The AAP supports policy on the use of milliliter-only dosing for liquid medications used in the home and that standardized delivery devices be distributed from the ED for use with these medications. As the body of literature regarding health literacy evolves, further addressing these issues in real time may influence out-of-hospital care.

SUMMARY
Pediatric medication safety requires a multidisciplinary approach across the continuum of emergency care, starting in the prehospital setting, during emergency care, and beyond. Key areas for medication safety specific to pediatric care in the ED include creation of standardized medication dosing guidelines, better integration and use of information technology to support patient safety, and increased education standards across health care disciplines. Following is a list of specific recommendations that can lead to improved pediatric medication safety in the emergency care setting.

RECOMMENDATIONS
1. Create a standard formulary for pediatric high-risk and commonly used medications.
2. Standardize concentrations of high-risk medications.
3. Reduce the number of available concentrations to the smallest possible number.
4. Provide recommended precalculated doses.
5. Measure and record weight in kilograms only.
6. Utilize length-based dosing tools when a scale is unavailable or use is not feasible.
7. Implement and support the availability of pharmacists in the ED.
8. Use standardized order sets with embedded best practice prescribing and dosing range maximums.
10. Implement process screening, such as a 2-provider independent check for high-alert medications.
11. Implement and utilize CPOE and CDS with pediatric-specific kilogram-only dosing rules, including upper dosing limits within Emergency Department Information Systems.
12. Encourage community providers of children with medical complexity to maintain a current medication list and an emergency information form to be available for emergency care.
13. Create and integrate a dedicated pediatric medication safety curriculum into training programs for nurses, physicians, respiratory therapists, nurse practitioners, physician assistants, prehospital providers, and pharmacists.
15. Use dispensing standardized delivery devices for home administration of liquid medications.
16. Dispense milliliter-only dosing for liquid medications used in the home.
17. Employ advanced counselling such as teach-back when sharing medication instructions for home use.
18. Use pictogram-based dosing instruction sheets for use of home medications.

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REFERENCES
1. Institute of Medicine, Committee on Quality of Health Care in America. To Err is Human: Building a Safer Health System. Kohn LT, Corrigan JM, Donaldson MS, eds. Washington, DC: National Academies Press; 1999


55. Accreditation Council for Graduate Medical Education. ACGME program requirements for graduate medical education in emergency medicine. Available at:
56. Accreditation Council for Graduate Medical Education. ACGME program requirements for graduate medical education in pediatric emergency medicine. Available at: https://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/110_emergency_medicine_2016.pdf. Accessed November 16, 2016


ABSTRACT
Emergency departments (EDs) are vital in the management of pediatric patients with mental health emergencies (MHE). Pediatric MHE are an increasing part of emergency medical practice. In their capacity as a safety net resource for many healthcare problems, EDs are increasingly used for mental health visits. A fragmented mental health infrastructure that is critically low in resources and staffing within all sectors significantly contributes to this problem. EDs are tasked to safely and humanely manage children with known mental illness and those with an acute behavioral crisis while utilizing a culturally and developmentally appropriate approach. The ED is tasked to provide initial management and stabilization of patients within the entire spectrum of mental health, from suicidality, maltreatment, and post-traumatic stress to violence, aggression, autistic spectrum disorder, and substance abuse. It is critical that ED’s address not only the physical but also the mental health needs of patients during and after mass casualty incidents and disasters. Yet, many ED providers often feel that they don’t have the required training and expertise to serve beyond that of a frontline resource or crisis management for mental health emergencies. Robust coordination with the mental health community is therefore essential for the management of these patients across the continuum from crisis management to ongoing care.

The American College of Emergency Physicians supports the following actions: advocacy for increased community mental health resources and linking them to the medical home, EDs, and inpatient psychiatric hospitals, as well as improved pediatric mental health tools for the ED, increased mental health insurance coverage, adequate reimbursement at all levels; acknowledgment of the importance of the child’s medical home and their role in managing crisis events, development of community paramedicine programs for accurate assessment and triage of behavioral health crisis, and promotion of education and research for mental health emergencies.

Key words: Emergency department, mental health emergencies, school and community mental health services, medical home
INTRODUCTION

Pediatric mental health emergencies constitute a large and growing segment of pediatric emergency department (ED) volume. The ED, therefore, plays a critical role in the evaluation and management of children and adolescent patients with mental health emergencies. Community mental health resources have become diminished and, in some regions, disappeared entirely through inpatient bed shortages, private and public health insurance changes, reorganization of state mental health programs, and shortages of providers who specialize in pediatric mental health. These changes have resulted in critical shortages for both inpatient and outpatient mental health services for children. The ED has increasingly become the safety net for a fragmented mental health infrastructure in which the needs of children and adolescents, among the most vulnerable populations, have not been sufficiently addressed.

EDs should safely, humanely, and in a culturally sensitive manner manage patients with exacerbations of known diagnosed mental illnesses as well as those with developmental delay, autistic spectrum disorders, ADHD, or those in behavioral crisis. EDs also should identify and manage patients with previously undiagnosed, undetected or emerging mental health related conditions such as suicidal ideation, depression, escalating aggression, substance abuse, and post-traumatic stress disorder. Given the broad scope of mental health emergencies, EDs need to also consider and be able to treat mental health manifestations of trauma, physical and sexual maltreatment, and in children exposed to community and domestic violence. Violence-related situations may involve pediatric victims and/or pediatric-aged perpetrators of violence. In many states, adolescents can seek and receive care for mental health issues and drug/alcohol use without parental involvement, and EDs should maintain confidentiality unless the child is at risk of harming himself/herself or others. The ED must also recognize the primary support role of the family and caregivers in all phases of pediatric mental illness.

EDs also play a critical role in mass casualty occurrences and disasters and must address the unique mental health needs of children during and after these events. A strong and growing body of evidence indicates that emotional and physical trauma to children can cause neurochemical and structural brain changes resulting in post-traumatic stress disorder, and this can affect some children into their adult lives. Emotional trauma may be ameliorated by timely, culturally-appropriate, pediatric-specific stress intervention that may be implemented in the initial hours after the trauma.

The epidemiologic and outcome data on pediatric mental health emergencies are insufficient, but there is evidence that pediatric mental health concerns are commonly unaddressed. Pediatric mental health emergencies are frequently not recognized as such, presenting initially as trauma or somatic complaints, and are, therefore, underrepresented in the existing data. The challenges to an already overburdened ED safety net are to provide safe, humane, and culturally and developmentally sensitive triage, diagnosis, stabilization, initial management, and treatment and referral for a broad spectrum of mental health emergencies, working within a mental health infrastructure in crisis.

Early identification and intervention can aid in preventing the emergency behavioral health crisis. This in turn has been shown in some community-based programs to effectively decrease admission rates and decrease the length of ED stays. Some EMS agencies have developed community paramedicine programs to more accurately assess and triage behavioral health crises to affect optimal delivery of care. In this regard, the patient may access the medical home for direct behavioral health referral thus avoiding the emergency department as a needed intervention. Such efforts would alleviate an already strained emergency system that currently experiences excess boarding rates for behavioral health patients where the skilled mental health team is not available.

Pediatric mental health emergencies are best managed by a skilled, multidisciplinary team approach, including specialized screening tools, pediatric-trained mental health consultants, the availability of
pediatric psychiatric facilities when hospitalization is necessary, and an outpatient infrastructure that supports pediatric mental health care, including communication back to the primary care physician and timely and appropriate ED referrals to mental health professionals.\textsuperscript{23}

The American College of Emergency Physicians supports the following actions:

1. Advocacy for adequate pediatric mental health resources in both inpatient and outpatient settings, including the availability of prompt psychiatric consultation for ED psychiatric patients, as well as school and community mental health services, including adequate mental health screening.
2. Development of mechanisms for the ED to train all ED staff in dealing with unique pediatric mental health issues and to properly recognize and respond to cases, including violence in the community, physical trauma, domestic violence, child maltreatment, mass casualty incidents and disasters, suicides and suicide attempts.
3. Appropriate reimbursement for both inpatient and outpatient pediatric mental health services.
4. Development of cross institutional transfer agreements with specific mental health facilities to simplify the process of bed search and placement for patients requiring inpatient mental health care. Such efforts should be directed towards limiting emergency department length of stay and boarding.
5. Acknowledgment of the importance of the child’s medical home to his or her continued well-being, including prevention, screening, crisis intervention, and treatment of mental health issues.\textsuperscript{22}
6. Advocacy for comprehensive insurance coverage for pediatric mental health to include provision of services for the uninsured, as well as expansion of coverage to include mental health services for those who are insured.
7. Advocate for community-based behavioral services using a patient centered approach to identify and manage behavioral health concerns prior to development of an emergent condition. This includes efforts directed towards ED screening to identify suicide risk and methods of suicide prevention.
8. Advocacy for additional research funding dedicated to pediatric emergency mental health issues.
9. Promotion of education and research for mental health emergencies, specifically:
   - To expand the data on epidemiology, best practices, treatment outcomes, and cost-effectiveness of management of pediatric mental health emergencies in the ED.
   - To evaluate the adequacy of patient access to pediatric mental health services.
   - To evaluate children with behavioral crisis and to understand gaps in primary care and community resources.
   - To develop mental health support networks that minimize reliance on acute crisis management.
   - To develop and validate accurate pediatric mental health screening tools for use in various settings and best practices for follow-up programs for pediatric mental health patients.
   - Acknowledge and support community-based integration of services utilizing tools such as telemedicine and paramedicine programs adequately trained to identify and assess crisis events for appropriate triage and transport to behavioral health crisis facilities as an alternative to emergency medical care facilities.
   - To enhance the pediatric mental health educational needs of practicing EM physicians and the curriculum for emergency medicine and pediatric residency training programs and pediatric emergency medicine fellowships.

An earlier versions of this policy statement has been approved by the American College of Emergency Physicians Board of Directors and the American Academy of Pediatrics Board of Directors.\textsuperscript{29}

REFERENCES


18. Olson L, Melese-d’Hospital I, Cook L, et al. Mental health problems of children presenting to emergency departments. Paper presented at: Third National Congress on Childhood Emergencies; April 15-17, 2002; Dallas, TX.


Policy Statement

Pediatric Readiness in Emergency Medical Services Systems


Policy Statement
Organizational Principles to Guide and Define the Child Health Care System and/or Improve the Health of All Children

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Committee on Pediatric Emergency Medicine and Section on Emergency Medicine EMS Subcommittee

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Pediatric Committee

National Association of Emergency Medical Services Physicians
Standards and Clinical Practice Committee

National Association of Emergency Medical Technicians
Emergency Pediatric Care Committee

Abstract. This is a joint policy statement from the American Academy of Pediatrics, American College of Emergency Physicians, Emergency Nurses Association, National Association of Emergency Medical Services Physicians, and National Association of Emergency Medical Technicians.
on pediatric readiness in emergency medical services systems.

ABBREVIATIONS: ED, emergency department; EMS, emergency medical services.

INTRODUCTION
Out-of-hospital emergency care typically involves emergency medical technicians, paramedics, and other licensed medical providers who work in emergency medical services (EMS) systems on ground ambulances and fixed or rotor-wing aircraft that are dispatched to an emergency when either a bystander calls 911 or when a patient requires interfacility transport for a medical illness or traumatic injury. Because out-of-hospital emergency care of children plays a critical role in the continuum of health care that also involves primary prevention, hospital-based acute care, rehabilitation, and return to the medical home, the unique needs of children must be addressed by EMS systems. Pediatric readiness encompasses the presence of equipment and medications, usage of guidelines and policies, availability of education and training, incorporation of performance improvement practices, and integration of EMS physician medical oversight to equip EMS systems to deliver optimal care to children. It has been shown that emergency departments (EDs) are more prepared to care for children when a pediatric emergency care coordinator is responsible for championing and making recommendations for policies, training, and resources pertinent to the emergency care of children. The specialty of EMS medicine has the potential to derive similar benefits when members of the EMS community are personally invested in pediatric patient care. Although a critical aspect of pediatric readiness in EMS involves strong EMS physician oversight of these investments, a discussion of physician oversight of pediatric care in EMS is outside the scope of this article. This topic is, however, well addressed in the National Association of Emergency Medical Services Physicians position statement “Physician Oversight of Pediatric Care in Emergency Medical Services.” This policy statement is accompanied by a technical report published simultaneously.

RECOMMENDATIONS
To provide infrastructure designed to support the out-of-hospital emergency care of children, the American Academy of Pediatrics, American College of Emergency Physicians, Emergency Nurses Association, National Association of Emergency Medical Services Physicians, and National Association of Emergency Medical Technicians believe that EMS systems and agencies should undertake the following:

- Include pediatric considerations in EMS planning and development of pediatric EMS dispatch protocols, operations, and physician oversight; for example, as outlined in the National Association of Emergency Medical Services Physicians position statement “Physician Oversight of Pediatric Care in Emergency Medical Services”
- Collaborate with medical professionals with significant experience or expertise in pediatric emergency care, public health experts, and family advocates for the development and improvement of EMS operations, treatment guidelines, and performance improvement initiatives
- Integrate evidence-based, pediatric-specific elements into the direct and indirect medical oversight that constitute the global EMS oversight structure
- Have pediatric-specific equipment and supplies available, using national consensus recommendations as a guide, and verify that EMS providers are competent in using them
- Develop processes for delivering comprehensive, ongoing pediatric-specific education and evaluating pediatric-specific psychomotor and cognitive competencies of EMS providers
- Promote education and awareness among EMS providers about the unique physical characteristics, physiologic responses, and psychosocial needs of children with an illness or injury
- Implement practices to reduce pediatric medication errors
- Include pediatric-specific measures in periodic performance improvement practices that address morbidity and mortality
- Submit data to a statewide database that is compliant with the most recent version of the National EMS Information System and work with hospitals to which it transports patients to track pediatric patient-
centered outcomes across the continuum of care\(^4\)

- Develop, maintain, and locally enforce policies for the safe transport of children in emergency vehicles\(^4\)
- Develop protocols for destination of pediatric patients, with consideration of regional resources and weighing the risks and benefits of keeping children in their own communities\(^4\)
- Collaborate, along with receiving EDs, to provide pediatric readiness across the care continuum\(^4\)-\(^10\)
- Include provisions for caring for children and families in emergency preparedness planning and exercises, including the care and tracking of unaccompanied children and timely family reunification in the event of disasters\(^3\),\(^4\),\(^24\)
- Promote overall patient- and family-centered care, which includes using lay terms to communicate with patients and families, having methods for accessing language services to communicate with non–English-speaking patients and family members, narrating actions, and alerting patients and caregivers before interventions are performed; in addition, allow family members to remain close to their child during resuscitation activities and to practice cultural or religious customs as long as they are not interfering with patient care\(^19\)
- Have policies and procedures in place to allow a family member or guardian to accompany a pediatric patient during transport, when appropriate and feasible\(^19\)
- Consider using resources compiled by the Emergency Medical Services for Children program when implementing the recommendations noted here\(^25\)

CONCLUSION

Ill and injured children and their families have unique needs that can be magnified when the child’s ailment is serious or life threatening. Resource availability and pediatric readiness across EMS agencies are variable. Providing high-quality EMS care to children requires an infrastructure designed to support the care of pediatric patients and their families. Therefore, it is important that EMS physicians, administrators, and EMS personnel collaborate with pediatric acute care experts to optimize EMS care through the development of care models to minimize morbidity and mortality in children as a result of illness and injuries.

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POLICY STATEMENT

Pediatric Readiness in the Emergency Department

Revised June 2018 with current title
Revised April 2009

A joint policy statement of the American Academy of Pediatrics, the American College of Emergency Physicians, and the Emergency Nurses Association

POLICY STATEMENT
Organizational Principles to Guide and Define the Child Health Care System and/or Improve the Health of All Children

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ABSTRACT. Note: This is a revision of the previous joint policy statement titled “Guidelines for Care of Children in the Emergency Department.” Children have unique physical and psychosocial needs that are heightened in the setting of serious or life-threatening emergencies. The majority of ill

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and injured children are brought to community hospital emergency departments (EDs) by virtue of proximity. It is, therefore, imperative that all EDs have the appropriate resources (medications, equipment, policies, and education) and capable staff to provide effective emergency care for children. This policy statement outlines resources necessary for EDs to stand ready to care for children of all ages. These recommendations are consistent with the recommendations of the Institute of Medicine (now called the National Academy of Medicine) in its report “The Future of Emergency Care in the United States Health System.” Although resources within emergency and trauma care systems vary locally, regionally, and nationally, it is essential that ED staff, administrators, and medical directors seek to meet or exceed these recommendations to ensure high-quality emergency care is available for all children. These updated recommendations are intended to serve as a resource for clinical and administrative leadership of EDs as they strive to improve their readiness for children of all ages.

**Key words:** pediatric readiness, emergency treatment.

**ABBREVIATIONS:** ED, emergency department; EMS, emergency medical services; EMSC, Emergency Medical Services for Children (program); IOM, Institute of Medicine; NPRP, National Pediatric Readiness Project; PECC, Pediatric Emergency Care Coordinator; PI, performance improvement; QI, quality improvement.

**INTRODUCTION**

This policy statement delineates the recommended resources necessary to prepare emergency departments (EDs) to care for pediatric patients. Adoption of the recommendations in this policy will facilitate the delivery of emergency care for children of all ages and, when appropriate, timely transfer to a facility with specialized pediatric services. This joint policy is an update of previously published guidelines.1,2,3,4

These recommendations are intended to apply to all EDs that provide care for children. In the United States, most children who seek emergency care (83%) present to general EDs versus specialized pediatric EDs.5 Intended users of these recommendations include all EDs that are open 24 hours a day, 7 days a week, including freestanding EDs and critical access hospital EDs. This policy statement is not intended to address urgent care centers or retail-based clinics, as other recommendations are available addressing those settings.6

**BACKGROUND**

The National Hospital Ambulatory Medical Care Survey reported that in 2014 there were approximately 5000 emergency departments (EDs) in the United States. Of the more than 141 million ED visits in the United States in 2014, approximately 20% were for children younger than 15 years.7 Children have unique anatomic, physiologic, developmental, and medical needs that differ from adults. These differences must be considered when developing emergency services, in training ED staff, and in stocking equipment, medication, and supplies.

**Improving Pediatric Readiness in US EDs**

In 2006, the “Future of Emergency Care” series of the Institute of Medicine (IOM; now the National Academy of Medicine) noted ongoing deficiencies in both the prehospital and ED settings, including the availability of pediatric equipment, access to supplies and medications, training for staff, and policies incorporating the unique needs of children.8 Although there have been marked improvements in many areas of everyday pediatric readiness, persistent variability and need for improvement remain across the continuum of care.5,9,10,11,12

One of the specific recommendations from the 2006 IOM report was that hospitals appoint coordinators for pediatric emergency care. At that time, only 18% of EDs in the United States reported having a physician coordinator and only 12% had a nursing coordinator for pediatric emergency care. A national assessment performed in 200313 demonstrated that EDs that have staff in these positions tend to be more prepared, as
measured by compliance with “Guidelines for the Care of Children in the Emergency Department” published by the American College of Emergency Physicians (ACEP) and American Academy of Pediatrics (AAP) in 2001.1 In 2009 the AAP, ACEP, and the Emergency Nurses Association (ENA), with the support of the Emergency Medical Services for Children (EMSC) program, undertook a major revision of these guidelines.3,4 The 2009 joint policy statement is the subject for this policy revision.

The National Pediatric Readiness Project (NPRP), launched in 2013, is an ongoing quality improvement (QI) initiative among the federal EMSC and the AAP, ACEP, and ENA to ensure pediatric readiness of EDs.9 In phase one of the project, hospital ED leaders in all US states and territories were asked to complete a comprehensive Web-based assessment of their readiness to care for children. The assessment was based on the 2009 joint policy statement.3,4 The response rate was 83%, representing more than 4000 EDs.5 The data from this project provide a snapshot of the nation’s readiness to provide care to children in the ED. They also provide information on gaps in readiness at the state and national level, confidential site-specific needs, and recommendations to improve readiness. Key findings include:

1. The majority of children who seek emergency care (69.4%) are cared for in EDs that see fewer than 15 pediatric patients a day, highlighting the need to provide additional pediatric emergency resources to smaller and often rural EDs.
2. The overall median score for the nation was 70 (out of 100 possible points). This represents an improvement when compared with a similar survey completed in 2003 (median score of 55 points).5,13
3. The median score for EDs with a high volume of pediatric patients ( 27 pediatric visits per day) was greater than EDs with medium/medium-high (5–27 pediatric visits per day) or low pediatric volume ( 5 pediatric visits per day).
4. Approximately half of EDs lacked a physician (52.5%) or nurse (40.7%) pediatric emergency care coordinator (PECC). The presence of a PECC is strongly correlated with improved pediatric readiness, independent of other factors.5 Another analysis of hospital-based EDs in the state of California also demonstrated that the presence of a PECC was associated with improved overall pediatric readiness scores.14
5. Fifty-five percent of EDs reported the absence of a QI plan addressing pediatric care and, of those that had a QI plan, 41.7% lacked specific quality indicators for children. The presence of a QI plan that included pediatric-specific indicators was independently associated with improved overall readiness scores in California.14
6. In the absence of participation in a pediatric verification program, trauma center status was not predictive of higher pediatric readiness scores.14
7. Approximately half of hospitals reported lacking disaster plans (53.2%) that include specific care needs for children.5
8. A process to ensure that weights are measured and recorded in kilograms only, a pediatric safety concern, was also lacking in 32.3% of EDs completing the assessment.5

Pediatric Readiness and Pediatric Facility Recognition
The EMSC program has long promoted improved preparedness and recognition of prepared EDs. Current EMSC performance measures address pediatric readiness for children with both traumatic and medical emergencies.10 Performance measure 04 is: “The percent of hospitals recognized through a statewide, territorial or regional standardized system that are able to stabilize and or manage pediatric medical emergencies.” At this time, 11 states have developed such a system (recognizing 8% of all US hospital-based EDs),15 and all have used the 2009 joint policy statement as the basis of their recognition criteria. Some states have published descriptions of the process they used to establish and maintain a pediatric recognition system.14,16

Recognition and verification have been associated with improved readiness scores. Remick et al described an association between higher hospital readiness scores and an on-site verification program in California.14
National data indicate that states that have a recognition/verification system and have achieved EMSC performance measure 04 have readiness score that is an average of 10 points higher than those who do not have such a system. In addition, hospitals that have been recognized scored, on average, 22 points higher on the assessment than those that had not been recognized as pediatric ready by their state (unpublished data from National EMS for Children Data Analysis and Resource Center; www.nedarc.org).

**Pediatric Readiness: Improving the Safety and Quality of Pediatric Emergency Care**

Over the past 15 years, patient safety has become a key priority for health systems. In 2014, the AAP released the revised policy statement “Patient Safety in the Pediatric Emergency Care Setting.” This statement and other recent work have demonstrated the value of specific structural and process measures and improved patient safety and quality of care. For example: a weight-based color-coded medication safety system can decrease dosing errors and improve timeliness of dosing, and order sets, reminders, and clinical practice recommendations embedded within information systems increase adherence to best practices.

Although previous guidelines were consensus based, several recent studies have demonstrated the effects of pediatric readiness on outcomes for children treated in EDs. Some investigators have examined the effect of improved pediatric readiness and/or facility recognition on the quality of pediatric emergency care. Ball et al compared outcomes in children with extremity immobilization and a pain score of five or greater in a state with a medical facility recognition program to similar facilities in a state without a facility recognition program. The children in the state with the recognition system had improved timeliness of the management of pain for fractures and decreased exposure to radiation use. Kessler et al demonstrated that teams of health care providers who practiced in EDs with higher pediatric readiness scores performed better in standardized simulation of the care of children with sepsis. A statewide program in Arizona to improve pediatric readiness of EDs has been associated with a decreased pediatric mortality rate after participation in a verification process based on compliance with published guidelines. Shared resources and coordination of care in emergency care systems is a strategy that may improve pediatric readiness locally, regionally, and nationally. Further research should be supported to evaluate the effects of each of the recommended components of the guidelines on quality of pediatric emergency care.

The information from the pediatric readiness assessment, research described earlier in this policy, and expert opinion from the coauthoring organizations informed this revised statement. These recommendations provide current information on equipment, medications, supplies, and personnel considered critical for managing pediatric emergencies in EDs. This statement also offers recommendations for the administration and coordination of pediatric care in the ED; pediatric emergency care QI, performance improvement (PI), and patient safety activities; policies, procedures, and protocols for pediatric care; and key ED support services. It is believed that all EDs in the United States can meet or exceed these recommendations and that some hospitals, such as those with pediatric critical care capabilities or children’s hospitals with greater resources, will develop and implement even more comprehensive recommendations and share their expertise with their local and regional communities. These updated recommendations are intended to serve as a resource for clinical and administrative leadership of EDs as they strive to improve their readiness for children of all ages.

**I. ADMINISTRATION AND COORDINATION FOR THE CARE OF CHILDREN IN THE ED**

A. Pediatric Emergency Care Coordinator (PECC): A Physician Coordinator identified by the ED Medical Director and a Registered Nurse Coordinator identified by the ED Nurse Director.

Identification of a physician and nurse PECC is central to the readiness of any ED that cares for children.

1. The Physician and Nurse PECCs may be concurrently assigned other roles in the ED (eg, frontline staff designated by leadership) or may oversee more than one program in the ED (ie, Medical or Nursing Director, or as coordinator for trauma, stroke, or STEMI). PECC roles may
be shared through formal agreements with administrative entities, such as within hospital systems, where there is another ED capable of providing definitive pediatric care.

2. Facilitate the following qualifications for Physician and Nurse PECCs:
   a. The Physician PECC is qualified by the facility to provide emergency care. Optimally, the Physician PECC is a board certified/eligible specialist in emergency medicine or pediatric emergency medicine. Otherwise, the Physician PECC must meet the qualifications for credentialing by the hospital as an emergency clinician specialist with special training and experience in the evaluation and management of the critically ill child. The Physician PECC is credentialed by the facility and has verified competency in care of children including resuscitation, per the hospital policy. For EDs with limited resources, this administrative role may be shared with a clinical nurse specialist, nurse practitioner, or physician assistant (ie, advanced practice provider) credentialed to care for patients in the ED.
   b. The Nurse PECC is a registered nurse who possesses special interest, knowledge, and skill in the emergency nursing care of children through clinical experience and demonstrated competence in critical thinking and clinical skills. Where available, a Certified Emergency Nurse (CEN) or preferably a Certified Pediatric Emergency Nurse (CPEN) is desirable. Otherwise, the nurse coordinator has verified competency per hospital policy and may have other credentials such as Certified Pediatric Nurse (CPN) or Certified Critical Care Registered Nurse (CCRN).

3. The Physician and Nurse PECCs work collaboratively and are responsible for the following:
   a. Promote adequate skill and knowledge of ED staff physicians, nurses, and other health care providers and staff (ie, physician assistants, advanced practice nurses, paramedics, and technicians) in the emergency care and resuscitation of infants and children. PECCs should have significant input into the methods for demonstrating competency in pediatric emergency care for their respective disciplines.
   b. Participate in the development of the pediatric components of the QI plan and facilitate QI activities related to pediatric emergency care.
   c. Assist with development and periodic review of ED policies and procedures and standards for medications, equipment, and supplies to ensure adequate resources for children of all ages.
   d. Serve as liaison/coordinator in collaboration with appropriate in-hospital and out-of-hospital pediatric care committees in the community/region and emergency medical services (EMS), trauma, and emergency preparedness coordinators (if they exist).
   e. Serve as liaison to definitive care hospitals, such as regional pediatric referral hospitals and trauma centers, EMS agencies, primary care providers, health insurers, and any other care resources needed to integrate services along the pediatric care continuum, such as pediatric injury prevention, chronic disease management, and community education programs.
   f. Facilitate pediatric emergency medical and nursing education for ED health care providers and staff, including but not limited to the identification of continuing pediatric emergency education resources.
   g. Facilitate inclusion of pediatric specific elements in physician and nursing orientation in the ED.
   h. In coordination with the local credentialing processes, facilitate competency evaluations for staff that are pertinent to children of all ages. Where available, simulation (ie, pediatric scenario based mock codes) has been demonstrated to improve pediatric care in resuscitation and team settings.26,27,28
   i. Facilitate integration of pediatric needs in hospital disaster/emergency preparedness plans and promote inclusion of pediatric patients in disaster drills.29
   j. PECCs should collaborate with ED leadership to enable adequate staffing, medications, equipment, supplies, and other resources for children in the ED.
k. Communicate with ED and hospital leadership on efforts to facilitate pediatric emergency care.

II. COMPETENCIES FOR PHYSICIANS, ADVANCED PRACTICE PROVIDERS, NURSES, AND OTHER ED HEALTH CARE PROVIDERS

A. Physicians, advanced practice providers, nurses, and other ED health care providers, based on their level of training and scope of practice, should have the necessary skill, knowledge, and training in the emergency evaluation and treatment of children of all ages, consistent with the services provided by the hospital.

B. Baseline and periodic competency evaluations completed for all ED clinical staff, including physicians, advanced practice providers, nurses, and other health care providers are age specific and include neonates, infants, children, adolescents, and children with special health care needs. Competencies are determined by each institution’s hospital policy and medical staff privileges as a part of the local credentialing process for all licensed ED staff.

C. Demonstration and maintenance of pediatric clinical competencies may be achieved through continuing education, including participation in local educational programs, professional organization conferences, or national pediatric emergency care courses or through scheduled mock codes or patient simulation, team training exercises, or experiences in other clinical settings, such as the operating room (ie, airway management). Evaluation of such competencies may be achieved through direct observation, chart reviews, written knowledge tests, and/or maintenance of physician or advanced practice provider board certification or nurse certification where pediatric emergency medicine is a significant component of annual continuing education requirements.

D. Potential areas for pediatric competency and professional performance evaluations may include but are not limited to:

1. Assessment and treatment
   a. Triage
   b. Illness and injury assessment and management
   c. Pain assessment and treatment including nonpharmacologic pain management (eg, distraction techniques and comfort holds)

2. Medication administration and delivery

3. Device/equipment safety (eg, low-volume infusion pumps)

4. Procedures
   a. Airway management
   b. Vascular access
   c. Sedation and analgesia

5. Resuscitation
   a. Critical care monitoring
   b. Neonatal resuscitation
   c. Pediatric resuscitation

6. Trauma resuscitation and stabilization
   a. Burn management
   b. Traumatic brain injury
   c. Fracture management
   d. Hemorrhage control
   e. Recognition and reporting of nonaccidental trauma

7. Disaster drills that include triage of pediatric victims, tracking and identification of unaccompanied children, family reunification, and determination of pediatric surge capacity

8. Patient- and family-centered care, including cultural competency

9. Team training and effective communication
   a. Transitions of care/handoffs
   b. Closed loop communication
III. QUALITY IMPROVEMENT/PERFORMANCE IMPROVEMENT IN THE ED

Quality is best assured by evaluating each of the 6 domains addressed by the IOM\textsuperscript{31}: safe, equitable, patient-centered, timely, efficient, and effective. Performance improvement processes are essential to evaluating quality of care, and measurement is integral to PI activities. Pediatric-specific metrics should be carefully identified to assess the quality of care throughout each phase of health care delivery across the emergency care continuum. A pediatric patient care review process is integrated into the QI/PI plan of the ED according to the following recommendations:

A. The potential framework for QI efforts may focus on the effectiveness of structural elements, processes, and clinical outcomes relative to pediatric emergency care. Minimum components of the QI/PI process should include collecting and analyzing data to discover variances, defining a plan for improvement, and evaluating the success of the QI/PI plan with measures that are outcome based. High-level quality improvement efforts facilitate education and training, implementation of targeted system change, and measurement of system performance over time until steady, high-level performance is achieved.

B. The QI/PI plan of the ED shall include pediatric-specific indicators. Pediatric emergency care metrics have been identified (see Table 1) and should be strongly considered for inclusion in the overall QI plan. In addition, performance bundles may be used to assess quality of care provided for specific clinical conditions (eg, pediatric septic shock, pediatric asthma, pediatric closed head injury).

C. Components of the process integrate out-of-hospital, ED, trauma, inpatient pediatrics, pediatric critical care, and hospital-wide QI or PI activities and may interface with regional, state or national QI collaboratives including injury prevention efforts.\textsuperscript{33,34,35,36}

D. Mechanisms are in place to monitor professional performance, credentialing, continuing education, and clinical competencies including integration of findings from QI audits and case reviews for pediatric emergency care.

Numerous resources are available to assist ED staff with implementing QI/PI activities (see Table 2).

IV. POLICIES, PROCEDURES, AND PROTOCOLS FOR THE ED

A. Policies, procedures, and protocols for the emergency care of children are age specific and include neonates, infants, children, adolescents, and children with special health care needs. Staff are educated accordingly and monitored for compliance and periodically updated. These include, but are not limited to, the following:
1. Illness and injury triage
2. Pediatric patient assessment and reassessment
3. Documentation of a full set of pediatric vital signs including core temperature, respiratory rate, pulse oximetry, heart rate, blood pressure (including manual confirmation), pain, and mental status when indicated
4. Identification and notification of the responsible provider of abnormal vital signs (age or weight based)
5. Immunization assessment and management (eg, tetanus and rabies) of the underimmunized patient\textsuperscript{37}
6. Sedation and analgesia (including nonpharmacologic interventions for comfort) for procedures, including medical imaging\textsuperscript{38,39}
7. Consent (including situations in which a parent or legal guardian is not immediately available).\textsuperscript{40}
8. Social and behavioral health issues including belligerent, impaired, or violent parents and patients\textsuperscript{41,42,43}
9. Physical or chemical restraint of patients
10. Child maltreatment mandated reporting and assessment (physical and sexual abuse, sexual assault, human trafficking, and neglect)\textsuperscript{44}
11. Death of a child in the ED\textsuperscript{45,46}
12. Do-not-resuscitate orders
13. Lack of a medical home
14. Children with special health care needs including developmental disabilities (eg, autism spectrum disorders, ventilator-dependent children)
15. Family-centered care,\textsuperscript{47-52} including:
   a. Involving families and guardians in patient care decision making and in medication safety processes
   b. Family and guardian presence during all aspects of emergency care, including resuscitation
   c. Education of the patient, family, and caregivers and guardians
   d. Discharge planning and education
   e. Bereavement counseling
16. Communication with patient’s medical home or primary health care provider at the time of the ED visit (this can help ensure that a judicious and appropriate approach to examination, testing, imaging, and treatment is coordinated and follow-up is arranged in the most cost-effective and up-to-date manner)\textsuperscript{53}
17. Telehealth and telecommunications\textsuperscript{54}
18. All-hazard disaster preparedness plan that addresses the following pediatric issues;\textsuperscript{55}
   a. Availability of medications, vaccines (eg, tetanus and rabies), equipment, supplies, and appropriately trained providers for children in disasters
   b. Pediatric surge capacity for both injured and noninjured children
   c. Decontamination, isolation, and quarantine of families and children of all ages
   d. Minimization of parent-child separation and improved methods for reuniting separated children with their families
   e. Access to specific medical and behavioral health therapies, as well as social services, for children in the event of a disaster
   f. Disaster drills that include a pediatric mass casualty incident at least once every 2 years and that all drills include pediatric patients
   g. The care of children with special health care needs, including children with developmental disabilities

B. Evidence-based clinical pathways, order sets, or decision support should be available to providers in real time. These may be systematically derived, consensus driven, or locally developed based on available evidence. Many children’s hospitals and/or academic centers have developed such clinical pathways. Collaboration with regional pediatric centers and trauma centers may facilitate the use of standard, evidence-based guidelines. An updated and complete list is available on the Pediatric Readiness Web site.\textsuperscript{56-60} (www.pediatricreadiness.org).

C. Hospitals should have written pediatric interfacility transfer procedures and/or agreements that include the following pediatric components\textsuperscript{61-63}:
   1. Defined process for initiation of transfer, including the roles and responsibilities of the referring facility and referral center (including responsibilities for requesting transfer, method of transport and communication)
   2. Transport plan to deliver children safely (including the use of child passenger restraint devices) and in a timely manner to the appropriate facility capable of providing definitive care
   3. Process for selecting the appropriate care facility for pediatric specialty services not available at the hospital; these specialty services may include:
      a. Medical and surgical specialty care
      b. Critical care
      c. Reimplantation (replacement of severed digits or limbs)
      d. Trauma and burn care
      e. Psychiatric emergencies
      f. Obstetric and perinatal emergencies
g. Child maltreatment (physical and sexual abuse and assault)

h. Rehabilitation for recovery from critical medical or traumatic conditions

i. Orthopedic emergencies

j. Neurosurgical emergencies

4. Process for selecting the appropriately staffed transport service to match the patient’s acuity level (ie, level of care required and equipment needed for transport) and appropriate for children with special health care needs

5. Process for patient transfer (including obtaining informed consent)\(^6^4\)

6. Plan for transfer of critical patient information (ie, medical record, imaging, copy of signed transport consent) as well as personal belongings and provision of directions and referral institution information to family

7. Process for return transfer of the pediatric patient to the referring facility as appropriate

8. Integration with telehealth/telecommunications processes and mobile integrated health/community paramedicine as appropriate\(^5^4\)

V. PEDIATRIC PATIENT AND MEDICATION SAFETY IN THE ED

The delivery of pediatric care should reflect an awareness of unique pediatric patient safety concerns and should include the following policies or practices\(^6^5,6^6\):

A. Children should be weighed in kilograms, with the exception of children who require emergency stabilization, and the weight should be recorded in a prominent place on the medical record, preferably with the vital signs.

1. For children who require resuscitation or emergency stabilization, a standard method for estimating weight in kilograms should be used.

B. A full set of vital signs should be recorded and reassessed per hospital policy for all children.

C. Processes for safe medication (including blood products) prescribing, delivery, and disposal should be established and should include the following\(^6^7,6^8\):

1. Use precalculated dosing guidelines for children of all ages

2. Consider adding a pharmacist with pediatric competency to the ED team, especially in large emergency departments, during times of higher volume

3. Identify the administration phase as a high-risk practice (eg, the simple misplacement of a decimal point can result in a tenfold medication error)

4. Promote the inclusion of, or designate distraction free zones for, medication preparation\(^6^9,7^0\)

5. Implement and utilize computerized physician order entry and clinical decision support with pediatric-specific kilogram-only dosing rules, including upper dosing limits, within Emergency Department Information Systems (EDISs)

6. Implement and utilize computerized physician order entry to create allergy alerts for all prescribed medications

7. Practice vigilance for all administered or prescribed medications and consider developing standardized order sets, particularly for high-risk medications, such as opioids and antibiotics

8. Implement an independent 2-provider cross-check process for high-alert medications

9. Create a standard formulary for pediatric high-risk and commonly used medications

10. Standardize concentrations of high-risk medication

11. Reduce the number of available concentrations to the smallest possible number

12. Implement systems that bypass weight-based calculations during pediatric resuscitations and treatment to reduce potentially harmful mistakes

13. Establish a culture of safety surrounding pediatric medication administration that encourages reporting of near miss or adverse medication events that can then be analyzed to feedback into the system in a continuous quality improvement model

14. Ensure that caregivers are well instructed on medication administration, particularly for pain and antipyretic medications, prior to being discharged from the emergency department
D. Pediatric emergency services should be culturally and linguistically appropriate,71 and the ED should provide an environment that is safe for children and supports patient- and family-centered care.48,49,72
   1. Enhance family-centered care by actively engaging patients and families in safety at all points of care and address issues of ethnic culture, language, and literacy.
   2. Direct families to appropriate resources, and review patients’ rights and responsibilities from the perspective of safety.
   3. Include shared decision making.
   4. Utilize trained language interpreter services rather than bilingual relatives.
E. Patient-identification policies, consistent with The Joint Commission’s national patient safety goals, should be implemented and monitored.73
F. Policies for the timely tracking, reporting, and evaluation of patient safety events and for the disclosure of medical errors or unanticipated outcomes should be implemented and monitored, and education and training in disclosure should be available to care providers who are assigned this responsibility.66,74

VI. SUPPORT SERVICES FOR THE ED
A. The radiology department should have the skills and capability to provide imaging studies of children and have the equipment necessary to do so and guidelines to reduce radiation exposure that are age and size specific.74-77
   1. The radiology capability of hospitals may vary from one institution to another; however, every ED should promote on-site radiology capabilities to meet the needs of children in the community.
   2. Medical imaging protocols that address age- or weight-appropriate dose reductions for children receiving studies that impart ionizing radiation, consistent with ALARA (as low as reasonably achievable) principles.78
   3. A process should be established for the referral of children to appropriate facilities for radiological procedures that exceed the capability of the hospital.
   4. A process should be in place for the timely review and interpretation reporting by a qualified radiologist for medical imaging studies in children.
   5. When a patient is transferred from one facility to another, to avoid unnecessary radiation exposure, all efforts should be made to transfer completed images. New technology (eg, cloud sharing or HIPAA protected) may facilitate image sharing between facilities.79
B. The laboratory should have the skills and capability to perform laboratory tests for children of all ages, including obtaining samples, and should have the availability of micro technique for small or limited sample size.
   1. The clinical laboratory capability must meet the needs of the children in the community it serves.
   2. There should be a clear understanding of what the laboratory capability is for any given community, and definitive plans for referring children to the appropriate facility for laboratory studies should be in place.
   3. Protocols should be developed for the screening and administration of blood and blood products for ill or injured children.

VII. EQUIPMENT, SUPPLIES, AND MEDICATIONS
   Pediatric equipment, supplies, and medications shall be easily accessible, labeled, and logically organized (eg, kilogram weight, weight-based color coding, etc).
   A. Medication chart, color-based coding, medical software, or other systems shall be readily available to ED staff to ensure proper sizing of resuscitation equipment and proper dosing of medications based on patient weight in kilograms.
   B. Resuscitation equipment and supplies shall be located in the ED; trays and other items may be housed in other departments (such as the newborn nursery or central supply) with a process to ensure
immediate accessibility to ED staff. A mobile or portable appropriately stocked pediatric crash cart should be available in the ED at all times.

C. ED staff shall be appropriately educated as to the location of all items (Appendix 1).

D. Each ED shall have a daily method to verify the proper location and function of equipment and expiration of medications and supplies.

E. Tables 3a and 3b and Appendix 1 outline medications, equipment, and supplies necessary for the care of children in the ED by qualified health care providers.\textsuperscript{80}

**SUMMARY**
The 2006 IOM report, “Emergency Care for Children: Growing Pains,” uses the word “uneven” to describe the current status of pediatric emergency care in the United States.\textsuperscript{8} Although much progress has been made in the level of pediatric readiness across communities,\textsuperscript{5} there remains a significant opportunity for further progress nationwide. An important first step in ensuring readiness is the identification of a physician and nurse coordinator for pediatric emergency care.

All EDs must be continually prepared to receive, accurately assess, and at a minimum, stabilize and safely transfer acutely ill or injured children. This is necessary even for hospitals located in communities with readily accessible pediatric tertiary care centers and regionalized systems for pediatric trauma and critical care. The vast majority of children requiring emergency services in the United States receive this care in a non-children’s hospital ED, with 69\% of EDs providing care for fewer than 15 children per day.\textsuperscript{5} This relatively infrequent exposure of hospital-based emergency care professionals to seriously ill or injured children represents a substantial barrier to the maintenance of essential skills and clinical competency. Recognition of the unique needs of the ill and/or injured children served by an emergency care facility, including children with special health care needs; the commitment to better meet those needs through adoption of these recommendations; and the ongoing commitment to evaluate care quality and safety and maintain pediatric competencies should provide a strong foundation for pediatric emergency care.

Resources to assist with implementation of all aspects of this document can be found at [www.pediatricreadiness.org](http://www.pediatricreadiness.org).

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Table 1: Sample Performance Measures for Pediatric Emergency Care

<table>
<thead>
<tr>
<th>System-Based Measures</th>
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<tbody>
<tr>
<td>Patient triage</td>
<td>Measurement of weight in kilograms for pediatric patients</td>
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<td>Method to identify age-based abnormal pediatric vital signs</td>
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<tr>
<td>Infrastructure and personnel</td>
<td>Presence of all recommended pediatric equipment in the emergency department</td>
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<td></td>
<td>Presence of physician and nurse coordinators for pediatric emergency care</td>
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<td>Patient-centered care</td>
<td>Patient and/or caregiver understanding of discharge instructions</td>
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<tr>
<td>Emergency department flow</td>
<td>Door-to-provider time</td>
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<td></td>
<td>Total length of stay</td>
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<tr>
<td>Pain management</td>
<td>Pain assessment and reassessment for children with acute fractures</td>
</tr>
<tr>
<td>Quality and safety</td>
<td>Number of return visits within 48 hours resulting in hospitalization</td>
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<td></td>
<td>Medication error rates</td>
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<td>Disease Specific Measures</td>
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<tr>
<td>Trauma</td>
<td>Use of head computed tomography (CT) in children with minor head trauma</td>
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<td>Protocol for suspected child maltreatment</td>
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<td>Respiratory diseases</td>
<td>Administration of systemic steroids for pediatric asthma exacerbations</td>
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<td>Use of an evidence-based guideline to manage bronchiolitis</td>
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<td>Infectious diseases</td>
<td>Use of antibiotics in children with suspected viral illness</td>
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<tr>
<th>Table 2: Examples of Pediatric Emergency Care Performance Improvement Activities and Resources</th>
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<tr>
<td>Clinical Emergency Department Registry (CEDR) <a href="https://www.acep.org/cedr/">https://www.acep.org/cedr/</a></td>
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<td>Committee on Quality Transformation, Section on Emergency Medicine <a href="https://www.aap.org/en-us/about-the-aap/Committees-Councils-Sections/Section-on-Emergency-Medicine/Pages/About-Us.aspx">https://www.aap.org/en-us/about-the-aap/Committees-Councils-Sections/Section-on-Emergency-Medicine/Pages/About-Us.aspx</a></td>
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<td>EMS for Children Innovation and Improvement Center <a href="https://emscimprovement.center">https://emscimprovement.center</a></td>
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<td>Emergency Nurses Association <a href="https://www.ena.org/practice-resources">https://www.ena.org/practice-resources</a></td>
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<tr>
<td>Education in Quality Improvement for Pediatric Practice (EQIPP) <a href="https://eqipp.aap.org/">https://eqipp.aap.org/</a></td>
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<tr>
<td>The National Pediatric Readiness Assessment <a href="https://www.pedsready.org">https://www.pedsready.org</a></td>
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<td>Pedialink, The AAP Online Learning Center <a href="https://pedialink.aap.org/visitor">https://pedialink.aap.org/visitor</a></td>
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<td>Pediatric Readiness Toolkit <a href="https://www.pediatricreadiness.org">https://www.pediatricreadiness.org</a></td>
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<td>Interfacility Tool Kit for the Pediatric Patient <a href="http://www.traumanurses.org/inter-facility-tool-kit-for-the-pediatric-patient">http://www.traumanurses.org/inter-facility-tool-kit-for-the-pediatric-patient</a></td>
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<tr>
<td>PECARN guidelines <a href="http://www.pecarn.org">http://www.pecarn.org</a></td>
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Table 3a. Resuscitation Medications for Use in Pediatric Patients in EDs

- Adenosine
- Amiodarone
- Atropine
- Calcium chloride and/or calcium gluconate
- Epinephrine (1 mg/mL [IM] and 0.1 mg/mL [IV] solutions)
- Lidocaine
- Procainamide
- Sodium bicarbonate (4.2%)
- Vasopressor agents (eg, dopamine, epinephrine, norepinephrine)

Table 3b. Medications to Be Used in the ED for the Care of Children

- Analgesics (oral, intranasal, and parenteral)
- Anesthetics/topical (eg, EMLA [eutectic mixture of local anesthetics], lidocaine 2.5% and prilocaine 2.5%, LET [lidocaine, epinephrine, and tetracaine], L.M.X. 4 [4% lidocaine])
- Anticonvulsants (eg, levetiracetam, valproate, carbamazepine, fosphenytoin, phenobarbital)
- Antidotes (common antidotes should be accessible to the ED)
- Antiemetics (eg, ondansetron, prochlorperazine)
- Antihypertensives (eg, labetolol, nicardipine, sodium nitroprusside)
- Antimicrobials (parenteral and oral)
- Antipsychotics (eg, olanzapine, haloperidol)
- Antipyretics (eg, acetaminophen, ibuprofen)
- Benzodiazepines (eg, midazolam, lorazepam)
- Bronchodilators
- Corticosteroids (eg, dexamethasone, methylprednisolone, hydrocortisone)
- Dextrose (D10W)
- Diphenhydramine
- Furosemide
- Glucagon
- Insulin
- Lidocaine
- Magnesium sulfate
- Mannitol
- Naloxone hydrochloride
- Neuromuscular blockers (eg, rocuronium, succinylcholine)
- Oral glucose or sucrose solutions for pain control in infants
- Sedation medications (eg, etomidate, ketamine)
- Vaccines
  - 3% hypertonic saline

1 For a more complete list of medications used in a pediatric ED, see reference 75.
2 Formerly epinephrine 1:1,000 solution, now 1 mg/mL for IM use or inhalation; 1:10,000 solution now 0.1 mg/mL for IV use.
3 If only sodium bicarbonate 8.4% available, may dilute 1:1 with normal saline before administration in children <2 years of age.
4 For less frequently used antidotes, a procedure for obtaining them should be in place.
5 D10W indicates dextrose 10% in water; may be given at 5 mL/kg.
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35. EMS for Children Innovation and Improvement Center. Facility Recognition Collaborative. Available at: [https://emscimprovement.center/collaboratives/](https://emscimprovement.center/collaboratives/). Accessed May 8, 2017


47. American Academy of Pediatrics, Committee on Hospital Care. Family-centered care and the pediatrician’s role. Pediatrics. 2003;112(3 Pt 1):691-697


75. Brody AS; Frush DP; Huda W; Brent RL; and American Academy of Pediatrics, Section on Radiology. Radiation risk to children from computed tomography. Pediatrics. 2007;120(3):677-682


Appendix 1. Guidelines for Equipment and Supplies for Use in Pediatric Patients in the ED

General Equipment
- Patient warming device (infant warmer)
- IV blood/fluid warmer
- Restraint device
- Weight scale, in kilograms only (no opportunity to weigh or report in pounds), for infants and children
- Standardized chart or tool to estimate weight if resuscitation precludes the use of a weight scale (eg, length-based tape)
- Tool or chart that relies on weight (kg) to assist physicians and nurses in determining equipment size and correct drug dosing (by weight and total volume)
- Pain scale assessment tools appropriate for age
- Rigid boards for use in CPR
- Pediatric-specific AED pads

Monitoring Equipment
- Blood pressure cuffs (neonatal, infant, child, adult-arm, and thigh)
- Doppler ultrasonography devices
- ECG monitor/defibrillator with pediatric and adult capabilities including pediatric-sized pads/paddles
- Pulse oximeter with pediatric and adult probes
- Continuous end-tidal CO₂ monitoring

Respiratory Equipment and Supplies
- Endotracheal tubes:
  - uncuffed: 2.5, 3.0 mm
  - cuffed or uncuffed: 3.5, 4.0, 4.5, 5.0, 5.5 mm
  - cuffed 6.0, 6.5, 7.0, 7.5, 8.0 mm
- Feeding tubes (5F, 8F)
- Laryngoscope blades (curved: 2, 3; straight: 0, 1, 2, 3)
- Laryngoscope handle
- Pediatric Magill forceps
- Nasopharyngeal airways (neonatal, infant, and child)
- Oropharyngeal airways (infant and child, sizes 0-5)
- Stylettes for endotracheal tubes (pediatric)
- Suction catheters (infant and child)
- Rigid suction device
- Bag-mask device (manual resuscitator), self-inflating (infant, child, and adult sizes)
- Clear oxygen masks (standard and nonrebreathing) for an infant, child, and adult
- Masks to fit bag-mask device adaptor (neonatal, infant, child, and adult sizes)
- Nasal cannula (infant, child, and adult)
- Gastric tubes: infant (8F) and child (10F)

Vascular Access Supplies and Equipment
- Arm boards (infant, child, and adult sizes)
- Atomizer for intranasal administration of medication
- Catheter over the needle device (14-24 gauge)
- Intraosseous needles or device (pediatric and adult sizes)
- IV administration sets with calibrated chambers and extension tubing and/or infusion devices with ability to regulate rate and volume of infusate (including low volumes)
- IV solutions to include: NS; D$_3$ 0.45% NS; lactated Ringer, and D$_{10}$W

**Fracture Management Devices**
- Extremity splints, including femur splints (pediatric and adult sizes)
- Cervical collars (infant, child, and adult sizes)

**Specialized Pediatric Trays or Kits**
- Difficult airway supplies/kits (contents to be based on pediatric patients served at the hospital and may include some or all of the following: supraglottic airways of all sizes, such as the laryngeal mask airway; needle cricothyrotomy supplies, surgical cricothyrotomy kit, or video laryngoscopy)
- Newborn delivery kit (including equipment for initial resuscitation of a newborn infant: umbilical clamp, scissors, bulb syringe, and towel)
- Urinary catheterization kits and urinary (indwelling) catheters (infant and child)

**Additional Recommendations for High-Volume EDs (>10,000 pediatric patient visits per year)**
- Alprostadil (prostaglandin E1)
- Central venous catheters (4.0F-7.0F)
- Chest tubes to include infant, child, and adult sizes (infant: 8F-12F; child: 14F-22F; adult: 24F-40F) or pigtail catheter kit (8.5F-14F)
- Hypothermia thermometer
- Inotropic agents (eg, digoxin, milrinone)
- Laryngoscope blade size 00
- Lumbar puncture tray including infant (22 gauge) and pediatric (22 gauge) sized spinal needles
- Noninvasive ventilation (continuous positive airway pressure or high flow nasal cannula)
- Self-inflating bag-mask device, pediatric size$^b$
- Tube thoracostomy tray
- Tracheostomy tubes (tube sizes 0-6)
- Umbilical vein catheters (3.5F and 5.0F)$^d$
- Video laryngoscopy

IV indicates intravenous; ECG, electrocardiography; CO$_2$, carbon dioxide; F, French; NS, normal saline; D$_3$ 0.45% NS, dextrose 5% in normal saline; D$_{10}$W, dextrose 10% in water.

$^a$ End-tidal CO$_2$ monitoring is considered the optimal method of assessing for and monitoring of endotracheal tube placement in the trachea; however, for low-volume hospitals, adult and pediatric CO$_2$ colorimetric detector devices could be substituted. Clinical assessment alone is not appropriate.

$^b$ May substitute anesthesia bag if appropriately trained.

$^c$ Laryngeal mask airways could be shared with anesthesia but must be immediately accessible to the ED.

$^d$ Feeding tubes (size 5F) may be utilized as umbilical venous catheters but are not ideal. A method to secure the umbilical catheter, such as an umbilical tie, should also be available.
The American College of Emergency Physicians (ACEP) believes that a critical component of emergency preparedness is for health care facility staff to use personal protective equipment (PPE) that is appropriate to protect themselves, patients, and others from chemical, biological, and radiological elements (CBRE). Decisions about what type of PPE to use and when it should be used should only be made after thorough analysis of all available information. Guidance should then be appropriately reassessed and modified to assure consistency with evolving information.

Hospitals have standard precautions for blood-borne and respiratory pathogens, but these may not necessarily protect against every hazardous exposure. At the present time, there is little available evidence to help determine the level of PPE needed for health care facility staff in every situation.

Essential protective measures depend heavily on the location of the decontamination area, the role of the health care facility in the community response to hazardous material (HAZMAT) incidents, and the hazard vulnerability analysis (HVA). Critical priorities include: ensuring the safety of the health care facility staff; ensuring continuity of health care facility operations up to and including a possible determination for appropriately controlled hospital access; and providing initial triage and treatment for contaminated or exposed/potentially contaminated patients arriving at the health care facility seeking treatment.

Key elements in the selection process for appropriate PPE levels and decontamination facilities include:

- Forming strategic partnerships with response agencies, professional associations, accrediting bodies, governmental agencies, and others.
- Performing a hospital hazard vulnerability analysis consistent
with community threats.

• Determining initial and on-going training requirements and equipment needs appropriate to the PPE level required at a facility, meeting at least current essential standards as determined by the CDC (Centers for Disease Control and Prevention), and with consideration to other federal regulating and credentialing agencies, such as NIOSH (National Institute of Occupational Safety and Health) and OSHA (Occupational Safety and Health Administration), and other response agency partnerships.

ACEP encourages a continual process of community planning and health care worker education coupled with initial and on-going training. ACEP strongly encourages federal appropriations for adequate research to determine a scientific basis for PPE level and decontamination procedures at hospitals and health care facilities.
Physician credentialing is the process of gathering information regarding a physician's qualifications for appointment to the medical staff, whereas delineation of clinical privileges denotes those specific services and procedures that a physician is deemed qualified to provide or perform. The specific processes for physician credentialing and delineation of clinical privileges must be defined by medical staff and department bylaws, policy, rules, or regulations. Each member of the medical staff must be subject to periodic review as part of the performance improvement activities of the organization.

The American College of Emergency Physicians (ACEP) believes that:

- The exercise of clinical privileges in the emergency department is governed by the rules and regulations of the department;
- The ED medical director* is responsible for periodic assessment of clinical privileges of emergency physicians;
- When a physician applies for reappointment to the medical staff and for clinical privileges, including renewal, addition, or rescission of privileges, the reappraisal process must include assessment of current competence by the ED medical director;

The ED medical director will, with the input of department members, determine the means by which each emergency physician will maintain competence and skills and the mechanism by which the proficiency of each physician will be monitored.

For the purposes of specialty recognition, an emergency physician is defined as one who is certified (or eligible to be certified) by the American Board of Emergency Medicine (ABEM) or the American Osteopathic Board of Emergency Medicine (AOBEM) or an equivalent international certifying body recognized by ABEM or AOBEM in emergency medicine or pediatric emergency medicine, or who is eligible for active membership in the American College of Emergency Physicians."
ACEP believes that the ED medical director* should be responsible for assessing and making recommendations to the hospital’s credentialing body related to the qualifications of providers of emergency care with respect to the clinical privileges granted to them. At a minimum, those applying for privileges as emergency physicians should be eligible for ACEP membership. Board certification by ABEM or AOBEM, or pediatric emergency medicine subspecialty certification by the American Board of Pediatrics is an excellent, but not the sole benchmark for decisions regarding an individual’s ability to practice emergency medicine. Especially in rural areas, physicians who trained in other specialties may provide emergency care and be granted privileges by an objective measurement of care provided, sufficient experience, prior training, and evidence of continuing medical education.

*ED medical director refers to the chair, medical director or their designee.

Reference:
The American College of Emergency Physicians (ACEP) recognizes the need for mental and physical health and well-being among emergency physicians, while assuring patient safety.

Personal health problems including physical or mental illness, injury, aging, burnout, circadian rhythm disruption, substance use disorders, and other conditions can detract from physician performance, and may interfere with a physician’s ability to engage safely in patient care. Personal and professional stressors not rising to the level of health problems may also hinder a physician’s ability to function effectively in the workplace.

The existence of a health problem in a physician is NOT synonymous with occupational impairment. Because of their training and dedication, most physicians with appropriately managed personal health problems and other stressors are able to function safely and effectively in the workplace.

“Physician impairment”, on the other hand, exists when a physician becomes unable to practice medicine with reasonable skill and safety because of personal health problems or other stressors. In most physicians, impairment is a self-limited state that is amenable to intervention, assistance, recovery, and/or resolution.

ACEP endorses the following principles:
• Emergency physician groups, employers, and residency programs should support physician wellness, facilitate physician resiliency, assist with physician burnout prevention, promote early recognition of and non-punitive mechanisms for reporting potential physician impairment, and offer early intervention and treatment or other forms of assistance to help prevent or resolve physician impairment.
• A physician who seeks treatment and assumes the role of patient is entitled to the same rights under state and federal law as any other patient. A physician-patient is owed the same ethical duties owed to any other patient under healthcare professional codes of medical ethics.
• Voluntarily withdrawing from practice while impaired, receiving treatment for a potentially impairing personal health problem, or requesting a federally required accommodation for a disability should not result in retaliation or professional disciplinary action for a physician.
• A currently impaired physician should proactively and voluntarily refrain from the practice of medicine. If a physician is suspected of continuing to practice medicine while currently impaired, colleagues should intervene to ensure that the physician withdraws from practice and is offered assistance until no longer impaired. A currently impaired physician who refuses to voluntarily withdraw from practice may be required by licensing and credentialing bodies to involuntarily refrain from the practice of medicine until found to be no longer impaired. If such action is taken, the physician should be afforded both adequate procedural due process and clearly delineated substantive due process protections.

• Licensing and credentialing bodies that inquire about the physical or mental health of applicants and licensees should be encouraged to use the following language: “Are you currently suffering from any condition for which you are not being appropriately treated that impairs your judgment or adversely affects your ability to practice medicine in a competent, ethical and professional manner?”

• Licensing and credentialing bodies should not ask applicants and licensees about their past history of diagnosis or treatment for mental disorders, substance use disorders, physical disorders, and/or disabilities, focusing instead of current impairment. Licensing and credentialing bodies should provide “safe haven” non-reporting for physician seeking to obtain, renew, or regain licensure who are either currently undergoing treatment or are in stable long-term recovery from those disorders, and who are able to practice medicine with reasonable skills and safety with provision of reasonable accommodations for disabilities when needed.

• Licensing and credentialing bodies should develop written policies that ensure a fair, reasonable, and confidential assessment of any physician who is reasonably suspected of being currently impaired.
  o Such policies should confirm to all state and federal laws and regulations pertaining to disability discrimination, health care privacy, patient rights, and physician health and potential impairment.
  o Such policies should include provisions regarding the return to practice of a previously impaired emergency physician who is licensed and has recovered the ability to practice medicine with reasonable skills and safety.
  o Such policies should delineate mechanisms for compliance with state and federal laws and regulations requiring reasonable accommodations for otherwise qualified physicians with disabilities.

1 Adapted from: Federation of State Medical Board, April 2018, “Physician Wellness and Burnout”. Retrieved from http://www.fsmb.org/siteassets/advocacy/policies/policy-on-wellness-and-burnout.pdf

POLICY STATEMENT

Physician Medical Direction of Emergency Medical Services Education Programs

The American College of Emergency Physicians (ACEP), the National Association of EMS Physicians (NAEMSP), and the National Association of EMS Educators (NAEMSE) believe that changing technology, advances in research, and changing health care delivery systems, require the active involvement of knowledgeable, identifiable, and responsible physician medical directors in the provision of emergency medical services (EMS) education programs, including initial and continuing education programs.

The role of the physician medical director of an EMS education program is:

• To approve the medical and academic qualifications of the faculty, the accuracy of the medical content, and the accuracy and quality of medical instruction given by the faculty; to routinely review student performance and progress and attest that the students have achieved the desired exit-level of competence prior to graduation; and
• To participate in faculty selection and curriculum development, maintain authority over presentation of medical content, and to assure that faculty teach medical practice in accordance with the best available evidence and current standards of prehospital care.
• To serve as an active member of the program’s education team helping to ensure quality instruction and student success.

The physician medical director's qualifications should include:

• knowledge of current EMS scope of practice and legislation relating to education programs;
• training and experience in emergency care delivery and medical direction of EMS systems; and
• appropriate credentials attesting to experience in coordinating and teaching related education programs.

The physician medical director’s qualifications will meet or exceed those described in the Standards and Guidelines for the Accreditation of Educational Programs in the Emergency Medical Services Professions. The
standards are published by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) upon the recommendation of the Committee on Accreditation of Educational Programs for the Emergency Medical Services Professions (CoAEMSP) and reflect broad consensus on behalf of emergency medicine related agencies. The physician medical director should be provided with compensation commensurate with responsibility.
The American College of Emergency Physicians (ACEP) believes:

- Reporting of potentially impaired drivers should be individualized to the patient’s clinical condition and the clear risk posed to the patient and public by continued driving; and
- Physicians exercising good faith clinical judgments should have protection from liability for their reporting actions.

ACEP opposes mandatory reporting of entire classes of patients or diagnoses (e.g., epilepsy) unless compelling evidence exists for a public health benefit for such reporting.
ABSTRACT. Point-of-care ultrasonography is increasingly being used to facilitate accurate and timely diagnoses and to guide procedures. It is important for pediatric emergency medicine physicians caring for patients in the emergency department to receive adequate and continued point-of-care ultrasonography training for those indications used in their practice setting. Emergency departments should have credentialing and quality assurance programs. Pediatric emergency medicine fellowships should provide appropriate training to physician trainees. Hospitals should provide privileges to physicians who demonstrate competency in point-of-care ultrasonography. Ongoing research will provide the necessary measures to define the optimal training and competency assessment standards. Requirements for credentialing and hospital privileges will vary and will be specific to individual departments and hospitals.

Key words: ultrasound, ultrasonography, point of care, emergency department, imaging.

ABBREVIATIONS: US, ultrasonography; ED, emergency department; ACEP, American College of Emergency Physicians; PEM, pediatric emergency medicine; CT, computed tomography.

Point-of-care ultrasonography (US) is a focused ultrasonography performed and interpreted at the patient’s bedside by a health care provider in conjunction with his/her clinical examination. Point-of-care US can expedite clinical decision making, direct follow-up diagnostic imaging, aid in procedural guidance and improve patient satisfaction. Point-of-care US is focused to answer specific yes/no questions in real-time. The point-of-care US examination has important qualities as an imaging modality. There is no need to transport a patient outside of the emergency department (ED), examinations can be performed at all hours, examinations may be repeated,
and there is no ionizing radiation exposure. Moreover, it may help direct further evaluation so as to avoid unnecessary and costly testing.

Clinician-performed US has been used and accepted since the 1960s, when obstetricians and cardiologists first adopted the technology. Use of US by those specialists is endorsed by various professional radiology organizations. At present, nonphysician providers, such as nurses and prehospital care workers, are also using point-of-care US as a part of their practice.

HISTORY OF EMERGENCY PHYSICIAN POINT-OF-CARE ULTRASONOGRAPHY
In 1990, the American College of Emergency Physicians (ACEP) published a position statement supporting the performance of US by appropriately trained emergency physicians. The next year, the Society of Academic Emergency Medicine endorsed that statement and called for a training curriculum, which Mateer and colleagues published in 1994. By 1996, the published emergency medicine core content included point-of-care US for residency graduates. With the passage of the American Medical Association Resolution 802 and policy H-230.960 in 1999 “recommending hospital [privileging] committees recognize specialty-specific guidelines for US credentialing decisions,” emergency physicians were given full responsibility for developing the guidelines of their field. By 2001, the Accreditation Council for Graduate Medical Education mandated that all emergency medicine residents attain competency in the use of point-of-care US, and the ACEP published the first emergency ultrasonography guidelines. In 2008, the ACEP published an update to the original guidelines, thereby establishing the most comprehensive specialty-specific training and practice to date. Subsequently, the Society of Academic Emergency Medicine, the Council of Emergency Medicine Residency Directors, and the American Institute of Ultrasound in Medicine officially recognized that document. Currently, guidelines from the Council of Emergency Medicine Residency Directors consensus documents from 2009 and 2012 are a mainstay for residency education. In addition, competency assessment tools for the evaluation of emergency medicine residents are being considered.

POINT-OF-CARE ULTRASONOGRAPHY IN PEDIATRIC EMERGENCY MEDICINE
More recently, pediatric emergency medicine (PEM) physicians have been using point-of-care US for patient care. According to a survey from 2011, 95% of EDs with a pediatric emergency medicine fellowship program utilize point-of-care US in some manner, and 88% of programs provide training in point-of-care US for their fellows. This is a dramatic increase, as only 57% of programs reported the use of point-of-care US in 2006 and only 65% at that time incorporated training for their fellows. Despite the growing use of point-of-care US by pediatric emergency physicians, there have been no published guidelines specific to pediatric emergency providers. The indications set forth in existing policy statements are written for emergency physicians who predominantly care for adult patients.

MINIMIZING RADIATION EXPOSURE
One of the appealing aspects of US is its inherent safety. It relies on sound waves and not x-rays to generate images. In many instances, computed tomography (CT) imaging or radiography are the optimal diagnostic modalities in the evaluation of the pediatric patient; however, there is an increasingly large body of literature emphasizing and delineating the risks of ionizing radiation, particularly from CT. Pediatric patients are particularly sensitive to ionizing radiation, given the larger organ-specific dosing they receive with each study, the increased susceptibility of these organs to radiation-induced cancer, and the increased lifespan over which children may develop radiation-induced cancers. In response to this risk, several national campaigns have been initiated to reduce the use of unnecessary CT imaging in pediatric patients. These include efforts by the Society for Pediatric Radiology, the National Council on Radiation Protection and Measurements, the Food and Drug Administration, and the National Cancer Institute. In summary, when imaging is indicated, practitioners should attempt to optimize the use of nonradiating diagnostic modalities, such as US.
INDICATIONS FOR POINT-OF-CARE ULTRASONOGRAPHY

Pediatric emergency medicine physicians can use point-of-care US as a diagnostic or procedural adjunct in the evaluation of patients in the ED. Diagnostic applications are those that assist in diagnosis and inform medical decision-making. Procedural applications may be “US-assisted” or “static,” or “US-guided,” also referred to as “dynamic.” Static US is defined as using US prior to the procedure, identifying anatomic structures, and determining the ideal circumstances for the procedure to be performed. The procedure itself is performed without the use of US. In contrast, in dynamic US, the US and procedure are performed simultaneously.

Clinical applications will be practice-specific and based on the patient population, incidence of disease, and the availability of resources, such as 24-hour attending radiologist coverage, availability of US technicians, and distance/transfer times to facilities that can provide US imaging. ED leaders should determine which point-of-care US examinations will be most useful to their practice environments. Physicians would then apply for institutional privileges in those specific areas. There will be a natural transition period for physicians who did not receive point-of-care US education as part of their graduate medical training. Therefore, the indications for which clinicians use point-of-care US will evolve over time as the education is disseminated throughout the PEM community. Finally, clinicians should be aware that point-of-care US is better used as a “rule-in” and not a “rule-out” diagnostic modality. The absence of an abnormal finding should not indicate a normal examination. For example, nonvisualization of an intussusception with high clinical concern must prompt further evaluation. Likewise, when findings other than those sought to “rule in” a diagnosis are encountered, a more complete imaging evaluation is warranted.

POINT-OF-CARE ULTRASONOGRAPHY TRAINING, CREDENTIALING, AND PRIVILEGING

Prior to implementing a program in the ED, departmental leaders should identify a core group of individuals with expertise in point-of-care US. This group is responsible for educating faculty and trainees as well as managing administrative tasks, such as outlining credentialing pathways and performing quality assurance image reviews. Standardized and universally accepted criteria for what designates a point-of-care expert are likely to evolve over time as advanced training programs are established. In departments or divisions without point-of-care US-trained individuals, departmental leadership should consider sending an individual or group of individuals with interest to receive additional training in point-of-care US. Alternatively, an expert from another department (eg, general emergency medicine, radiology) may assume these responsibilities and work collaboratively with ED leaders.

Point-of-care US training varies depending on the practitioner’s prior education and practice environment. Until now, most PEM physicians have received little or no point-of-care US instruction as part of their training. It is important that PEM fellowship programs provide adequate training including measurements of competency for trainees. Point-of-care US education is now an American Board of Pediatrics requirement for Pediatric Emergency Medicine fellowship programs. Consensus education guidelines and a model curriculum were recently published. There are 2 training pathways for physicians: a “training-based” pathway for current trainees, and a “practice-based” pathway for faculty without prior experience. The details of such pathways are outlined in the accompanying technical report.

Prior to performing a point-of-care US examination for medical decision-making, PEM physicians must demonstrate application-specific competency. During this “training” phase, the point-of-care US expert should review all US examinations within a timely manner. Practitioners can receive relevant feedback regarding their examinations. In addition, novice practitioners should be supervised at the bedside in order to ensure that the examinations are being performed correctly. Examination reviews and bedside supervision may be performed by a department or division “expert” or by another physician already credentialed to perform US for that indication. These educational scans should not be utilized for medical decision-making and this should be clearly communicated to patients and their families.
Given that a point-of-care US examination is intended to be a focused examination, training requirements necessarily differ from those set forth by other specialty organizations, such as the American College of Radiology and other specialty organizations. A similar distinction was made in the 2002 training guidelines adopted by the American Society of Echocardiography, which outlined basic training requirements for anesthesiologists performing perioperative echocardiography, which differed from the more rigorous training needed for more consultative cardiology-performed echocardiography. Competency and subsequent credentialing within a division or department may be achieved after performing a specified number, or range, of accurately performed and interpreted point-of-care US examinations. With the lack of robust data supporting a specified number of examinations per indication, some guidelines suggest 25 to 50 examinations needed to achieve competency. However, physicians should not interpret this recommendation as a “one-size-fits-all” approach, as examinations vary in difficulty and, therefore, may require more experience to establish competency. In addition, the number of examinations performed may not always best define competency. As point-of-care US incorporates both cognitive and psychomotor components, individual physicians may gain competency at varying rates that may be independent of a predetermined numerical goal and better assessed through simulation, observed structured clinical examinations, or direct observation during clinical shifts.

Hospital privileging committees should provide an opportunity for privileging in specific pediatric point-of-care US examinations. Written requirements for privileging should be delineated. Building on the recommendations set forth by the ACEP, when a physician applies for appointment or reappointment to the medical staff and for clinical privileges, the process should include assessment of current competency by the point-of-care US director. Because point-of-care US is a relatively new technology for PEM physicians, some specialists and hospital privileging committees may not be familiar with the precedent already set forth for point-of-care US and the benefits to patient care. Therefore, PEM physicians should educate those who are unfamiliar with its use, citing the established literature attesting to emergency physicians’ ability to accurately perform and interpret point-of-care US examinations. Additionally, emergency PEM physicians should consider collaboration with radiologists and expert sonographers when implementing point-of-care US into their ED.

POINT-OF-CARE ULTRASONOGRAPHY DOCUMENTATION

Once PEM physicians are credentialed to perform point-of-care US for a particular application, they can integrate the point-of-care US examination into patient care. Details of the point-of-care US examination must be documented at the time of performance in the medical record. Specifically, documentation should include the indication for the examination, structures/organs identified, and the interpretation. If the study is inadequate, this should also be noted. Images should be archived, ideally electronically, and entered as part of the electronic health record, for ease of retrieval and review.

RECOMMENDATIONS

1. Pediatric emergency medicine physicians should be familiar with the definition and application of point-of-care US and the utility for patients in the ED.
2. Pediatric emergency physicians who integrate point-of-care US in their patient care should be competent in point-of-care examinations that are specific and relevant to their clinical environment.
3. For EDs with a pediatric emergency medicine point-of-care US program, there must be a process in place for educating and assessing practitioner skill, maintaining quality assurance, and acquiring and maintaining hospital privileges.
4. Pediatric emergency medicine fellowship programs should have a structured point-of-care US education curriculum and competency assessment for fellows in training.

SUMMARY

There is an increasing demand for PEM physicians to become adept in point-of-care US. Mounting evidence supports the benefits to pediatric patients. This policy statement and accompanying technical
report have been developed to define a structured and safe program for the integration and implementation of point-of-care US by PEM physicians.

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The guidance in this statement does not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

All policy statements from the American Academy of Pediatrics automatically expire 5 years after publication unless reaffirmed, revised, or retired at or before that time.

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References:


22. American Medical Association policy H-230.960. Privileging for ultrasound imaging. Available at:


80. Cross KP, Warkentine FH, Kim IK, Gracely E, Paul RI. Bedside ultrasound diagnosis of clavicle...


Prescription Drug Pricing

The American College of Emergency Physicians (ACEP) believes that rising drug prices threaten the health and financial well-being of the patients served by its members. In addition, the high cost of pharmaceutical agents leads to patient non-adherence, avoidable return visits to the emergency department and admissions to the hospital, increased days missed from school and/or work, as well as poor patient and provider satisfaction. Furthermore, ACEP believes:

• Value-based pharmaceutical pricing is a promising strategy to ensure that the benefits of a given drug are commensurate with the price charged.

• The current law that prohibits Medicare from negotiating drug prices with manufacturers should be repealed or amended to support drug price negotiation as a strategy to reduce healthcare costs for patients and insurers. At a minimum, Medicare Part D beneficiaries should be able to share directly in the savings from discounts negotiated by Part D plans by requiring such plans to apply a portion of the total rebates and price concessions at the point-of-sale.

• Electronic health record vendors and health systems should support the integration of drug price information that is accessible to clinicians at the point-of-care, when available. This should include pricing for both hospital-administered and prescribed medications and should provide decision-support tools to suggest equally effective alternatives when quality evidence exists to inform such decisions.
The American College of Emergency Physicians (ACEP) affirms the principle that patients should receive prompt emergency care regardless of payment source or ability to pay.

ACEP asserts that prior authorization rules instituted by third party payers must not pose a barrier to patients seeking access to timely emergency care. ACEP further asserts that insurance companies have an obligation to pay for necessary evaluation, stabilizing treatments, and/or appropriate transfer and that an insured patient should be granted the expectation of coverage when seeking emergency care.

Insurance coverage does not affect the obligation of the physician to perform a medical screening examination and provide necessary stabilizing treatment or appropriate transfer, nor the financial obligation incurred for such evaluation and care.
Procedural Sedation in the Emergency Department

Approved June 2017

A joint policy statement of the American College of Emergency Physicians and the Emergency Nurses Association

Procedural sedation is a technique of administering sedatives or dissociative agents with or without analgesics to induce a state that allows the patient to tolerate unpleasant procedures. Procedural sedation improves the quality and safety of patient care by decreasing the length of time necessary to perform a procedure, increasing the likelihood of success, and reducing risk of injury to the patient or health care worker due to uncontrolled movements.

Procedural sedation encompasses a continuum of altered levels of consciousness (including minimal, moderate, and deep), and dissociative sedation.

Procedural sedation is a critically important component of comprehensive emergency care and a required core competency of emergency medicine residency training. This training includes rescue airway interventions for support of patient ventilation and oxygenation, as well as support and monitoring of patient cardiovascular status.

Evidence in the medical literature has established that procedural sedation, including minimal, moderate, deep, and dissociative sedation, can be safely and effectively performed in the emergency department by emergency physicians, both in the care of adult and pediatric emergency populations.

There is no single agent or combination of agents that can be recommended for every patient or sedation procedure. Clinicians must weigh the relative needs for pain control (analgesia), sedation, and the potential risks, benefits, and alternatives when individualizing their plan for patient sedation.

Agents commonly used for sedation of patients in the emergency department include but are not limited to opioids, benzodiazepines, and barbiturates as well as other specific agents such as ketamine, propofol, remifentanil, alfentanil, dexmedetomidine, etomidate, and nitrous oxide.
In addition to pharmacologic agents, adjunctive techniques, such as regional, local, and topical anesthesia, and nonpharmacologic techniques should be used as needed to reduce patients’ fear, discomfort, and anxiety.

Nothing by mouth (NPO) status has not been demonstrated to reduce risk of emesis or aspiration in ED procedural sedation.

The American College of Emergency Physicians is the authoritative body for the establishment of guidelines for sedation of patients in the emergency department. To promote the safe and effective use of sedation in emergency department patients, the American College of Emergency Physicians recommends the following:

- Emergency physicians who have received the appropriate training and skills necessary to safely provide procedural sedation, such as board certification (ABEM/ABOEM) in emergency medicine or graduates of an ACGME accredited emergency medicine program, should be credentialed without additional requirements for procedural sedation.

- The decision to provide sedation and the selection of the specific pharmacologic agents should be individualized for each patient by the emergency physician and should not be otherwise restricted.

- Emergency physicians and staff are expected to be familiar with the pharmaceutical agents they use and be prepared to manage their potential complications.

- To minimize complications, the appropriate drugs and dosages must be chosen and administered in an appropriately monitored setting. Patient evaluation should be performed before, during, and after their use.

- Institutional and departmental guidelines related to the sedation of patients should include the selection and preparation of patients, informed consent, equipment and monitoring requirements, hospital staff training and competency verification, criteria for discharge, and continuous quality improvement.

- Emergency department physician and nursing leadership should have ongoing collaboration to develop institutional policy regarding nursing roles in sedation and the ability of nurses to administer sedatives. Emergency nurses with demonstrated competencies are qualified and capable to safely administer propofol, ketamine, and other sedatives.
It is the position of the American College of Emergency Physicians that emergency physicians who provide services to patients during a time of contract transitions should be fully compensated for their professional efforts without delay, barrier, or requirement to continue employment with a specific party. This compensation should include monetary compensation as well as uninterrupted provision of benefits and malpractice coverage. Parties involved in contract transitions, including contract management groups and the hospitals and health systems involved, have a responsibility to meet these obligations immediately and not use such a transition as leverage in the contract process.
The American College of Emergency Physicians (ACEP) believes that workplace violence is a preventable and significant public health problem and that optimal patient care can be achieved only when patients, health care workers, and all other persons in the emergency department (ED) are protected against violent acts occurring within the department. As such, ACEP advocates for increased awareness of violence against health care workers in the ED and for increased safety measures in all EDs. Further, ACEP encourages all states to enact legislation that provides a maximum category of offense and criminal penalty against individuals who commit violence against health care workers in the ED.

To ensure the safety and security of the ED environment, the hospital and its administrators have the following responsibilities:

- Provide an ED security system based upon institution-specific risk assessment that includes adequate security personnel, sufficient training of personnel, physical barriers, surveillance equipment, and other security components.
- Conduct ongoing assessments of the ED security system performance.
- Coordinate the hospital security system with local law enforcement agencies.
- Develop written ED protocols with input from employees for violent situations occurring in the ED to ensure the safety of patients, visitors, and health care workers alike.
- Educate staff through formal, regular training on early recognition of individuals with potential to become violent, techniques for de-escalation, non-violent crisis intervention, and importance of seeking assistance.
- Develop and enforce a mandatory reporting policy that requires employees to promptly report any verbal or physical assault. Such policies should clearly state that reporting will not result in any adverse action by the hospital such as termination, threatening to terminate, demoting, suspending, or in any manner discriminating against an employee who reports an assault.
• Adopt a zero tolerance policy for employees, patients, and visitors that states that any violence in the ED is not acceptable. Educate employees that any assault is not considered “part of the job.”
• Provide appropriate post-incident support for employees involved in violent events including prompt medical treatment, debriefing, counseling, and employee assistance.
• Pursue maximum criminal prosecution, when deemed appropriate, against those individuals who commit violent acts against health care workers.

Additionally, ACEP recognizes that the EMS system is an integral component of emergency care and supports and encourages efforts to protect EMS personnel against physical violence in the prehospital environment.
The American College of Emergency Physicians (ACEP) endorses the 2000 position statement of the Society for Academic Emergency Medicine (SAEM) on the “Qualifications for Unsupervised Emergency Department Care,” and believes that the independent practice of emergency medicine is best performed by specialists who have completed American Board of Emergency Medicine (ABEM) or American Osteopathic Board of Emergency Medicine (AOBEM) certification, or have successfully “completed an Accreditation Council for Graduate Medical Education (ACGME) or American Osteopathic Association (AOA) accredited emergency medicine residency, and is in the process of completing ABEM or AOBEM examinations.”

“Residents-in-training or other physicians who do not meet these criteria are less likely to possess the cognitive and technical skill set necessary for rendering unsupervised care for the tremendous breadth and acuity of situations encountered in an ED.”

ACEP believes that advanced practice registered nurses or physician assistants should not provide unsupervised emergency department care.

ACEP believes that “unsupervised ED practice is best provided by fully trained emergency medicine specialists.”

Emergency departments (EDs) often receive telephone calls from the public seeking medical advice. The focus of the ED is providing care for patients in the department and ACEP recommends that EDs do not attempt medical assessment or management by telephone. EDs should have a process for responding to calls from the public to help direct the public to timely access to appropriate care. ACEP encourages EDs to work with regional support services that may include but are not limited to medical call lines, telehealth services, and toxicology services creating an emergency network for patients to access timely and appropriate care.
POLICY STATEMENT

Quality Improvement Initiatives for the Care of Geriatric Patients in the Emergency Department

The American College of Emergency Physicians (ACEP) recognizes that the care of geriatric patients provides both unique challenges and opportunities for improvement in outcomes and patient experience. ACEP supports the continued development of quality improvement initiatives for the care of geriatric patients in the emergency department.

Some general categories and potential indicators of quality in the care of elderly patients, as outlined in the *Geriatric Emergency Department Guidelines*,¹ include, but are not limited to the following:

- **Clinical**
  - Optimal patient outcomes
  - Pain management
  - Geriatric-focused screening tools
  - Integration of geriatric psychiatry
- **Operational**
  - Admission/readmission rates
  - ICU admission rates
  - Use of observation units
  - Length of stay in acute care setting
- **Safety**
  - Falls
  - Iatrogenic complications
  - Medication appropriateness, interactions, errors (including polypharmacy)
- **Care management**
  - Transitions of care
  - Discharge planning
  - Outpatient follow-up
  - Home health services, hospice, and palliative medicine
  - Caregiver (ie, family, power of attorney) support
- **Structural**
  - Emergency department staffing and expertise
  - Physical environment

Approved April 2016
Rapid-sequence intubation (RSI) is an important technique for airway management of patients in the emergency department and is in the domain of emergency medicine practice. RSI is defined as a technique where a potent sedative or induction agent is administered virtually simultaneously with a paralyzing dose of a neuromuscular blocking agent to facilitate rapid tracheal intubation. The technique includes specific protection against aspiration of gastric contents, provides excellent access to the airway for intubation, and permits pharmacologic control of adverse responses to illness, injury, and the intubation itself. The American College of Emergency Physicians recognizes the role of RSI in modern emergency care and supports the following principles.

- Physicians performing RSI should possess training, knowledge, and experience in the techniques and pharmacologic agents used to perform RSI.

- Neuromuscular blocking agents and appropriate sedative and induction agents should be immediately available in the ED and accessible to all physicians who perform RSI in the ED.

- Quality review and patient monitoring should be addressed when policies about RSI are developed in the ED.
Recognition of Subspecialty Boards in Emergency Medicine

The American College of Emergency Physicians (ACEP) recognizes the American Board of Medical Specialties (ABMS) and the American Osteopathic Association (AOA) as the only umbrella organizations authorized to establish and regulate medical specialty boards in the United States.

ACEP recognizes and supports the American Board of Emergency Medicine (ABEM), the American Osteopathic Board of Emergency Medicine (AOBEM), and the American Board of Pediatrics (ABP) as the certifying bodies in emergency medicine and pediatric emergency medicine.

ACEP believes the broad discipline of emergency medicine provides opportunities for the development of focused areas of special competence and expertise. The ABMS and AOA provide mechanisms whereby a parent board can recognize such special competence through subspecialty certification or certificates of added qualification. Through these processes, ABEM and AOBEM offer appropriately trained and credentialed diplomates the opportunity to sit for examinations to demonstrate their special competence. Successful candidates are awarded subspecialty certification or a certificate of added qualification.

ACEP recognizes only those emergency medicine subspecialty certifications developed and maintained through the ABMS/AOA process.

Appropriately trained and credentialed ABEM diplomates are eligible to sit for certification examinations in the subspecialties of Anesthesiology Critical Care Medicine, Emergency Medical Services, Hospice and Palliative Medicine, Internal Medicine-Critical Care Medicine, Medical Toxicology, Neurocritical Care, Pain Medicine, Pediatric Emergency Medicine, Sports Medicine, and Undersea and Hyperbaric Medicine. ACEP recognizes that ABEM-certified physicians can obtain subspecialty certification offered by other ABMS member boards in Addiction Medicine, Brain Injury Medicine, Clinical Informatics, and Surgical Critical Care.
AOBEM diplomates are eligible to sit for examinations to establish Certification of Added Qualification in Emergency Medical Services and Medical Toxicology. ACEP recognizes that AOBEM-certified physicians can obtain subspecialty certification offered by AOA Conjoint Examination Committees in Hospice and Palliative Care, Sports Medicine, and Undersea and Hyperbaric Medicine.

All future subspecialty board certifications and focused practice designations approved by ABEM or certificates of added qualification approved by AOBEM will be recognized by ACEP.
ACEP endorses in principle federal laws, state legislation, or constitutional amendments to implement tort legal reforms, including but not limited to the following:

- Limitation of liability for non-economic damages;
- Holding judges accountable for the quality of scientific evidence presented in medical malpractice litigation;
- Joint and several liability;
- Recognition of collateral sources of compensation in granting awards;
- Structured payment systems for damage awards;
- Reduction of term length in statutes of limitation;
- Controls on attorney’s contingency fees;
- Qualifications for expert witnesses;
- Apologies without admissibility;
- Sovereign immunity for EMTALA required services;
- Recognition of local standards of care in rural areas;
- Immunity for following guidelines; and
- Pilot programs to study innovation such as health care courts and publishing expert witness opinions.
The American College of Emergency Physicians (ACEP) recognizes Emergency Medical Services (EMS) as a subspecialty practice of medicine. As such, the clinical practice of EMS Medicine requires commitment to evidence-based decisions, patient safety, and continuous quality improvement throughout all aspects of EMS systems. Decisions regarding clinical care and capabilities enabled by medical equipment chosen within an EMS system should be consistent with the following principles:

- Clinical standards of care developed, established, and promulgated by EMS physician medical directors, in the form of clinical care guidelines or protocols, form the foundation of an EMS system’s provision of patient care.

- The medical equipment lists for apparatus and personnel in an EMS system must fully align with its clinical care guidelines or protocols of efficient, effective medical care and optimal patient outcomes.

- The authority (eg, EMS system physician medical director, EMS system physician advisory board, regional or state EMS physician oversight committee) responsible for applicable clinical care guidelines or protocols development, establishment, and promulgation should also be the authority for related medical equipment lists for apparatus and personnel in an EMS system to ensure alignment.
The American College of Emergency Physicians recognizes that vaccines effectively and significantly reduce the spread of vaccine-preventable infectious diseases, providing great substantial individual and public health benefits. Vaccines can cause minor adverse events, such as fever or localized reaction at the injection site, as well as rare, yet serious adverse events such as seizure and severe allergic reaction.

The American College of Emergency Physicians acknowledges the National Childhood Vaccine Injury Act of 1986 and reporting of adverse events to the Vaccination Adverse Event Reporting Systems (VAERS). Reporting into VAERS can be completed by anyone, including clinical providers, patients and their families. The link below provides information on how to report. The primary purpose of VAERS is to identify unexpected adverse events associated with the use of vaccines, allowing the Centers for Disease Control and Prevention (CDC) and Food and Drug Administration (FDA) to evaluate and address potential safety concerns.

The American College of Emergency Physicians (ACEP) endorses Medicare funding to train residents for practice in non-urban and underserved areas and encourages an RRC-EM pilot or demonstration project to train emergency medicine residents to practice in non-urban and underserved areas.
The American College of Emergency Physicians (ACEP) believes that the best patient care occurs when there is no ambiguity as to which physician is responsible for each patient. Because admitted patients are sometimes held in the emergency department during the admission process, confusion may occur regarding which physician is responsible for an admitted patient’s care.

For these reasons, ACEP endorses the following principles concerning admitted patients:

- Hospital policy and procedures should clearly delineate that once an admitting physician has accepted a patient, that admitting physician has assumed responsibility for the patient.
- The responsibility for an admitted patient’s medical care rests with the admitting physician, regardless of the location of an admitted patient within the hospital.
- Emergency physicians may provide care to any admitted patient during a medical emergency.
- Emergency physicians should not be obligated to provide care to admitted patients during a medical emergency unless indemnified by the hospital or covered by the facility’s professional liability insurance policy.
The American College of Emergency Physicians (ACEP) recognizes the increasing prevalence of retail-based clinics, and believes the following attributes are important to patient care:

- **Scope of Service:** Retail-based clinics should have a well-defined and limited scope of clinical services. Prior to services being rendered, retail-based clinics should provide a clear and concise summary of their scope of services, as well as indicate the qualifications of the on-site health care personnel. Marketing materials should also reflect the qualifications of the on-site health care personnel.

- **Staffing:** Allied health personnel at retail-based clinics, such as nurse practitioners and physician assistants, should operate under appropriate physician supervision and in accordance with local and state regulations, and licensure requirements.

- **Coordination of Care:** Retail-based clinics should establish and maintain collaborative relationships with other area physician practices, clinics, hospitals, and emergency departments in order to maximize effective resource utilization and information exchange within the community. Retail-based clinics should encourage all patients to have a primary care physician and provide information leading to appropriate referrals to local medical practices for ongoing care.

- **Patient Health Records:** Retail-based clinics must maintain a system of medical records that are accurate, complete, easily accessible, and retrievable. Information from the clinical encounter should be made readily available to the patient’s primary care physician.

- **Referrals:** The retail-based clinic must have a well-defined referral system for patients who present with symptoms beyond the clinic’s defined scope of clinical services. These guidelines should include: indications for transfer, transfer agreements, detailed protocols for effective communication and transfer of information, and consideration of appropriate methods of transportation.

- **Patient Protection:** Retail-based clinics should be regularly inspected and subject to well-defined state and local standards and regulations. Policies and procedures must be in place to ensure adequate protection of patients and families with regard to HIPAA requirements, patient confidentiality, appropriate transfer of medical information, and infection
control. Retail-based clinics should have formal plans and protocols to handle emergency complications of the care that is provided.

- **Quality of Care:** Clinical services must be evidence-based and quality improvement oriented.
Reversal of Non-Vitamin K Antagonist Oral Anticoagulants (NOACs) in the Presence of Major Life-Threatening Bleeding

Approved June 2017

Non-vitamin K antagonist oral anticoagulants (NOACs) have gained popularity as alternatives to warfarin for the prophylaxis of stroke and thromboembolic disease as well as treatment for thromboembolic disease. This increased use is being driven by the drugs’ benefits including less frequent monitoring, almost no dietary restrictions, and fewer drug-drug interactions than warfarin. However, limitations in reversal of NOACs can complicate management in patients who present with major life-threatening bleeding while taking these drugs.

There are two broad categories of NOACs: direct thrombin inhibitors (DTIs) and factor Xa inhibitors. DTIs, such as dabigatran, prevent the conversion of fibrinogen to fibrin by binding to the active site of thrombin. Factor Xa inhibitors, which include rivaroxaban, apixaban, edoxaban, and betrixaban, bind to free and bound forms of Xa, reducing thrombin production.

For NOACs, bleeding is the most significant adverse effect, ranging from minor ecchymosis to life-threatening hemorrhage. Intracranial bleeding, spinal epidural hematoma, massive gastrointestinal bleeding, and retroperitoneal hemorrhage have all been reported with NOAC use and at times have led to death.

When patients who are taking NOACs present with actual or potential major bleeding, the most important historical factor is time since last dose. In the absence of renal failure, an interval greater than 3 to 5 half-lives since last dose (see Table) would imply little to no drug presence that requires reversal. More recent ingestions require further assessment and possible reversal interventions.

In patients taking NOACs who present with major bleeding, laboratory testing should include baseline and serial hemograms, coagulation studies,
renal function, and a type and cross. Interpreting coagulation studies is not straightforward in these patients because the relationship is not directly proportional to clinical effect and does not necessarily indicate level of anticoagulation. Dabigatran generally increases activated partial thromboplastin time (aPTT) more than prothrombin time/international normalized ratio (PT/INR); however, thrombin time correlates better with drug presence. With rivaroxaban there may be an increase in PT/INR rather than aPTT; however, in general anti-Xa assays calibrated to each individual factor Xa inhibitor correlate better with drug presence. Actual drug levels would be ideal, but it is the rare hospital that can perform such time-dependent testing. Thromboelastography may also provide some measure of anticoagulation effect. In conclusion, do not rely solely on routine coagulation studies to determine the need for reversal of NOACs.

In the presence of suspected drug effect and life-threatening bleeding, consideration should be given for expeditious reversal. To date, poor efficacy has been shown for the use of fresh frozen plasma in reversing these agents. Depending on the NOAC involved, there are a variety of reversal agents that may be potentially useful (Table). The studies that exist use surrogate markers such as reversal of coagulation studies. Unfortunately, there are no randomized clinical trials providing patient-centered outcomes.

Patients with life-threatening bleeding, in the presence of dabigatran, may be given idarucizumab (Praxbind®), an FDA-approved monoclonal antibody fragment (see Table). If this antidote is not available, an activated 4-factor prothrombin complex concentrate (4F-aPCC) such as factor eight inhibitor bypassing activity (FEIBA®) may be useful; however, it is not FDA approved for this indication. Other alternatives include non-activated 4F-PCC (eg, Kcentra®) or recombinant Factor 7a (rVIIa), although there are fewer data to support these. Hemodialysis to enhance removal of dabigatran early after the last dose is unproven and potentially impractical.

In the presence of factor Xa inhibitors, there is currently no FDA-approved antidote. The treatment of choice based on limited animal trials and clinical experience is a non-activated 4F-PCC. The only one currently available in the United States is Kcentra®. If this is not available, 4F-aPCC (FEIBA®) can be considered. If none of these agents is available, rFVIIa or even 3F-PCC with fresh frozen plasma may be administered. At the time of writing of this policy, two specific antidotes are under investigation: (1) andexanet alfa (AndexXa™), a factor Xa decoy protein; and (2) ciraparantag (Aripazine®), a universal reversal agent that binds factor Xa inhibitors and DTIs.

Despite lack of evidence, additional adjunctive measures for severe life-threatening bleeding can be considered such as fresh frozen plasma, packed red blood cells, platelets, tranexamic acid, and desmopressin acetate (DDAVP). Ultimately, when considering the use of reversal agents, the potential for benefit must be weighed against the known risk of thromboembolic complications and their high cost. Institutions should consider the implementation of pathways or guidelines for the care of these complex patients. Because of rapidly evolving therapeutic advances, consider real-time consultation with the hospital pharmacy or local poison center for up-to-date recommendations in treating life-threatening bleeding from NOACs.

SELECTED REFERENCES


## TABLE. Reversal therapies for life-threatening bleeding due to NOACs.

<table>
<thead>
<tr>
<th>NOAC CLASS</th>
<th>Oral NOACs</th>
<th>Drug Half Lives (with normal renal function)</th>
<th>Suggested Treatment Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct thrombin inhibitor</td>
<td>Dabigatran (Pradaxa®)</td>
<td>12-17 hours</td>
<td>Idarucizumab (Praxbind®)</td>
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<td></td>
<td></td>
<td></td>
<td>5g (2 vials 2.5 g each) IV bolus</td>
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<td></td>
<td>May repeat in severe circumstances</td>
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<td></td>
<td></td>
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<td>Possible alternatives:</td>
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<td></td>
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<td></td>
<td>aPCC (FEIBA®) 50-100 IU/kg</td>
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<td></td>
<td></td>
<td>4-factor PCC (Kcentra®) 50 IU/kg</td>
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<td></td>
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<td>rVIIa 90 µg/kg</td>
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<td></td>
<td>3-factor PCC (Profilnine®) 50 kg</td>
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<td></td>
<td>Fresh frozen plasma</td>
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<td></td>
<td></td>
<td></td>
<td>Hemodialysis</td>
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<td></td>
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<td></td>
<td>Note: Ciraparantag PER977*</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>(Aripazine™) is pending FDA approval for reversal of oral DTIs.</td>
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<tr>
<td>Factor Xa Inhibitor</td>
<td>Rivaroxaban (Xarelto®)</td>
<td>5-9 hours</td>
<td>No current FDA-approved reversal agents</td>
</tr>
<tr>
<td></td>
<td>Apixaban (Eliquis®)</td>
<td>12 hours</td>
<td>Possible alternatives:</td>
</tr>
<tr>
<td></td>
<td>Edoxaban (Lixiana®, Savaysa™)</td>
<td>10-14 hours</td>
<td>4-factor PCC (Kcentra®) 50 IU/kg</td>
</tr>
<tr>
<td></td>
<td>Betrixaban*</td>
<td>37 hours</td>
<td>aPCC (FEIBA®) 50-100 IU/kg</td>
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<td></td>
<td></td>
<td>rVIIa 90 µg/kg</td>
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<td>3-factor PCC (Profilnine®) 50 IU/kg</td>
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<td>Fresh frozen plasma</td>
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<td>Note: Ciraparantag PER977*</td>
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<td></td>
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<td>(Aripazine™) and Andexanet alpha*</td>
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<td>(AndexXa™) are pending FDA approval for reversal of factor Xa inhibitors.</td>
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</tbody>
</table>

*Not currently FDA approved or commercially available at the time of writing.
The American College of Emergency Physicians (ACEP) strongly supports the availability of high-quality, fully funded, certified poison centers to provide:

- Triage and management of poisoning calls from the public, saving medical expenditures for unnecessary health care visits while referring patients appropriately when medical evaluation is needed, as well as mitigating overcrowding of emergency departments.

- Consultation to physicians and other health care providers in the diagnosis and management of poisoning cases.

- Preparedness and response services to emergency responders, health care providers, public health officials, and the public during pandemics, public health emergencies and other hazards events, including chemical, biological, radiological, and nuclear incidents.

- Data surveillance to detect and monitor disease outbreaks and epidemiological trends.

ACEP supports the availability of evidence-based poison center triage/management services and prevention policies through legislative and regulatory advocacy at the local, state and national levels.

Emergency physicians have a unique opportunity and responsibility to work with stakeholders to reduce the prevalence and impact of poisonings through advocacy, education and research initiatives.
The American College of Emergency Physicians (ACEP) believes that as providers of care for injured adult and pediatric patients, emergency physicians are ideally situated and have the responsibility to affect the health of the public by being leaders in injury prevention and control. Emergency physicians should integrate injury prevention and control into their practices as they interact in the following settings.

- **Emergency medical services**
  - Promote and strive to provide injury prevention and control training to out-of-hospital care providers, including assessment of patients and their environment for injury risk factors and incorporation of primary prevention into out-of-hospital practice.
  - Promote the development and improvement of inclusive trauma care systems that use tiered responses to provide appropriate care for all trauma patients in a cost effective manner.
  - Support the testing and use of improved EMS technology for injury prevention and control.

- **Emergency department**
  - Provide expeditious care to acutely injured patients, whether intentional and unintentional, and optimize functional recovery from injuries by providing appropriate discharge instructions and referrals for aftercare or rehabilitative services.
  - Develop and promote:
    - Evidence-based injury prevention education into routine clinical practice to identify patients at-risk for injury.
    - Interventions (with appropriate funding support) that address preventive mechanisms.
  - Support the development of emergency department injury surveillance activities to help evaluate prevention efforts.
  - Incorporate injury control and prevention science into continuing medical education programs, including trauma centers.
• Medical schools/Hospitals
  o Support collaboration with researchers from other disciplines to develop and evaluate the effectiveness of injury prevention and control programs and policies.
  o Support teaching fundamental concepts of injury control and prevention science to emergency medicine residents.
  o Support resident research in the field of injury control and prevention.

• Community
  o Educate the public, policy makers, and community leaders about injury prevention and control.
  o Partner with other health care providers and community leaders in the concepts and practice of community injury control and prevention.
  o Promote evidence-based community-focused injury control and prevention interventions that recognize the unique characteristics of the community and target at-risk populations.
  o Promote evidence-based injury control and prevention policies through legislative or regulatory advocacy at the local, state and national levels.
The American College of Emergency Physicians (ACEP) believes that emergency physicians play a central role in the care of injured patients within the health care system. The treatment of trauma patients is a key component of emergency medicine training and practice. Across the spectrum of trauma, the majority of injured patients will receive care primarily from an emergency physician.

ACEP believes that patients presenting for care in an emergency department are best served by receiving care from board-eligible or board-certified emergency physicians, either individually or as a member of a multi-disciplinary trauma team. Emergency physicians play an instrumental role in the management of severely injured trauma patients, particularly in the aspects of assessment, resuscitation, airway management, point-of-care ultrasound, and bedside procedures. Care of these patients is best achieved when individual roles and responsibilities are standardized and understood by all members of the team involved in protocolized trauma care.

ACEP acknowledges the role of trauma surgeons as the providers of definitive care for the most critically injured patients and the importance of close collaboration between emergency physicians and trauma physicians in developing safe systems of care. ACEP strongly supports the implementation of pre-arranged transfer protocols to maintain a link between facilities without access to trauma surgeons with those institutions that maintain trauma services.

ACEP supports efforts to ensure that there are evidence-based national standards of trauma practice and the promulgation of those standards in the creation of safe trauma systems. Emergency physicians, given their central role in the care of these patients, must play an important role in the development and validation of these standards.
Role of the State EMS Medical Director

A joint statement by the American College of Emergency Physicians (ACEP), the National Association of EMS Physicians (NAEMSP), and the National Association of State EMS Officials (NASEMSO)

Physician oversight of emergency medical services (EMS) by a dedicated and qualified medical director is critical to the successful delivery of quality out-of-hospital patient care at all jurisdictional levels. It is essential that the lead agency for EMS within each of the fifty states, the District of Columbia, Puerto Rico, the territories of Guam, the Virgin Islands, American Samoa, and the Commonwealth of the Northern Mariana Islands, has a state EMS medical director.

The state EMS medical director provides specialized medical oversight in the development and administration of the EMS system and is an essential liaison with local EMS agencies, hospitals, state and national professional organizations, and state and federal partners. The state EMS medical director provides essential physician leadership for key aspects of the state EMS system including: system oversight, coordination of guideline development, planning for EMS care in austere environments and during disasters and mass casualty incidents, identification and implementation of best practices, system quality improvement, patient safety, education, and research. Furthermore, the state EMS medical director is vital to the EMS system at the local level by promoting integration of direct and indirect physician oversight for the comprehensive emergency health care delivery system.

The state EMS medical director should be a physician with extensive experience in EMS medical direction and an unrestricted medical license within the state. Ideally, the state EMS medical director will be a physician who is board-certified in emergency medicine or in the subspecialty of EMS, by the American Board of Emergency Medicine or the American Osteopathic Board of Emergency Medicine.

The state EMS medical director requires political, administrative, and financial support to successfully function in this role. The foundation of the relationship between the state’s lead agency for EMS and the state EMS medical director should be clearly defined within legislation, regulation, or a written contract, including language defining the job description,
responsibilities and authority. The state EMS medical director should be provided with mutually agreed upon compensation for services, necessary materials and resources, administrative support, and liability protection specific to the unique duties and actions performed.

In summary, ACEP, NAEMSP, and NASEMSO strongly encourage the establishment of a permanent, compensated position for a state EMS medical director in all fifty states, the District of Columbia, Puerto Rico, the territories of Guam, the Virgin Islands, American Samoa, and the Commonwealth of the Northern Mariana Islands.
The American College of Emergency Physicians (ACEP) recognizes the social, societal, and physical determinants of health that often affect patients discharged after an emergency encounter, but also recognizes that there are unique procedural and resource limitations that differentiate inpatient and emergency department (ED) discharges. As such, ACEP believes the decision to discharge a patient from the ED should be a clinical decision by the emergency department physician or provider who cares for that patient and deems the patient stable and safe for discharge. ACEP opposes local, state, federal, and other externally mandated “safe” discharge requirements that supersede the clinical judgment of a treating emergency physician or provider.
Salary and Benefits Considerations for Emergency Medical Services Professionals

The American College of Emergency Physicians (ACEP) affirms that Emergency Medical Services (EMS) systems provide essential healthcare elements for the health and wellbeing of patients and communities. Given the important responsibilities and roles fulfilled by EMS professionals, these healthcare providers should be fairly compensated with salary and benefits commensurate with such responsibilities and roles which should take into account salient variables such as:

- Educational achievements
- Length of professional certifications/licensures
- Experience
- Length of employment
- Rank, roles, and responsibilities
- Duty hours and schedules
- Risk of injury and death
Scholarly Sabbatical Leave for Emergency Medicine Faculty

Self-directed and lifelong learning is essential to the acquisition of new knowledge, skills, and ideas among academic emergency medicine faculty. A period of scholarly sabbatical leave may facilitate such learning. The American College of Emergency Physicians (ACEP) believes that:

- Applicants for a sabbatical leave should have seven or more years of post-residency practice.

- Eligible applicants should have evidence of scholarly accomplishment in at least one of these areas: patient care, teaching, research, or administration.

- The department chair, applicant, and institutional and departmental leadership should mutually determine the length of the sabbatical leave. In general, the sabbatical should not be less than two months or longer than 12 months in duration.

- The department chair, applicant, and institutional and departmental leadership should mutually determine financial support. Specific consideration should be given to salary support for the applicant and support for the department to ensure appropriate maintenance of departmental integrity for the duration of the sabbatical.
The American College of Emergency Physicians (ACEP) supports a comprehensive approach to school bus safety. Those involved in school bus safety including government regulators, investigators, manufacturers, standards organizations, bus transportation leaders, school officials, public health officials, physicians, and parents have an obligation to advance safety and advocate for the protection of children using school bus transportation. In support of these principles, ACEP believes:

- School bus safety research should be supported as a priority at the national level and funded accordingly.
- New technologies and approaches should be considered and implemented when evidence-based methods and best practices show a reasonable benefit and cost-effectiveness.
- The protection of children is paramount and the cost-effectiveness of implementing safety programs should weigh in favor of child safety.
- School bus safety programs should incorporate the age-specific factors of school-age children.
- The entire school bus system and environment of driving should be considered in all safety programs. This can include passenger waiting and bus stop areas, the immediately adjacent streets and sidewalks, loading and unloading, vehicle visibility, design and crash worthiness, passenger restraint and crash mitigation systems, passenger ingress and egress, and other factors important for safety.
- School bus drivers should be selected, trained and maintained with an emphasis on safe driving.
- The behavior of other drivers is a major factor in assuring the safety of children using school buses. Efforts to improve school bus safety will necessarily need to consider other users of the road.
- States and municipalities should require mandatory school bus safety education programs and driver training for all vehicle licensees and enact enforcement laws that strongly discourage unsafe behaviors.
- States should collect and report school bus safety data using standardized methods, and the federal government should analyze the data and provide an annual report to the public.
Triage is a rapid evaluation of patient acuity for the purpose of establishing the order and/or the location in which the patient should be seen by an emergency care provider and may be bypassed when patient care space and staff are immediately available. Optimal patient care occurs when the length of time between the patient’s presentation and the time that the patient is seen by an emergency care provider is as short as possible.

Delays can occur when regulatory questions are routinely asked of patients during initial triage. Although screening for depression, substance abuse and domestic violence can provide important information about the care some patients may require, the routine inclusion of general screening questions in the initial triage process creates a preventable delay in caring for patients. Screening information should be obtained after the initial prioritization process is complete and should not interfere with timely access to needed care.

The American College of Emergency Physicians and the Emergency Nurses Association support initial triage processes that limit the focus and content of questions to information pertinent to the patient’s condition to determine the priority in which patients should be seen by an emergency care provider.
Selective Triage for Victims of Sexual Assault to Designated Exam Facilities

The American College of Emergency Physicians supports:

- The collection of forensic evidence (performance of evidentiary examinations) by specially educated and clinically trained personnel when available and appropriate.

- The development and funding of additional Sexual Assault Nurse Examiner (SANE)/Sexual Assault Response Team (SART) programs.
Separation of Children from Family/Guardians

ACEP opposes the practice of forced separation of children from their family/guardians in the absence of risks to the child's wellbeing.

- The risks to the child of remaining with family/guardians must be serious, imminent, and clearly identified.
- Established legal and administrative procedures for separation from family/guardians must be applied consistently and justly.
- If separation is determined to be necessary, it must be for the briefest duration and in the least restrictive manner possible.
- A process for reunification with family/guardians, placement of the child with other family caregivers, or other permanent solution must be outlined in advance of the physical separation.
- Sick and/or injured children should receive timely and appropriate medical evaluation and treatment when indicated.
- The care of the child in custody must meet recognized humane standards and be clearly documented for each case.
The American College of Emergency Physicians (ACEP) supports the development and implementation of programs, policies, legislation, regulations, and public education that will increase the safe use of small motorized recreational vehicles and watercraft*. These measures should emphasize the shared responsibility of owners, operators, passengers, and manufacturers to optimize the safety of riders and bystanders. These measures must include the prohibition of child operators, prevention of alcohol/drug impaired operation, required use of safety equipment, mandatory safety training of all operators, and avoidance of operation while drowsy/distracted.

ACEP encourages a multifaceted coordinated effort between recreation enthusiasts, vehicle/watercraft manufacturers, federal/state/local agencies, and the medical community to reduce injury and death resulting from the use of motorized recreational vehicles and watercraft. Those developing usage recommendations should provide clear guidelines on vehicle/watercraft-specific required protective equipment, minimum-maximum height/weight/age restrictions, training requirements for operators, and rescue operation instructions, if applicable. Furthermore, states should establish uniform legislation of speed limits and alcohol/drug standards for safe operation, as well as impoundment of property to ensure public safety.

* Motorized recreational vehicles and watercraft can include Segways, hoverboards, scooters, mopeds, mini-bikes, all-terrain vehicles (ATV), go-karts, snowmobiles, ultralight aircraft, boats, jet skis, and other similar vehicles.
The American College of Emergency Physicians (ACEP) believes that Emergency Medical Services (EMS) professionals may fulfill multiple roles in the continuum of a patient’s acute medical care, and supports the following principles:

- **Patient Welfare Screening:** In the course of patient assessment and care, EMS professionals may observe situational dynamics that lead prudent healthcare providers to have concern regarding a patient’s exposure or involvement in domestic violence, human trafficking, animal attacks, acts of terrorism or other factors imperiling their mental and/or physical health. EMS professionals must exercise due patient advocacy and fulfill any locally applicable legal reporting requirements to subsequently treating healthcare professionals, law enforcement, protective services, and/or otherwise identified agencies in efforts to protect the wellbeing of the patient and the overall public. Specific education and training to best prepare and protect EMS professionals in this role must be included in initial and continuing EMS curriculums.

- **Operational Specific Scope(s) of Practice:** Increasing healthcare system demands may create “gap” needs, opportunities that specially trained EMS professionals may fulfill. Evidence must include a formal needs assessment and be clear and compelling that significant patient benefit will result from the selected scope(s) of practice roles for EMS professionals. Appropriate physician-led medical oversight is essential to the safety and success of operational specific scope(s) of practice programs. Operational specific scope(s) of practice programs must conform to all applicable federal, state, and local regulations and laws. Appropriate initial and continuing education and continuous quality improvement must be included for EMS professionals expected to fulfill duties in any scope of practice. Operational specific scope(s) of practice programs conducted or coordinated by EMS systems must ensure the continuing capabilities of the EMS system and that all patients retain access to emergency care utilizing the prudent layperson standard.
• “Essential to Public Health & Safety”: While recognized as a formal subspecialty practice of medicine by the American Board of Medical Specialties, EMS additionally represents an essential component to a community’s overall wellbeing in serving the health and medical safety of its citizens. EMS professionals represent indispensable members of a locale’s emergency response system and in aggregate, represent an essential aspect of both national health and human services and national homeland security capabilities. EMS is on par with law enforcement and fire suppression services in importance of critical services within a community. All such critical services should be significantly and adequately funded and included in community resiliency planning and operations.
The American College of Emergency Physicians (ACEP) believes that quality patient care can be supported within the existing health care system only if access to timely specialty services is assured through appropriate public policy initiatives and health care reimbursement system reform.

The development of specialty hospitals, defined as those that are primarily or exclusively engaged in the care and treatment of: 1) patients with a cardiac condition, 2) patients with an orthopedic condition, or 3) patients receiving a surgical procedure,1 may lead to adverse health system consequences, such as loss of specialty physician coverage for emergency patients and loss of hospital revenue from insured patients.

ACEP supports mitigating such adverse consequences with continued application and enforcement of the Emergency Medical Treatment and Labor Act, and with additional measures to preserve patient care and safety in full-service hospitals. Specialty hospitals must not be a detriment to emergency department availability of on-call specialists, hospital sustainability, or access to care.

Reference
Spinal Motion Restriction in the Trauma Patient

A joint policy statement of the American College of Emergency Physicians, the American College of Surgeons Committee on Trauma, and the National Association of EMS Physicians

Used by permission from Prehospital Emergency Care

The American College of Surgeons Committee on Trauma (ACS-COT), American College of Emergency Physicians (ACEP), and the National Association of EMS Physicians (NAEMSP) have previously offered varied guidance on the role of backboards and spinal immobilization in out-of-hospital situations. This updated uniform guidance is intended for use by emergency medical services (EMS) personnel, EMS medical directors, emergency physicians, and trauma surgeons as they strive to improve the care of trauma victims within their respective domains. This document is not meant to be a complete review of all publications on this topic, but rather a consensus statement based on the combination of available peer-reviewed, published evidence and expert opinion.

Points of Consensus

1. Unstable spinal column injuries can progress to severe neurological injuries in the presence of excessive movement of the injured spine.

2. While current techniques limit or reduce undesired motion of the spine, they do not provide true spinal immobilization. For this reason, the term “spinal motion restriction (SMR)” has gained favor over “spinal immobilization”, although both terms refer to the same concept. The goal of both SMR and spinal immobilization in the trauma patient is to minimize unwanted movement of the potentially injured spine.

3. While backboards have historically been used to attempt spinal immobilization, SMR may also be achieved by use of a scoop stretcher, vacuum splint, ambulance cot, or other similar device to which a patient is safely secured.

4. Indications for SMR following blunt trauma include:
   i. Acutely altered level of consciousness (eg, GCS 15, evidence of intoxication)
ii. Midline neck or back pain and/or tenderness
iii. Focal neurologic signs and/or symptoms (eg, numbness or motor weakness)
iv. Anatomic deformity of the spine
v. Distracting circumstances or injury (eg, long bone fracture, degloving or crush injuries, large burns, emotional distress, communication barrier, etc.) or any similar injury that impairs the patient’s ability to contribute to a reliable examination

5. SMR, when indicated, should apply to the entire spine due to the risk of noncontiguous injuries. An appropriately-sized cervical collar is a critical component of SMR and should be used to limit movement of the cervical spine whenever SMR is employed. The remainder of the spine should be stabilized by keeping the head, neck and torso in alignment. This can be accomplished by placing the patient on a long backboard, a scoop stretcher, a vacuum mattress or an ambulance cot. If elevation of the head is required, the device used to stabilize the spine should be elevated at the head while maintaining alignment of the neck and torso. SMR cannot be properly performed with a patient in a sitting position.

6. All patient transfers create potential for unwanted displacement of an unstable spine injury. Particular attention should be focused on patient transfers from one surface to another including, for example, ground to ambulance cot. A long spine board, a scoop stretcher, or a vacuum mattress is recommended to assist with patient transfers in order to minimize flexion, extension or rotation of the possibly injured spine.

7. Once a patient is safely positioned on an ambulance cot, transfer or extrication devices may be removed if an adequate number of trained personnel are present to minimize unnecessary movement during the removal process. The risks of patient manipulation must be weighed against the benefits of device removal. If transport time is expected to be short, it may be better to transport a patient on the device and remove it on arrival at the hospital. If the decision is made to remove the extrication device in the field, SMR should be maintained by assuring that the patient remains securely positioned on the ambulance cot with a cervical collar in place.

8. Hospitals should be prepared and equipped to carefully and quickly remove patients from a long backboard, scoop stretcher or vacuum mattress as soon as possible after arrival at the hospital. Safe transfer may require the use of a slider board or similar device in order to maintain SMR during patient movement. Procedures should be in place to assure that a sufficient number of properly trained individuals are available to assist with patient transfers in order to minimize the risk of inadvertent displacement of a potentially unstable spinal injury.

9. There is no role for SMR in penetrating trauma.

10. SMR in Children
   i. Age alone should not be a factor in decision-making for prehospital spinal care, both for the young child and the child who can reliably provide a history.
   ii. Young children pose communication barriers, but this should not mandate SMR purely based on age.
   iii. Based on the best available pediatric evidence from studies that have been conducted through the Pediatric Emergency Care Applied Research Network (PECARN), a cervical collar should be applied if the patient has any of the following:
   a. Complaint of neck pain;
   b. Torticollis;
c. Neurologic deficit;
d. Altered mental status including GCS 15, intoxication, and other signs (agitation, apnea, hypopnea, somnolence, etc.)
e. Involvement in a high-risk motor vehicle collision, high impact diving injury, or has substantial torso injury.
iv. There is no evidence supporting a high risk/incidence for noncontiguous multilevel spinal injury in children. The rate of contiguous multilevel injury in children is extremely low at 1%. The rate of non-contiguous multilevel injury in children is thought to be equally as low.10
v. Minimize the time on backboards with consideration for use of a vacuum mattress or padding as adjuncts to minimize the risk of pain and pressure ulcers if this time is to be prolonged.
vi. Because of the variation in the head size to body ratio in young children relative to adults, additional padding under the shoulders is often necessary to avoid excessive cervical spine flexion with SMR.

References

This policy statement has been published in Prehospital Emergency Care at the following location: https://www.tandfonline.com/doi/full/10.1080/10903127.2018.1481476
Staffing Models and the Role of the Emergency Department Medical Director

The American College of Emergency Physicians (ACEP) believes that it is the responsibility of the emergency department (ED) medical director to identify the most appropriate local staffing model to achieve operational efficiency while maintaining clinical quality and physician-directed or supervised care.

Though multiple staffing models utilizing physicians and other clinicians exist, the needs of each individual ED are unique. The utilization and distribution of staff within the ED should be determined at the site level by local ED leadership, who are responsible for and/or have a role in staff hiring, training/onboarding, and supervision.

The medical director and other local physician leaders should be responsible for establishing local processes and practices that ensure both sufficient physician training/onboarding and availability, as well as the opportunity for safe supervision of other clinicians to ensure clinical quality.
The American College of Emergency Physicians (ACEP) and the Emergency Nurses Association (ENA) support and endorse the use of standardized nursing protocol orders (also referred to as standardized procedures, order sets, standing orders, or triage protocols) in the emergency department (ED) for initiation of patient evaluation and care prior to evaluation by a physician or advanced practice provider. The use of such protocols is a patient-centric practice that is safe and effective in enhancing patient care. Standardized protocols have the potential to reduce variation in care, enhance workflow, improve coordination of care, and modify practice through evidence-based care.

ACEP and ENA are committed to ensuring that patients presenting to the ED receive timely high-quality care. Due to the nature of unscheduled care and unpredictable surges in patient volume and acuity, there are times when a licensed independent practitioner is not immediately available to initiate evaluation and care. In these instances, many facilities have found it beneficial to begin the evaluation and care of patients under standardized protocols enacted by nursing staff within their scope of practice that include but are not limited to:

- Instituting evaluation or treatment for conditions that are particularly time-sensitive (eg, an electrocardiogram and aspirin for myocardial ischemia)
- Enhancing patient comfort (eg, acetaminophen for fever)
- Reducing the overall time patients spend in the ED by initiating testing and treatment earlier during the patient's stay
- Improving overall patient safety by reducing ED time to treatment
- Improving the patient experience

Standardized protocols are a set of pre-approved orders that include a specifically defined patient population and clinical scenario(s) in which these orders may be carried out by nursing staff without any additional physician or advanced practice provider input, approval, or order, either written or verbal.
1. Standardized protocols should be developed collaboratively by physician and nursing leadership with input from other involved hospital departments as necessary, including pharmacy, risk management, laboratory, hospital administration, etc., as appropriate.

2. Standardized protocols should be based on the best available evidence. ACEP and ENA acknowledge that for some standardized protocols sufficient evidence may not exist to either support or refute their use; in such cases consensus-based protocols are appropriate.

3. Standardized protocols should identify the pre-approving physician or medical staff body. By nature of the fact that the protocols have been pre-approved by physician and nursing leadership, ACEP and ENA do not believe that any licensed independent practitioner should be required to authenticate an order that he or she did not directly initiate.

4. ACEP and ENA believe that services rendered by nursing staff under a standardized protocol should be reimbursed as if ordered contemporaneously by a physician or advanced practice provider.

5. Use of a standardized protocol does not, in and of itself, create a physician-patient relationship.

6. If standardized protocols are utilized, robust education and continuous quality improvement programs should be in place.

ACEP and ENA encourage regulatory and credentialing bodies to develop their policies and procedures regarding standardized protocols with these considerations.
The American College of Emergency Physicians (ACEP) recommends that the reporting of emergency department (ED) patient waiting times for initial evaluation should be standardized.

As such, ACEP recommends that:

- ED patient “wait time” should be defined as “door to provider contact time.” 1,2
- Provider is defined as physician (MD, DO), advanced practice nurse, or physician assistant (PA).
- Measurement of the “door to provider contact time” should be the sole metric used in public advertising to describe ED patient “wait time.”
- Provider contact time is defined by either the face-to-face evaluation of the patient by the provider or the initiation by the provider of specific diagnostic and/or therapeutic orders.
- The calculation of wait time should be the longest amount of time that a patient is currently waiting to see a provider.
- Public advertising of ED patient “wait time” should include a time stamp of the last moment the metric was updated or refreshed.
- Ideally, advertised times should be accurate and reflect real-time waits. However, posted wait times should be updated at least hourly to be meaningful to patients.


The American College of Emergency Physicians (ACEP) affirms that peer review of emergency medicine practice by any entity including state licensing boards should be performed by a physician who is currently licensed in a state, territory or area constituting legal jurisdiction of the US as a doctor of medicine or osteopathic medicine; be certified by a recognized certifying body in emergency medicine (American Board of Emergency Medicine, American Osteopathic Board of Emergency Medicine, or in pediatric cases, the American Board of Pediatrics as a certifying body in pediatrics that provides certification for pediatricians in the subspecialty of pediatric emergency medicine), and be in full-time clinical practice of emergency medicine for at least five years (exclusive of training) immediately preceding the date of the occurrence giving rise to the review.
Sub-dissociative Dose Ketamine for Analgesia

Approved October 2017

A joint policy statement of the American College of Emergency Physicians, the Emergency Nurses Association, and the Society of Emergency Medicine Physician Assistants

Sub-dissociative dose ketamine (SDK), also referred to as low dose ketamine (LDK) is safe and effective for analgesic use in emergency departments. SDK is one “opioid sparing” modality. Benefits of SDK over opioids and other common analgesics include, improved pain relief, less respiratory depression, and maintenance of cardiac output. Emergency care providers should disclose to patients that SDK administration may trigger generally minor transient side effects, including nausea and temporary dysphoria.

As with any analgesic, observation and assessment of the patient’s response to SDK is indicated. Due to SDK’s excellent safety profile and activity as an analgesic, not an anesthetic, special administration procedures and/or monitoring are not required. SDK may be safely ordered and/or administered by emergency care providers under the same policies and procedures as other typical analgesics.

FOR REFERENCE:


From ACEP Policy on Optimizing the Treatment of Acute Pain in the Emergency Department, April 2017

Administration of sub-dissociative dose ketamine (SDK) may be used either alone or as part of a multimodal approach to pain relief for traumatic and non-traumatic pain. Emergency care providers should disclose to patients that SDK administration may trigger generally minor, transient side effects. Administration of sub-dissociative ketamine should commence under the same procedures and policies as other analgesic agents administered by the nursing staff in the ED setting.
Support for National Disaster Medical System and Other Response Teams

The American College of Emergency Physicians (ACEP) believes that every community needs a comprehensive plan for immediate emergency medical care in case its medical care system is overwhelmed or rendered ineffective in a disaster. As a component of this plan, ACEP supports the National Disaster Medical System (NDMS) and encourages further development and funding of the program. ACEP also supports its members who participate in the Disaster Medical Assistance Teams (DMAT), Urban Search and Rescue (USAR teams), or other federal or state-sponsored medical teams. ACEP encourages entities such as health care facilities/systems and EMS services and employers such as medical practice groups to allow, encourage, and support their employees to participate.
Support for Nursing Mothers

The American College of Emergency Physicians (ACEP) supports breastfeeding mothers for the health and wellness of mother and baby. ACEP encourages a culture of support surrounding the nursing mother.

ACEP endorses the availability of a sanitary, private, non-bathroom area for breastfeeding emergency department employees, nurses, trainees, residents, and physicians to express breast milk during their workday inside or directly proximal to the emergency department. All necessary facilities should be present within the designated area, including but not limited to, functioning electrical outlets, a surface for equipment placement, and seating area. A nearby sink and refrigerator is encouraged, ideally within the area or directly proximal. Other equipment useful to maintain productivity of the mother while breast pumping would include a computer and telephone. Adequate time should be given to enable a breastfeeding mother to express milk. Breastfeeding mothers generally require pumping sessions every 4-6 hours for 20-30 minutes to maintain milk supply. Efforts should be made by other emergency department staff to support the nursing mother during these sessions.

ACEP also supports the education of emergency department provider employers and hospitals on the benefits of breastfeeding support in the workplace for infants, mothers, and the business of emergency medicine.
Physicians should be free to exercise their personal and professional judgment in voting, speaking, and advocating on any matter regarding patient care interests, the profession, health care in the community, and the independent exercise of medical judgment. Physicians should not be deemed in breach of their employment agreements, nor be retaliated against by their employers, for asserting these interests.*

*This statement was originally published in the American Medical Association’s 2012 Principles for Physician Employment.
The American College of Emergency Physicians (ACEP) believes that Tactical Emergency Medical Support (TEMS) is an essential component of military and tactical law enforcement teams. As an integral part of a tactical unit, TEMS helps maintain a healthy and safer environment for both law enforcement and the public. This unique subspecialty provides emergency care under extreme and potentially dangerous situations. Excellent management of injuries sustained during training or deployment requires proficiency in wound care, hazardous materials exposure, and evidence preservation. TEMS providers can provide medical insight during training, mission planning, and deployment of tactical teams.

ACEP encourages:

- Establishment of funding sources sufficient to provide the necessary personnel, equipment, and training for TEMS providers at the local, state, and federal levels.
- Appropriate professional liability protection for TEMS providers.
- Establishment of clinical care standards specific to tactical medicine through evidence-based research and proven methods.
- Participation in recognized evidence-based training programs.
- TEMS programs should have dedicated medical oversight by an experienced and tactically trained board-certified physician working collaboratively with emergency medicine and EMS-boarded experts.
The Clinical Practice of Emergency Medical Services Medicine

Originally approved October 2017, replacing the following rescinded/sunsetted policy statements:
• Discontinuing Resuscitation in the Out-of-Hospital Setting (1997-2017)
• Early Defibrillation Programs (1998-2017)
• Out-of-Hospital Severe Hemorrhage Control (2014)
• Out-of-Hospital Use of Analgesia and Sedation (2015)

The American College of Emergency Physicians (ACEP) considers Emergency Medical Services (EMS) a practice of medicine, reaffirms its commitment to evidence-based decisions in practices of medicine, and supports the following principles:

• Clinical standards of care (including treatments that can be provided by laypersons prior to EMS arrival) developed, established, and promulgated by EMS physician medical directors should be based upon peer-reviewed, published, evidence-based treatments and outcomes. Where such supported treatments and outcomes do not exist, expert consensus statements should substantially form the basis for clinical standards of care.

• Clinically-related research initiatives involving EMS systems and providers should be encouraged and supported, with careful adherence to the ethical and legal principles of human subjects protection.
The Patient-Centered Medical Home Model

This model envisions a health care delivery system in which patients have an ongoing relationship with a personal physician who provides comprehensive care. This physician takes responsibility for coordinating care with other providers. This model is predicated on patients having enhanced access to their personal physician, including expanded hours and same-day scheduling. Central to this model are the practice of evidence-based medicine, quality improvement, performance measurement, the increased use of information technology, and a revised payment system to compensate providers who perform the duties of a patient’s medical home.

“Joint Principles of the Patient-Centered Medical Home” was issued in March 2007 by the American Academy of Family Physicians (AAFP), the American Academy of Pediatrics (AAP), the American College of Physicians (ACP), and the American Osteopathic Association (AOA). The PCMH model has gained support as one approach to health care reform, and proponents of the model contend that it will improve the health of patients, reduce costs to the health care system, and, among other benefits, reduce crowding in emergency departments.

ACEP agrees with the basic tenets of the PCMH model, and supports the concept, as long as patients are provided continued access to high quality emergency medical care.

ACEP believes a patient-centered medical home should:

1. Provide high-quality, safe, and efficient medical care.
   The PCMH should practice evidence-based medicine with accountability for continuous quality improvement and performance measurement with the use of information technology to optimize patient care, communication, and education.

2. Provide patient access to a personal physician, the leader of a team of individuals who collectively take responsibility for the ongoing care of their patients.
   ACEP believes it would improve health care if every person had access to a personal physician with whom they had an ongoing relationship and who would assume responsibility for providing all of the patient’s health care.
needs including appropriate arrangement of care with other qualified health care professionals. The personal physician would also help the patient navigate our complex health care system to their best advantage. Much benefit of the model would be lost if the patient cannot secure a timely appointment with their physician, must see a host of different providers in large group practices, or be evaluated in an urgent care center or walk-in clinic by providers who have little or no experience with the patient.

3. **Ensure patients have the freedom to select specialists of their choosing and access emergency medical care when they feel they need it.**
   While there will undoubtedly be pressure for the medical home providers to limit choices and restrict access in order to save costs, patients must not be restricted from access to medically appropriate tests and specialist consultations. Of utmost importance is that all patients have access to emergency medical care according to the “prudent layperson” standard when they believe they have an emergency and they should not be penalized if subsequent evaluation determines there was no serious medical diagnosis.

4. **Include the safety net of emergency care.**
   Resources used to fund the PCMH model should not undermine nor compromise the emergency medical care system. Regardless of the anticipated benefits from having a medical home, there will still be millions of Americans who experience sudden onset of life-threatening illness and injury for which they will need access to emergency medical care. There will be instances in which the personal physician cannot see their patient expeditiously requiring the PCMH to offer unscheduled access. The medical home must be integrated with sources of acute care so that patients presenting with conditions such as chest pain, abdominal pain, suspected stroke, or other acute illness or injury receive an expeditious and efficient evaluation. Often an emergency department (ED) will be the most time- and resource-efficient modality for patients’ evaluation and treatment. Furthermore, in a world with electronic medical records, the ED is easily included in the PCMH. There is also a serious and ongoing need for increased surge capacity and emergency medical preparedness for natural and man-made disasters.

ACEP supports the tenets of the PCMH model that seeks to provide ongoing access to a personal physician as a way to improve health care and reduce costs to the health care system. Patients should be able to readily access their PCMH for on-going care and concerns that can be appropriately addressed in an office setting. However, emergency medical care is a crucial element of our health care system. All patients must be allowed access to emergency medical care according to the “prudent layperson” standard when they perceive they are experiencing symptoms of an emergency condition. The PCMH must include unrestricted access to emergency services whenever the personal physician is unavailable or otherwise unable to meet the patient’s health care needs.
The Role of Emergency Physicians in Emergency Medical Services for Children

The American College of Emergency Physicians believes emergency physicians, as leaders in emergency medical services (EMS), have a pivotal role in the integration of emergency medical services for children (EMSC). Emergency physicians impact the EMS-EMSC continuum in important ways by providing:

- Leadership in the area of injury and illness prevention.
- Leadership in local, regional, and state EMS and EMSC systems by involvement in the provision of medical direction (oversight), education for providers, quality improvement, and legislative advocacy.
- Collaboration with other physicians and health care professionals to enhance the medical home for children, including referral to primary care, specialized care, and rehabilitation services.
- Research in the design and function of EMS systems, education of providers, out-of-hospital and emergency care interventions, and outcomes of emergency care.
- Expertise for and collaborate with the National EMSC Program (Maternal and Child Health Bureau in collaboration with the National Highway Traffic Safety Administration).
The Role of Emergency Physicians in the Care of Children

Emergency physicians treat the majority of acutely ill and injured children who seek emergency care in the United States.

By virtue of their training and experience, emergency physicians are qualified and are comfortable with providing initial stabilization and treatment of pediatric emergencies. Ongoing education, practice, and pediatric readiness are critical in maintaining skills and qualifications.

In this capacity, emergency physicians:

- Advocate for emergency preparedness that is pediatric-specific and ensure that equipment, provider education, staffing, policies and procedures, and environmental designs address the unique needs of pediatric patients in each community.

- Ensure quality and family-centered patient care in accordance with the ACEP policy on patient- and family- centered care and the role of the emergency physician providing care to a child in the emergency department (https://www.acep.org/globalassets/new-pdfs/policy-statements/patient--and-fam-centered-care-role-of-ep-prov-care-to-child.pdf). This can be accomplished through:
  - Optimizing collaboration and communication between acute care providers and the primary care providers;
  - Optimizing access to facilities, specialists, equipment and staffing;
  - Promoting education for professionals, staff, and the public related to pediatric acute care issues and the prevention of injury and illness.

- Educate staff on the importance of family presence during procedures and resuscitations in the emergency department.

- Promote injury and illness prevention for children, parents, and their community.

- Promote pediatric readiness in the emergency department. For more information, refer to the policy statement on pediatric readiness in the emergency department. (https://acep.org/globalassets/new-pdfs/policy-statements/pediatric-readiness-in-the-emergency-department.pdf)
• Collaborate with local, regional or national organizations to advocate for safety and care of the pediatric patient
• Promote the understanding of the concept of “System of Care”, including payors, providers, technology, community, and family.
• Advocate for health equity in the care of all children and raise awareness for social factors that contribute to health outcomes such as abuse, neglect, food insecurity, housing insecurity and mental health care.
The Role of Emergency Physicians in the Completion of Death Certificates

An emergency physician is often the last physician to see a patient alive or the first to bear witness to their death. In most cases, the encounter in question is the emergency physician’s first with the patient, and his or her knowledge of the patient may be limited depending on the circumstances of the death, the availability of medical records for the patient at the institution in question, and the presence and availability of relatives, as well as their knowledge (or lack thereof) of the decedent’s medical history.

Some cases, saliently those involving trauma, suspicious circumstances, substance use, or recent office-based surgery, among others, may be processed via the local medical examiner's or coroner's office. There are laws defining the types of cases that must be investigated by a coroner or medical examiner in most jurisdictions in the United States; in some jurisdictions, cases of decedents who do not have an “attending physician” may also be referred to the medical examiner. A common definition of “attending physician” is a (post-training) practicing doctor who has a formal relationship to a patient, either in-house while the patient is hospitalized or as a primary care provider in the community.

There are two distinct duties that are part of the death certification process, whether completed by a physician or coroner:

- Pronouncing the death (affirming that the individual died, including the date and time of death)
- Certifying the death (the manner and cause of death)

Manners of death include natural, accidental, homicide, suicide, or undetermined. Causes of death include immediate causes (eg, septic shock), intermediate causes (eg, multilobar pneumonia), and underlying causes that may have triggered the chain of events (eg, malnutrition). The approximate interval between the presumed onset of each of these conditions and the death is also recorded.

The American College of Emergency Physicians (ACEP) acknowledges that in many cases, including when patients expire just prior to, or during, an emergency department visit, the emergency physician is the ideal individual
to pronounce the death and document the pronouncement.

ACEP affirms that in cases where a patient has an existing, ongoing relationship with an “attending physician” such as a primary care provider, it is ideal for that individual to certify the cause and manner of death, rather than the emergency physician who may have pronounced it. If no such attending physician relationship exists, in some jurisdictions, cases may be referred to the coroner or medical examiner for certification of the cause and manner of death. Such referrals should include the date and time death was pronounced, and a description of the acute presentation and clinical findings in the emergency department. Alternatively, the emergency physician – or other hospital-based physician responsible for the patient’s care at the time of death – may use available information and their clinical judgment to certify the death. ACEP maintains that any such physician who certifies the death to the best of their ability, shall be held harmless. If insufficient data exists to determine the cause of death, the emergency physician should not be compelled to provide that information.

ACEP recognizes that individual jurisdictions may have unique regulations in regard to the certification of death, that may include, but not be limited to, cases appropriate for referral to a coroner or medical examiner. Significant variations exist at the city, county, or state level. Emergency physicians should be cognizant of the relevant statutes that apply in the jurisdiction(s) where they practice and follow them appropriately.

ACEP believes that it is part of the health care team’s responsibility to make reasonable efforts to patients and their families to ensure that the decedent’s planned disposition, including burial or cremation, is not delayed unnecessarily.
The Role of the Legacy Emergency Physician in the 21st Century

ACEP believes that physicians who begin the practice of emergency medicine in the 21st century must have completed an accredited emergency medicine residency training program and be eligible for certification by the American Board of Emergency Medicine (ABEM) or American Osteopathic Board of Emergency Medicine (AOBEM).

ACEP acknowledges that emergency medicine’s rapid growth resulted in a workforce that includes physicians who are not eligible for ABEM or AOBEM specialty certification. These legacy emergency physicians, many of whom are residency trained and/or board certified in other specialties, began the practice of emergency medicine prior to the 21st century.

Many legacy emergency physicians have demonstrated their commitment to the specialty through membership in ACEP. ACEP supports its members who are legacy emergency physicians.

ACEP acknowledges that legacy emergency physicians, by virtue of their primary training and emergency medicine practice experience, play an important role in the current emergency medicine workforce and patient care safety net.

ACEP supports the efforts of legacy emergency physicians who seek additional training and continuing medical education to enhance their ability to provide high quality patient care.

ACEP believes that the quality of care delivered by legacy emergency physicians should be a primary determinant of their hospital privileges and credentialing. Legacy emergency physicians should be subject to the same quality standards as ABEM/AOBEM certified emergency physicians. Legacy emergency physicians should not be forced out of the workforce solely on the basis of their board certification status.
The Role of the Physician Medical Director in Emergency Medical Services Leadership

The American College of Emergency Physicians (ACEP) considers Emergency Medical Services (EMS) a practice of medicine requiring physician oversight, reaffirms its commitment to physician medical director leadership in EMS, and supports the following principles:

- EMS physician medical directors should be intricately familiar and conversant with all relevant aspects of affiliated EMS systems that relate to patient safety and outcomes. A physician who is board certified in EMS medicine is best prepared to lead an EMS system in the role of physician medical director.

- EMS physician medical directors should actively direct and lead the clinical performance in an EMS system, serving with recognized ultimate clinical authority.

- EMS physician medical directors should actively guide and direct EMS system design that is based on evidence-supported clinical practices and outcomes.

- EMS physician medical directors should actively direct and oversee the operation of EMS systems communications, establishing or modifying dispatch training, protocols, and credentialing programs that serve in determining initial and ongoing dispatch privileges for communications specialists. Emergency communications comprise an integral component of patient care and therefore are clinical functions.

- EMS physician medical directors should actively direct and oversee credentialing programs that serve in determining initial and ongoing clinical privileges for individual providers in an EMS system. The EMS physician medical director must have authority to immediately withdraw clinical privileges as part of a due process structure if an EMS professional poses potential imminent threat to patient safety and welfare.
• EMS physician medical directors should actively direct and oversee continuous quality improvement programs based on evidence-supported practices and outcomes, so as to critically appraise and advance the quality of clinical performance in an EMS system.

• EMS physician medical directors should actively participate and advocate in development of engaging, evidence-supported education for EMS providers, including communication specialists.

• EMS physician medical directors should actively advise and guide the development of certification and scope of practice policies affecting EMS providers at local, state, and national levels.

• EMS physician medical directors should actively monitor and influence issues impacting EMS system funding, reimbursement, and government regulation.

• EMS physician medical directors should actively promote research initiatives involving EMS systems and providers, recognizing that pre-hospital research is an essential element in advancing evidence-based medicine within the practice of EMS medicine.

• EMS physician medical director leadership should be an integral part of pre-hospital research; thus, ACEP supports the further development of federal EMS grants that link distribution of funds for any EMS purpose with the end goal of enhancing the quality of care provided by an EMS system.

• Roles fulfilled by EMS physician medical directors, including responsibilities, authority, and reporting hierarchies, are to be formally established in writing in contractual agreements between EMS physician medical directors and EMS systems and/or applicable legal parties.

• EMS physician medical directors should advocate for the mental and physical welfare of patients and EMS professionals, including supporting patient safety initiatives and EMS systems designs that incorporate appropriate sleep/wake-work cycles and maximum duty hours.

• EMS systems have ethical responsibilities to provide EMS physician medical directors with the tangible resources and remuneration commensurate with the responsibilities and authorities fulfilled by EMS physician medical directors.

• EMS physician medical directors must have liability protection that covers the spectrum of their responsibilities and authorities. EMS systems have ethical, and in some jurisdictions, legal responsibilities to provide this liability protection to EMS physician medical directors. Medical malpractice policies will typically cover traditional clinical aspects in the practice of EMS medicine, though EMS physician medical directors should always formally verify such coverage with applicable carrier(s). Essential administrative actions of EMS physician medical directors can be subject to claims outside of medical malpractice policies. An insurance policy, often referred to as a Directors and Officers policy (D&O policy), must be enacted for proper protection of EMS physician medical directors if the applicable traditional medical malpractice policy does not specifically cover the range of essential administrative actions.
The American College of Emergency Physicians (ACEP) believes that emergency medical care must be readily available to all persons requesting it regardless of their ability to pay or their health insurance status.

Individuals requesting medical care at an emergency department (ED) must be provided a medical screening examination (MSE) and any necessary stabilizing treatment as defined by federal law \(^1\) and state law, as applicable. This requirement applies to all individuals, including managed care patients, regardless of any payment authorization determination.

Third-party payers \(^2\) that actively practice demand management have a duty and responsibility to educate their members regarding emergency services, including appropriate access and use of emergency services, especially EMS 911 or other public emergency access telephone systems. All health care access information provided to members should clearly state that preauthorization for emergency care is not required. Any person who perceives that he or she is experiencing an emergency should call 911 without delay or go directly to the ED.

Emergency physicians should assume an active role in working with third-party payers to ensure that they do not interfere with the prompt availability and delivery of emergency services. Only appropriately qualified medical professionals, such as managed care organizations (MCO) medical advice line, participating physicians’ offices, and demand management organizations, should respond to patient calls concerning the need for medical care. Such medical professionals should be specifically trained in history-taking, clinical judgment and assessment skills, triage categorization, liability issues, and appropriate utilization of the decision support tools. Triage decisions should be based on sound medical protocols under the policy direction and responsibility of a qualified physician. This physician should have the authority to implement and enforce these protocols as well as the authority to direct any necessary deviation from written protocols.

Assessment protocols and advice policies affecting ED access should be developed with emergency physician input and should address both adult and pediatric patients. The policies should address access to appropriate levels of
service in appropriate time frames. Assessment protocols and advice policies should be subject to ongoing performance review to confirm validity.

ACEP Recommendations
To ensure access to emergency medical care by all individuals and to provide guidelines for emergency physicians when communicating with third-party payers, ACEP recommends the following:

• Emergency ambulance transportation to EDs, including transports by privately contracted ambulances, must be integrated into the local emergency medical services (EMS) systems.

• If third-party payers have a system for post-stabilization case management, it must be readily accessible at all times (24/7) and provide a means for contemporaneous consultation with a physician representative who has knowledge and experience in the care of ED patients. The ability to confirm insurance coverage and to utilize case management resources should be available promptly, with a single telephone call to a plan representative.

• In the event of a disagreement regarding the need for post-stabilization care, hospitalization, or discharge, the emergency physician who is physically evaluating the patient has the final authority to determine disposition of the patient. If appropriate, the emergency physician may consider transfer of post-stabilization care to a payer-assigned physician or transfer to a payer-contracted facility as long as the Emergency Medical Treatment & Labor Act (EMTALA) transfer and stabilization requirements are met. All such transfer decisions require the consent of the patient or their designee.

• All patient transfers, including those involving MCO members, should be consistent with ACEPs published guidelines.

• Emergency physicians should be fairly reimbursed for all services provided, including the provision of mandated EMTALA-related care. Claims should be processed expeditiously and on the basis of established billing and coding procedures. Claims should be adjudicated on the basis of the patient's presenting complaint and symptoms. An equitable and timely appeal process should exist for disputes involving reimbursement.

• Recognizing that on-call specialty services may provide simultaneous coverage to several hospitals, third-party payers are expected to cover on-call specialty services when emergency physicians require access to hospital on-call panels in order to meet MSE and stabilization expectations as required by EMTALA.

• Emergency physicians should assume an active, positive role in any contract negotiations involving provider institutions and payers, especially where emergency services are included as part of a comprehensive program of services.

References

Third-party payers include: Medicare, Medicaid, managed care organizations, indemnity insurers, and businesses that contract for services.
Tobacco and Nicotine Products – Public Policy Measures

The American College of Emergency Physicians (ACEP) supports:

• Food and Drug Administration regulation of tobacco products and nicotine delivery systems;
• regulation of tobacco and nicotine product advertising;
• continued enhancement of graphic warnings and package inserts on all such products originating from or sold in the United States;
• public education on the health risks of tobacco use, second-hand smoke exposure and nicotine use;
• the prohibition of smoking and vapor producing nicotine delivery systems in public places;
• increased taxes on tobacco and nicotine related products, with the revenue generated used to fund prevention/cessation research and provide evidence-based interventions;
• the aggressive referral of tobacco and nicotine users to evidence-based cessation methods and services; and
• the cessation of all nicotine use as the ultimate goal of tobacco cessation programs.
Transfer of Patient Care Between EMS Providers and Receiving Facilities

The American College of Emergency Physicians (ACEP), Emergency Nurses Association (ENA), National Association of EMS Physicians (NAEMSP), National Association of Emergency Medical Technicians (NAEMT), and National Association of State EMS Officials (NASEMSO) believe that clearly defined processes for the contemporaneous face-to-face communication of key information from emergency medical services (EMS) providers to health care providers in an emergency department (ED) are critical to improving patient safety, reducing medicolegal risk, and integrating EMS with the health care system. It is critical that patient information is exchanged verbally during the transfer of care, but verbal information alone may lead to inaccurate and incomplete documentation of information and inadequate availability of information to subsequent treating providers (in both the ED and inpatient units) who are not present at the time of verbal communication.

The following principles are important to ensuring safe patient hand-off from EMS to health care providers at receiving facilities:

- In addition to a verbal report from EMS providers, the minimum key information required for patient care must be provided in written or electronic form at the time of transfer of patient care. This provides physicians and other health care providers who deliver subsequent care for the patient to receive this information more accurately and avoid potential errors inherent with second-hand information. The minimum key information reported at the time of hand-off must include information that is required for optimal care of the patient – examples include vital signs, treatment interventions, and the time of symptom onset for time-sensitive illnesses.

- All members of the health care team, including EMS providers, nurses, and physicians, must communicate with mutual respect for each other and respect the verbal and written communication from EMS as an important
part of the patient’s history. During the transfer of patient care, the receiving health care providers should have an opportunity to ask questions to clarify information that is exchanged.

- Health care facilities should attempt to receive patient care transfer reports in a timely manner, facilitating the return of EMS units to service.

- EMS transfer of care documentation should be treated as part of the health care record and must be professional, accurate, and consistent with information included in the final complete electronic or written EMS patient care report. Hospital systems should preserve written transfer of care documentation in the patient’s permanent medical record.

- Copies of all results of medical tests performed by EMS providers (e.g., 12-lead ECGs, results of blood chemistry testing, any medical imaging, etc.) must be available to the receiving facility with the EMS transfer-of-care documentation.

- Developers of electronic EMS patient care reports and health information exchanges should develop products that efficiently provide real-time digital transfer and preservation of the transfer-of-care documentation into the patient medical record.

- In addition to the information exchanged contemporaneously at the time of transfer of patient care, the complete EMS patient care report must be available to the receiving facility within a clinically relevant period of time.
POLICY STATEMENT

Trauma Care Systems

Approved April 2018

Revised April 2018 with current title and April 2012
Reaffirmed September 2005
Revised titled, “Trauma Care Systems Development, Evaluation and Funding” January 1999
Originally approved titled, “Trauma Care Systems Development and Evaluation” June 1998

Integrated, evidence-based trauma care systems reduce injury-related morbidity and mortality while simultaneously saving costs, both directly in healthcare dollars and indirectly in societal impact. The American College of Emergency Physicians (ACEP) supports the following principles related to the advancement of trauma care systems:

Federal and state legislation must support unrestricted access of acutely injured patients to an integrated trauma care system.

Trauma care systems must have robust continuous quality improvement programs to gather clinically meaningful data in order to optimally improve future patient care and outcomes.

Injury related databanks are most useful to injury prevention and intervention when incorporating information across all phases of care, from point of injury through rehabilitation and recovery. Databanks allow researchers to define emerging injury types, identify and assess injury prevention strategies, elucidate optimal acute care interventions, and measure rehabilitation outcomes. These databank-derived answers further serve to promote effective allocation of system financing and resources.

ACEP and its members, in collaboration with other key stakeholders, must provide a leadership role in injury prevention, acute injury care, injury research, and trauma care systems advocacy.
TREATMENT OF FAMILY, FRIENDS, COLLEAGUES, AND SELF

Emergency physicians may be asked to provide medical treatment for people with whom they have significant personal relationships, including family members, close friends, and professional colleagues. They may also consider treating their own illnesses or injuries. Multiple commentators advise against providing treatment in these circumstances, arguing that combining personal and therapeutic relationships can undermine the quality of care and pose significant risks of harm to both patients and physicians. Commonly cited concerns include:

- Compromised objectivity in diagnosis and treatment when physicians have a strong personal or emotional stake in patient outcomes.
- Reluctance of physicians to inquire about, and of patients to disclose, sensitive or embarrassing health information to family, friends, or colleagues.
- Reluctance of physicians to disclose bad news to family, friends, or colleagues.
- Patient discomfort with the loss of personal privacy during physical examinations and treatment by a family member, close friend, or professional colleague, and physician reluctance to perform a thorough physical examination in order to protect the patient’s privacy.
- Reduced autonomy, when physicians are reluctant to decline to treat a family member, friend, or colleague, and when patients are reluctant to refuse treatment by a family member, friend, or colleague.
- Damage to valuable personal relationships as a consequence of a difficult course of treatment or a poor treatment outcome.

In view of these important concerns, the American College of Emergency Physicians (ACEP) recommends that emergency physicians refrain from providing medical treatment for family members, close friends, professional colleagues, and themselves, except in several limited and specific circumstances. Circumstances in which emergency physicians may or should treat family members, close friends, professional colleagues, and themselves include:
• Medical care for emergency conditions or in isolated geographic settings, when no other qualified physician is available.
• Short-term treatment of minor illnesses or injuries.
• Situations in which health care professionals present to an emergency department or other treatment setting with a request for treatment from emergency physicians who are their colleagues (provided that the requested treatment is within the emergency physician’s skill set).

ACEP recognizes that statutes and medical licensure board policies in many US states restrict or prohibit some forms of treatment of family members, friends, or self. Emergency physicians should, therefore, familiarize themselves with the applicable laws and policies on this issue in their own jurisdictions.
The American College of Emergency Physicians (ACEP) believes that the quality of patient care benefits from implementing a standardized emergency department (ED) triage scale and acuity categorization process. Based on expert consensus of currently available evidence, ACEP and ENA support the adoption of a scientifically validated triage scale such as the Emergency Severity Index (ESI). These organizations also support continued research and investigation to further refine patient acuity assignment, especially for high-risk populations.
POLICY STATEMENT

Approved June 2016

Ultrasound Guidelines:
Emergency, Point-of-care, and Clinical Ultrasound Guidelines in Medicine

Sections
1. Introduction
2. Scope of Practice
3. Training and Proficiency
4. Credentialing
5. Quality and US Management
6. Value and Reimbursement
7. Clinical US Leadership in Healthcare Systems
8. Future Issues
9. Conclusion

Tables
1. Relevant Ultrasound Definitions
2. Other Emergency Ultrasound Applications (adjunct or emerging)

Figures
1. ACEP 2016 Emergency US Scope of Practice
2. Pathways for Emergency US Training, Credentialing, and Incorporation of New Applications
3. Clinical US Workflow

Appendices
1. Evidence for Core Emergency US Applications
2. Emergency US Learning Objectives
3. Recommendations for EM Residency EUS Education Program
4. Recommendations for EUS Course
5. US in UME - Medical School Rotation and Curriculum
Section 1 – Introduction

Ultrasound (US) has become an integral modality in emergency care in the United States during the last two decades. Since the last update of these guidelines in 2008, US use has expanded throughout clinical medicine and established itself as a standard in the clinical evaluation of the emergency patient. There is a wide breadth of recognized emergency US applications offering advanced diagnostic and therapeutic capability benefit to patients across the globe. With its low capital, space, energy, and cost of training requirements, US can be brought to the bedside anywhere a clinician can go, directly or remotely. The use of US in emergency care has contributed to improvement in quality and value, specifically in regard to procedural safety, timeliness of care, diagnostic accuracy, and cost reduction. In a medical world full of technological options, US fulfills the concept of “staged imaging,” where the use of US first can answer important clinical questions accurately without the expense, time or side effects of advanced imaging or invasive procedures.

Emergency physicians have taken the leadership role for the establishment and education of bedside, clinical, point-of-care US use by clinicians in the United States and around the world. Ultrasonography has spread throughout all levels of medical education, integrated into medical school curricula through residency to postgraduate education of physicians, and extended to other providers such as nursing, advanced practice professionals, and prehospital providers. US curricula in undergraduate medical education is growing exponentially due to the leadership and advocacy of emergency physicians. US in emergency medicine (EM) residency training has now been codified in the Accreditation Council for Graduate Medical Education (ACGME) Next Accreditation System (NAS). Emergency US specialists have created the foundation of a subspecialty of ultrasonography that provides the expertise for establishing clinical practice, educating across the educational spectrum, and researching the wide range of applications of ultrasonography. Within healthcare institutions and healthcare systems, emergency physicians are now leading institutional clinical US programs that have used this guideline as a format for multidisciplinary programs.

US imaging and information systems have become more sophisticated and digital over the last decade allowing emergency US examinations to have versatility, mobility and integration. US hardware for emergency care has become more modular, smaller, and powerful, ranging from smartphone size to slim, cart-based systems dedicated to the emergency medicine market. US hardware has evolved to allow on-machine reporting, wireless connectivity and electronic medical record (EMR) and picture archiving and communication system (PACS) integration. A new software entity, US management systems, was created to provide administrative functionality and the integration of US images into electronic records. Emergency physician expertise was integral in the development of these hardware and software advances.

These guidelines reflect the evolution and changes in the evolving world of emergency medicine and the growth of US practice. Themes of universality of practice, educational innovation, core credentialing, quality improvement, and value highlight this new edition of the guidelines. The ultimate mission of providing excellent patient care will be enhanced by emergency physicians and other clinicians being empowered with the use of US.

Section 2 – Scope of Practice

Emergency Ultrasound (EUS) is the medical use of US technology for the bedside evaluation of acute or critical medical conditions.\(^1\) It is utilized for diagnosis of any emergency condition, resuscitation of the acutely ill, critically ill or injured, guidance of procedures, monitoring of certain pathologic states and as an adjunct to therapy. EUS examinations are typically performed, interpreted, and integrated into care by emergency physicians or those under the supervision of emergency physicians in the setting of the emergency department (ED) or a non-ED emergency setting such as hospital unit, out-of-hospital, battlefield, space, urgent care,
Other medical specialties may wish to use this document if they perform EUS in the manner described above. However, guidelines which apply to US examinations or procedures performed by consultants, especially consultative imaging in US laboratories or departments, or in a different setting may not be applicable to emergency physicians.

Emergency US is an emergency medicine procedure, and should not be considered in conflict with exclusive “imaging” contracts that may be in place with consultative US practices. In addition, emergency US should be reimbursed as a separate billable procedure. 

EUS is a separate entity distinct from the physical examination that adds anatomic, functional, and physiologic information to the care of the acutely-ill patient. It provides clinically significant data not obtainable by inspection, palpation, auscultation, or other components of the physical examination. US used in this clinical context is also not equivalent to use in the training of medical students and other clinicians in training looking to improve their understanding of anatomic and physiologic relationships of organ systems.

EUS can be classified into the following functional clinical categories:

1. **Resuscitative**: US use as directly related to an acute resuscitation
2. **Diagnostic**: US utilized in an emergent diagnostic imaging capacity
3. **Symptom or sign-based**: US used in a clinical pathway based upon the patient’s symptom or sign (e.g., shortness of breath)
4. **Procedure guidance**: US used as an aid to guide a procedure
5. **Therapeutic and Monitoring**: US use in therapeutics or in physiological monitoring

Within these broad functional categories of use, 12 core emergency US applications have been identified as Trauma, Pregnancy, Cardiac/Hemodynamic assessment, Abdominal aorta, Airway/Thoracic, Biliary, Urinary Tract, Deep Vein Thrombosis (DVT), Soft-tissue/Musculoskeletal (MSK), Ocular, Bowel, and Procedural Guidance. Evidence for these core applications may be found in Appendix 1. The criteria for inclusion for core are widespread use, significant evidence base, uniqueness in diagnosis or decision-making, importance in primary emergency diagnosis and patient care, or technological advance.

Alternatively, symptom and sign based US pathways, such as Shock or Dyspnea, may be considered an integrated application based on the skills required in the pathway. In such pathways, applications may be mixed and utilized in a format and order that maximizes medical decision-making, outcomes, efficiency and patient safety tailored to the setting, resources, and patient characteristics. See Figure 1.

Emergency physicians should have basic education in US physics, instrumentation procedural guidance, and Focused Assessment with Sonography in Trauma (FAST) as part of EM practice. It is not mandatory that every clinician performing emergency US examinations utilize or be expert in each core application, but it is understood that each core application is incorporated into common emergency US practice nationwide. The descriptions of these examinations may be found in the ACEP policy, Emergency Ultrasound Imaging Criteria
Compendium. Many other US applications or advanced uses of these applications may be used by emergency physicians. Their non-inclusion as a core application does not diminish their importance in practice nor imply that emergency physicians are unable to use them in daily patient care.

Each EUS application represents a clinical bedside skill that can be of great advantage in a variety of emergency patient care settings. In classifying an emergency US, a single application may appear in more than one category and clinical setting. For example, a focused cardiac US may be utilized to identify a pericardial effusion in the diagnosis of an enlarged heart on chest x-ray. The focused cardiac US may be utilized in a cardiac resuscitation setting to differentiate true pulseless electrical activity from profound hypovolemia. The focused cardiac US can be used to monitor the heart during resuscitation in response to fluids or medications. If the patient is in cardiac tamponade, the cardiac US can also be used to guide the procedure of pericardiocentesis. In addition, the same focused cardiac study can be combined with one or more additional emergency US types, such as the focused abdominal, the focused aortic or the focused chest US, into a clinical algorithm and used to evaluate a presenting symptom complex. Examples of this would be the evaluation of patients with undifferentiated non-traumatic shock or the focused assessment with sonography in trauma (FAST), or extended FAST examination in the patient presenting with traumatic injury. See Figure 1.

Ultrasound guided procedures provide safety to a wide variety of procedures from vascular access (eg, central venous access) to drainage procedures (eg, thoracentesis pericardiocentesis, paracentesis, arthrocentesis) to localization procedures like US guided nerve blocks. These procedures may provide additional benefits by increasing patient safety and treating pain without the side-effects of systemic opiates.

Other US applications are performed by emergency physicians, and may be integrated depending on the setting, training, and needs of that particular ED or EM group. Table 2 lists other emergency US applications.

Other Settings or Populations

**Pediatrics.** US is a particularly advantageous diagnostic tool in the management of pediatric patients, in whom radiation exposure is a significant concern. EUS applications such as musculoskeletal evaluation for certain fractures (rib, forearm, skull), and lung for pneumonia may be more advantageous in children than in adults due to patient size and density. US can be associated with increased procedural success and patient safety, and decreased length of stay. While most US modalities in the pediatric arena are the same as in adult patients (the EFAST exam for trauma, procedural guidance), other modalities are unique to the pediatric population such as in suspected pyloric stenosis and intussusception, or in the child with hip pain or a limp). Mostly recently, EUS has been formally incorporated into Pediatric EM fellowship training.

**Critical Care.** EUS core applications are being integrated into cardiopulmonary and non-invasive hemodynamic monitoring into critical care scenarios. Dual-trained physicians in emergency medicine and critical care are leading the application, education, and research of US for critically ill patients, and have significant leadership in advancing US concepts in multidisciplinary critical care practice. Advanced cardiopulmonary US application are being integrated into critical care practice.

**Prehospital.** There is increasing evidence that US has an increasing role in out-of-hospital emergency care. Challenges to the widespread implementation of out-of-hospital US include significant training and equipment requirements, and the need for careful physician oversight and quality assurance. Studies focusing on patient outcomes need to be conducted to further define the role of out-of-hospital US and to identify settings where the benefit to the patient justifies the investment of resources necessary to implement such a program.
International arena including field, remote, rural, global public health and disaster situations. US has become the primary initial imaging modality in disaster care. US can direct and optimize patient care in domestic and international natural disasters such as tsunami, hurricane, famine or man-made disasters such as battlefield or refugee camps. US provides effective advanced diagnostic technology in remote geographies such as rural areas, developing countries, or small villages which share the common characteristics of limited technology (ie, x-ray, CT, MRI), unreliable electrical supplies, and minimally trained health care providers. US use in outer space is unique as the main imaging modality for space exploration and missions. Ultrasound has also been used in remote settings such as international exploration, mountain base camps, and cruise ships. The increasing portability of US machines with increasing image resolution has expanded the use of emergent imaging in such settings. See ACEP linked resources at www.globalsoono.org

Military and Tactical. The military has embraced the utilization of US technology in austere battlefield environments. It is now routine for combat support hospitals as well as forward surgical teams to deploy with next generation portable ultrasonography equipment. Clinical ultrasonography is often used to inform decisions on mobilization of casualties to higher echelons of care and justify use of limited resources. Within the last decade, emergency physicians at academic military medical centers have expanded ultrasonography training to clinical personnel who practice in close proximity to the point of injury, such as combat medics, special operations forces, and advanced practice professionals. The overarching goal of these training programs is to create a generation of competent clinical sonologists capable of practicing “good medicine in bad places.” The military is pursuing telemedicine-enabled US applications, automated US interpretation capabilities, and extension of clinical ultrasonography in additional areas of operation, such as critical care air evacuation platforms.

Section 3 – Training and Proficiency

There is an evolving spectrum of training in clinical US from undergraduate medical education through post-graduate training, where skills are introduced, applications are learned, core concepts are reinforced and new applications and ideas evolve in the life-long practice of US in emergency medicine.

Competency and Curriculum Recommendations

Competency in EUS requires the progressive development and application of increasingly sophisticated knowledge and psychomotor skills for an expanding number of EUS applications. This development parallels the performance of any EUS exam.

The ACEP definition of US competency includes the following components. First, the clinician needs to recognize the indications and contraindications for the EUS exam. Next, the clinician must be able to acquire adequate images. This begins with an understanding of basic US physics, translated into the skills needed to operate the US system correctly (knobology), while performing exam protocols on patients presenting with different conditions and body habitus. Simultaneous with image acquisition, the clinician needs to interpret the imaging by distinguishing between normal anatomy, common variants, as well as a range of pathology from obvious to subtle. Finally, the clinician must be able to integrate EUS exam findings into individual patient care plans and management. Ultimately, effective integration includes knowledge of each particular exam accuracy, as well as proper documentation, quality assurance, and EUS reimbursement. See ACEP linked resources at www.acep.org/sonoguide.

An EUS curriculum requires considerable faculty expertise, dedicated faculty time and resources, and departmental support. These updated guidelines continue to provide the learning objectives (See Appendix 2), educational methods, and assessment measures for any EUS residency or practice-based curriculum. As part
of today’s effort to reinvent medical education, all educators are now faced with the challenge of creating curricula that provide for individualized learning yet result in the standardized outcomes such as those outlined in current residency milestones.  

Innovative Educational Methods and Assessment Measures

As a supplement to traditional EUS education already described in previous guidelines, recent online and technological innovation is providing additional individualized educational methods and standardized assessment measures to meet this challenge.  

Free open access medical (FOAM) education podcasts and narrated lectures provide the opportunity to create the flipped EUS classroom. For the trainee, asynchronous learning provides the opportunity to repeatedly review required knowledge on demand and at their own pace. For educators, less time may be spent providing recurring EUS didactics, and more time dedicated to higher level tasks such as teaching psychomotor skills and integration of exam findings into patient and ED management. Both EUS faculty and trainees together may identify potential FOAM resources. However, EUS faculty must now take the new role of FOAM curator. New online resources must be carefully reviewed to ensure that each effectively teaches the objectives in these guidelines before being introduced into an EUS curriculum.

Similar to knowledge learning, there are new educational methods to teach the required psychomotor skills of EUS. The primary educational method continues to be small group hands-on training in the ED with EUS faculty, followed by supervised examination performance with timely quality assurance review. Simulation is currently playing an increasingly important role as both an EUS educational method and assessment measure. Numerous investigators have demonstrated that simulation results in equivalent image acquisition, interpretation, and operator confidence in comparison to traditional hands-on training. US simulators provide the opportunity for deliberate practice of a new skill in a safe environment prior to actual clinical performance. The use of simulation for deliberate practice improves the success rate of invasive procedures and reduces patient complications. Additionally, simulation has the potential to expose trainees to a wider spectrum of pathology and common variants than typically encountered during an EUS rotation. Blended learning created by the flipped classroom, live instructor training, and simulation provide the opportunity for self-directed learning, deliberate practice and mastery learning.

Simulation also provides a valid assessment measure of each component of EUS competency. Appropriately designed cases assess a trainee’s ability to recognize indications, demonstrate image acquisition and interpretation, as well as apply EUS findings to patient and ED management. These proven benefits and the reduction in direct faculty time justify the cost of a high-fidelity US simulator. Furthermore, costs may be shared across departments.

Documenting Experience and Demonstrating Proficiency

Traditional number benchmarks for procedural training in medical education provide a convenient method for documenting the performance of a reasonable number of exams needed for a trainee to develop competency. However, learning curves vary by trainee and application. Individuals learn required knowledge and psychomotor skills at their own pace. Supervision, opportunities to practice different applications and encounter pathology also differ across departments.

Therefore, in addition to set number benchmarks individualized assessment methods need to be utilized. Recommended methods include the following: real time supervision during clinical EUS, weekly QA teaching sessions and image review, ongoing QA exam feedback, standardized knowledge assessments, small group Observed Structured Clinical Examinations (OSCEs), one-on-one standardized direct observation tools
Trainees should complete a benchmark of 25-50 quality-reviewed exams in a particular application. It is acknowledged that the training curve may level out below or above this recommended threshold, and that learning is a lifelong process with improvements beyond initial training. Previously learned psychomotor skills are often applicable to new applications. For example, experience with FAST provides a springboard to learning resuscitation, genitourinary, and transabdominal pelvic EUS.

Overall EUS trainees should complete a benchmark of 150-300 total EUS exams depending on the number of applications being utilized. For example, an academic department regularly performing greater than six applications may require residents to complete more than 150 exams, while a community ED with practicing physicians just beginning to incorporate EUS with FAST and vascular access should require less.

If different modalities such as endovaginal technique are being used for an application, the minimum may need to include a substantial experience in that technique. We would recommend a minimum of 10 examinations in the other technique (eg, endocavitary for early pregnancy) with the assumption that educational goals of anatomic, pathophysiology, and abnormal states are identified with all techniques taught.

Procedural US applications require fewer exams given prior knowledge, psychomotor skills, and clinical experience with traditional blind technique. Trainees should complete five quality reviewed US-guided procedure examinations or a learning module on an US-guided procedures task trainer.

Training exams need to include patients with different conditions and body types. Exams may be completed in different settings including clinical and educational patients in the ED, live models at EUS courses, utilizing US simulators, and in other clinical environments. Abnormal or positive scans should be included in a significant number of training exams used to meet credentialing requirements. Image review or simulation may be utilized for training examinations in addition to patient encounters when adequate pathology is not available for the specific application. In-person supervision is optimal during introductory education but is not required for residency or credentialing examinations after initial didactic training.

During benchmark completion, all EUS exams should be quality reviewed for technique and accuracy by EUS faculty. Alternatively, an EUS training portfolio of exam images and results may be compared to other diagnostic studies and clinical outcomes in departments where EUS faculty are not yet available. After initial training, continued quality assurance of EUS exams is recommended for a proportion (5-10%) of ongoing exams to document continued competency.

Recently, several secure online quality assurance workflow systems have become commercially available (See Section 5- Quality and US Management). Current systems greatly enhance trainee feedback by providing for more timely review of still images and video loops, customized application and feedback forms, typed and voice feedback, as well as storage and export of data within a relational database.

Training Pathways

There are two recommended pathways for clinicians to become proficient in EUS. See Figure 2. The majority
of emergency physicians today receive EUS training as part of an ACGME-approved EM residency. A second practice-based pathway is provided for practicing EM physicians and other EM clinicians who did not receive EUS training through completion of an EM residency program.

These updated EUS guidelines continue to provide the learning objectives, educational methods and assessment measures for either pathway. Learning objectives for each application are described in Appendix 2.

**Residency Based Pathway**

EUS has been considered a fundamental component of emergency medicine training for over two decades.\textsuperscript{50-52} The ACGME mandates procedural competency in EUS for all EM residents as it is a “skill integral to the practice of Emergency Medicine” as defined by the 2013 Model of the Clinical Practice of EM.\textsuperscript{53} The ACGME and the American Board of Emergency Medicine (ABEM) recently defined twenty-three sub competency milestones for emergency medicine residency training.\textsuperscript{34} Patient Care Milestone twelve (12) describes the sequential learning process for EUS and should be considered a guideline in addition to other assessment methods mentioned in this guideline. Appendix 3 provides recommendations for EM residency EUS education.

Upon completion of residency training, emergency medicine residents should be provided with a standardized EM Resident EUS credentialing letter. For the EUS faculty, ED Director or Chairperson at the graduate’s new institution, this letter provides a detailed description of the EUS training curriculum completed, including the number of quality reviewed training exams completed by application and overall, and performance on SDOTs and simulation assessments.

**Practice Based Pathway**

For practicing emergency medicine (EM) attendings who completed residency without specific EUS training, a comprehensive course, series of short courses, or preceptorship is recommended. Shorter courses covering single or a combination of applications may provide initial or supplementary training. As part of pre-course preparation, EUS faculty must consider the unique learning needs of the participating trainees. The course curriculum should include trainee-appropriate learning objectives, educational methods and assessment measures as outlined by these guidelines. If not completed previously, then introductory training on US physics and knobology is required prior to training in individual applications. Pre-course and post-course online learning may be utilized to reduce the course time spent on traditional didactics and facilitate later review. Small group hands-on instruction with EUS faculty on models, simulators, and task trainers provides experience in image acquisition, interpretation, and integration of EUS exam findings into patient care. See Appendix 4.

Preceptorships typically lasting 1-2 weeks at an institution with an active EUS education program have also been utilized successfully to train practicing physicians. Each preceptorship needs to begin with a discussion of the trainees’ unique educational needs, hospital credentialing goals as well as financial support for faculty teaching time. Then the practicing physician participates in an appropriately tailored curriculum typically in parallel with ongoing student, resident, fellow and other educational programming.

Similar to an EM Resident EUS credentialing letter, course and preceptorship certificates should include a description of the specific topics and applications reviewed, total number of training exams completed with expert supervision, performance on other course assessment measures such as SDOTs or simulation cases, as well as the number of CME hours earned. These certificates are then given to local EUS faculty or ED Director/Chairperson to document training.
Advanced Practice Providers, Nursing, Paramedics, and other EM clinicians

In many practice environments, EUS faculty often provide clinical US training to other non-physician staff including Advanced Practice Professionals, Nurses, Paramedics, Military Medics and Disaster Response Team members. The recommendations in these guidelines should be utilized by EUS faculty when providing such training programs. Pre-course preparation needs to include discussions with staff leadership to define role-specific learning needs and applications to be utilized. Introductory US physics, knobology, and relevant anatomy and pathophysiology are required prior to training in targeted applications.

For Advanced Practice Providers and other clinicians practicing in rural and austere environments where direct EUS trained EM physician oversight is not available, EUS training needs to adhere to the recommendations in these guidelines. Specifically, comprehensive didactics and skills training, as well as minimum benchmarks need to be completed prior to independent EUS utilization. Beyond this initial training, EUS faculty are needed to provide ongoing quality assurance review. Telemedicine may provide the opportunity for real time patient assessment, assistance with image acquisition, and immediate review of patient images.

Ongoing Education

As with all aspects of emergency medicine ongoing education is required regardless of training pathway. The amount of education needed depends on the number of applications being performed, frequency of utilization, the local practice of the individual clinician and other developments in EUS and EM. Individual EUS credentialed physicians should continue their education with a focus on US activities as part of their overall educational activities. Educational sessions that integrate US into the practice of EM are encouraged, and do not have to be didactic in nature, but may be participatory or online. Recommended EUS educational activities include conference attendance, online educational activities, preceptorships, teaching, research, hands-on training, program administration, quality assurance, image review, in-service examinations, textbook and journal readings, as well as morbidity and mortality conferences inclusive of US cases. US quality improvement is an example of an activity that may be used for completion of the required ABEM Assessment of Practice Performance activities.

Fellowship Training

Fellowships provide the advanced training needed to create future leaders in evolving areas of medicine such as clinical US. This advanced training produces experts in clinical US and is not required for the routine utilization of EUS.

An EUS fellowship provides a unique, focused, and mentored opportunity to develop and apply a deeper comprehension of advanced principles, techniques, applications, and interpretative findings. Knowledge and skills are continually reinforced as the fellow learns to effectively educate new trainees in EUS, as well as clinicians in other specialties, and practice environments. A methodical review of landmark and current literature, as well as participation in ongoing research, creates the ability to critically appraise and ultimately generate the evidence needed for continued improvements in patient care through clinical US. Furthermore, fellowship provides practical experience in EUS program management including quality assurance review, medical legal documentation, image archiving, reimbursement, equipment maintenance, and other administrative duties of an EUS program director.

Recommendations for fellowship content, site qualifications, criteria for fellowship directors, and minimum graduation criteria for fellows have been published by national EUS leadership and ACEP Emergency Ultrasound Fellowship Guidelines. Each fellowship program’s structure and curriculum will vary slightly
based on local institution and department resources. At all fellowship programs, mentorship and networking are fundamental to a fellow’s and program’s ultimate success. Both require significant EUS faculty time for regular individual instruction as well as participation in the clinical US community locally and nationally. Hence, institution and department leadership support is essential to ensuring an appropriate number of EUS faculty, each provided with adequate non-clinical time.

For the department, a fellowship speeds the development of an EUS program. Fellowships improve EM resident training resulting in increased performance of EUS examinations. Furthermore, a fellowship training program may have a significant positive impact on overall EUS utilization, timely quality assurance review, faculty credentialing, billing revenue, and compliance with documentation. For an institution, an EUS fellowship provides a valuable resource for other specialties just beginning clinical US programs. Collaborating with EUS faculty and fellows, clinicians from other departments are often able to more rapidly educate staff and create effective clinical US programs.

**US in Undergraduate Medical Education**

Emergency Medicine has again taken a lead role in efforts to improve Undergraduate Medical Education (UME) through the early integration of clinical US. During the preclinical years, US has been demonstrated to be an effective educational method to reinforce student understanding of anatomy, physical examination skills, pathology and bedside diagnostic skills. During the clinical years, students are then better able to utilize US for clinical diagnosis and on specific rotations. US exposure in UME can provide a solid knowledge base for individuals to build upon and later utilize as US is integrated into their clinical training.

**Integrating US into UME**

Integration of US into pre-clinical UME often begins with medical student and faculty interest. By working closely with a medical school’s curriculum committee, US may then be incorporated as a novel educational method to enhance learning within existing preclinical courses. Although dedicated US specific curriculum time is not often available in UME, considerable clinical US faculty time and expertise is still required for effective integration of US into existing medical school courses. Widespread clinical US utilization by different specialties within a medical school’s teaching hospitals, and education within Graduate Medical Education programs, provides initial faculty expertise, teaching space, and US equipment. Ongoing education then requires local departmental and medical school leadership support, as well as continued organized collaboration between faculty from participating specialties.

Innovative educational methods again provide the opportunity for clinical US faculty to focus on small group hands-on instruction as described in the innovative education section.

Many academic departments that currently offer clinical rotations within Emergency Medicine already include an introduction to EUS as a workshop, or a set number of EUS shifts. Dedicated EUS elective rotations provide an additional opportunity for medical students interested in Emergency Medicine and other specialties utilizing clinical US to participate in an EUS rotation adapted to their level of training and unique career interests. See Appendix 5 for recommendations for EUS and Clinical US medical school rotations.

**US in UME continuing into Clinical US in GME**

UME US experience should prepare new physicians to more rapidly utilize clinical US to improve patient care during graduate medical education (GME) training. Medical students today therefore should graduate with a basic understanding of US physics, machine operation, and common exam protocols such as US guided
vascular access. Medical students matriculating from a school with an integrated US curriculum, as well as those completing an elective clinical US rotation, should be provided with a supporting letter similar in regard to didactics, hands-on training, and performed examinations. Although all trainees need to complete the EUS residency milestones, trainees with basic proficiency in clinical US from UME training may progress more rapidly and ultimately achieve higher levels of EUS expertise during GME. Additionally, these residents may provide considerable EUS program support as peer-to-peer instructors, residency college leaders, investigators and potentially future fellows.

Section 4 – Credentialing and Privileging

Implementing a transparent, high quality, verifiable and efficient credentialing system is an integral component of an emergency US program. An emergency US director, along with the department leadership, should oversee policies and guidelines pertaining to emergency US. The department should follow the specialty-specific guidelines set forth within this document for their credentialing and privileging process.

Pertaining to clinician performed US, the American Medical Association (AMA) House of Delegates in 1999 passed a resolution (AMA HR. 802) recommending hospitals’ credentialing committees follow specialty-specific guidelines for hospital credentialing decisions related to US use by clinicians. This resolution affirms that US imaging is within the scope of practice of appropriately trained physician specialists and provides clear support for hospital credentialing committees to grant emergency US (EUS) privileging based on the specialty-specific guidelines contained within this document without the need to seek approval from other departments. Furthermore, HR 802 states that opposition that is clearly based on financial motivation meets criteria to file an ethical complaint to the AMA.

The provision of clinical privileges in EM is governed by the rules and regulations of the department and institution for which privileges are sought. The EM Chairperson or Medical Director or his/her designate (eg, emergency US director) is responsible for the assessment of clinical US privileges of emergency physicians. When a physician applies for appointment or reappointment to the medical staff and for clinical privileges, including renewal, addition, or rescission of privileges, the reappraisal process must include assessment of current competence. The EM leadership will, with the input of department members, determine the means by which each emergency physician will maintain competence and skills and the mechanism by which each physician is monitored.

EM departments should list emergency US within their core emergency medicine privileges as a single separate privilege for “Emergency US” or US applications can be bundled into an “US core” and added directly to the core privileges. EM should take responsibility to designate which core applications it will use, and then track its emergency physicians in each of those core applications. To help integrate physicians of different levels of sonographic competency (graduating residents, practicing physicians, fellows and others), it is recommended that the department of emergency medicine create a credentialing system that gathers data on individual physicians, which is then communicated in an organized fashion at predetermined thresholds with the institution-wide credentialing committee. This system focuses supervision and approval at the department level where education, training, and practice performance is centered prior to institutional final review. As new core applications are adopted, they should be granted by an internal credentialing system within the department of emergency medicine.

Eligible providers to be considered for privileging in emergency ultrasonography include emergency physicians or other providers who complete the necessary training as specified in this document via residency training or practice based training (see Section 3 - Training and Proficiency). After completing either pathway, these skills should be considered a core privilege with no requirement except consistent utilization. At
institutions that have not made EUS a core privilege, submission of 5-10% of the initial requirement for any EUS application is sufficient to demonstrate continued proficiency.

Sonographer certification or emergency US certification by external entities is not an expected, obligatory or encouraged requirement for emergency US credentialing. Physicians with advanced US training or responsibilities may be acknowledged with a separate hospital credential if desired.

Regarding re-credentialing or credentialing at a new health institution or system, ACEP recommends that once initial training in residency or by practice pathway is completed, credentialing committees recognize that training as a core privilege, and ask for proof of recent updates or a short period of supervision prior to granting full privileges.

In addition to meeting the requirements for ongoing clinical practice set forth in this document, physicians should also be assessed for competence through the CQI program at their institution. (See Section 5-Quality and US Management) The Joint Commission (TJC) in 2008 implemented a new standard mandating detailed evaluation of practitioners’ professional performance as part of the process of granting and maintaining practice privileges within a healthcare organization. This standard includes processes including the Ongoing Professional Practice Evaluation (OPPE) and the Focused Professional Practice Evaluation (FPPE). Specific to FPPE and US credentialing, for infrequently performed US examinations, FPPE monitoring can be performed on a pre-determined number of examinations (ie, review of the diagnoses made on the first 10 or 20 of a particular US examination). The FPPE process should: 1. Be clearly defined and documented with specific criteria and a monitoring plan; 2. Be of fixed duration; and 3. Have predetermined measures or conditions for acceptable performance. OPPE can incorporate EUS quality improvement processes. US directors should follow these guidelines when setting up their credentialing and privileging processes.

Section 5 – Quality and US Management

In order to ensure quality, facilitate education, and satisfy credentialing pathways, a plan for an emergency US quality assurance (QA) and improvement program should be in place. This plan should be integrated into the overall ED operations. The facets of such a program are listed below. Programs should strive for meeting these criteria, and may seek accreditation through the Clinical Ultrasound Accreditation Program (CUAP).

Emergency US Director

The emergency US director is a board-eligible or certified emergency physician who has been given administrative oversight over the emergency US program from the EM Chairperson, director or group. This may be a single or group of physicians, depending on size, locations, and coverage of the group. Specific responsibilities of an US director and associates may include:

- Developing and ensuring compliance to overall program goals: educational, clinical, financial, and academic.
- Selecting appropriate US machines for clinical care setting and developing and monitoring maintenance care plan to ensure quality and cleanliness.
- Designing and managing an appropriate credentialing and privileging program for physicians, residents, or advanced practice providers (APP) or other type of providers within the group and/or academic facility.
- Designing and implementing in-house and/or out-sourced educational programs for all providers involved in the credentialing program.
- Monitoring and documenting individual physician privileges, educational experiences, and US scans.
- Developing, maintaining, and improving an adequate QA process in which physician scans are reviewed for quality in a timely manner and from which feedback is generated.
The emergency US director must be credentialed as an emergency physician and maintain privileges for emergency US applications. If less than two years in the position of US director, it is recommended that the director have either: 1) graduated from an emergency US fellowship, 2) participated in an emergency US management course, or 3) completed an emergency US preceptorship or mini-fellowship. If part of a multihospital group, there must be consideration of local US directors with support from overall system US director. Institutional and departmental support should be provided for the administrative components listed above.

**Supervision of US Training and Examinations**

Ultrasound programs in clinical specialties have a continuing and exponential educational component encompassing traditionally graduate and post-graduate medical training, but now undergraduate, APP, prehospital, remote, and other trainees are seeking training. Policies regarding the supervision and responsibility of these US examinations should be clear. (See Sections 2, 3, and 4)

**US Documentation**

Emergency US is different from consultative US in other specialties as the emergency physician not only performs but also interprets the US examination. In a typical hospital ED practice, US findings are immediately interpreted, and should be communicated to other physicians and services by written reports in the ED medical record. Emergency US documentation reflects the nature of the exam, which is focused, goal-directed, and performed at the bedside contemporaneously with clinical care. This documentation may be preliminary and brief in a manner reflecting the presence or absence of the relevant findings. Documentation as dictated by regulatory and payor entities may require more extensive reporting including indication, technique, findings, and impression. Although EMRs are quickly becoming the norm, documentation may be handwritten, transcribed, templated, or computerized. Regardless of the documentation system, US reports should be available to providers to ensure timely availability of interpretations for consultant and health care team review. Ideally, EMR systems should utilize effective documentation tools to make reporting efficient and accurate.

During out-of-hospital, remote, disaster, and other scenarios, US findings may be communicated by other methods within the setting constraints. Incidental findings should be communicated to the patient or follow-up provider. Discharge instructions should reflect any specific issues regarding US findings in the context of the ED diagnosis. Hard copy (paper, film, video) or digital US images are typically saved within the ED or hospital archival systems. Digital archival with corresponding documentation is optimal and recommended. Finally, documentation of emergency US procedures should result in appropriate reimbursement for services provided. (See Section 6 – Value and Reimbursement)

**Quality Improvement Process**

Quality improvement (QI) systems are an essential part of any US program. The objective of the QI process is to evaluate the images for technical competence, the interpretations for clinical accuracy, and to provide feedback to improve physician performance.

Parameters to be evaluated might include image resolution, anatomic definition, and other image quality acquisition aspects such as gain, depth, orientation, and focus. In addition, the QI system should compare the impression from the emergency US interpretation to patient outcome measures such as consultative US, other imaging modalities, surgical procedures, or patient clinical outcome.
The QI system design should strive to provide timely feedback to physicians. Balancing quality of review with provision of timely feedback is a key part of QA process design. Any system design should have a data storage component that enables data and image recall.

A process for patient callback should be in place and may be incorporated into the ED’s process for calling patients back. Callbacks should occur when the initial image interpretation, upon QA review, may have been questionable, inappropriate and of clinical significance. In all cases, the imaging physician is informed of the callback and appropriate counseling/training is provided.

Images obtained prior to a provider attaining levels sufficient for credentialing should be reviewed.

Once providers are credentialed, programs should strive to sample a significant number of images from each provider that ensures continued competency. Due to the varieties of practice settings the percentage of scans undergoing quality assurance should be determined by the US director and should strive to protect patient safety and maintain competency. While this number can vary, a goal of 10% may be reasonable, adjusted for the experience of the providers and newness of the US application in that department.

The general data flow in the QA system is as follows:

1. Images obtained by the imaging provider should be archived, ideally on a digital system. These images may be still images or video clips, and should be representative of the US findings.
2. Clinical indications and US interpretations are documented on an electronic or paper record by the imaging provider.
3. These images and data are then reviewed by the US director or his/her designee.
4. Reviewers evaluate images for accuracy and technical quality and submit the reviews back to the imaging provider.
5. Emergency US studies are archived and available for future review should they be needed.

QA systems currently in place range from thermal images and log books to complete digital solutions. Finding the system that works best for each institution will depend on multiple factors, such as machine type, administrative and financial support, and physician compliance. Current digital management systems offer significant advantages to QA workflow and are recommended.

US QA may also contribute to the ED’s local and national QI processes. US QA activities may be included in professional practice evaluation, practice performance, and other quality improvement activities. Measures such as performance of a FAST exam in high acuity trauma, detection of pregnancy location, use of US for internal jugular vein central line cannulation may be the initial logical elements to an overall quality plan. In addition, US QA databases may contribute to a registry regarding patient care and clinical outcomes.

US programs that include multiple educational levels and various types of providers should implement processes to integrate QA into the education process as well as the departmental or institutional quality framework. Technology allowing remote guidance and review may be integrated into the US QA system.

**US Machines, Safety, and Maintenance**

Dedicated US machines located in the ED for use at all times by emergency physicians are essential. Machines should be chosen to handle the rigors of the multi-user, multi-location practice environment of the ED. Other issues that should be addressed regarding emergency US equipment include: regular in-service of personnel using the equipment and appropriate transducer care, stocking and storage of supplies, adequate cleaning of external and internal transducers with respect to infection control, maintenance of US machines by clinical
engineering or a designated maintenance team, and efficient communication of equipment issues. Ultrasound providers should follow common ED US safety practices including ALARA, probe decontamination, and machine maintenance.

**Risk Management**

US can be an excellent risk reduction tool through 1) increasing diagnostic certainty, 2) shortening time to definitive therapy, and 3) decreasing complications from procedures that carry an inherent risk for complications. An important step to managing risk is ensuring that physicians are properly trained and credentialed according to national guidelines such as those set by ACEP. Proper quality assurance and improvement programs should be in place to identify and correct substandard practice. The greatest risk in regard to emergency US is lack of its use in appropriate cases.

The standard of care for emergency US is the performance and interpretation of US by a credentialed emergency physician within the limits of the clinical scenario. Physicians performing US imaging in other specialties or in different settings have different goals, scopes of practice, and documentation requirements, and consequently should not be compared to emergency US. As emergency US is a standard emergency medicine procedure, it is included in any definition of the practice of emergency medicine with regards to insurance and risk management.

**Section 6 – Value and Reimbursement**

Value in health care has been defined as outcomes that matter to patients relative to cost. The value of clinical US is maximized when time spent by the clinician prevents costly imaging, invasive therapeutics, unnecessary consultations and produces accessible real-time results for the patient and the health care system.

Value is added to the medical system when US imaging increases patient health or decreases the cost to achieve that same level of patient health. Clinical US contributes to patient health in several ways:

1. Improving patient safety by reducing medical errors during procedures
2. Increasing patient satisfaction
3. Improving departmental resource utilization
4. Eliminating costly or invasive procedures
5. Improved clinical decision making

Reimbursement for US derives from Current Procedural Terminology (CPT) codes and their respective relative value units (RVUs). The reimbursements for US are calculated on work performed by entities within the healthcare system, with some going to physicians and some going to hospital entities. The current system assumes a similar workflow for all US. The evolution of clinician-performed or clinical US has changed the workflow for many clinicians.

The current workflow for clinical US differs widely from the historical workflow. While consultative US centers on providing a work product for the interpreting physician, clinical US centers on the patient. The clinician evaluating the patient utilizes US at the patient’s bedside to answer a focused question or guide an invasive procedure. The bedside physician takes over tasks that are attributed to the hospital’s practice expense such as bringing the unit to the bedside, obtaining US images, and archiving images for the medical record. Figure 3 shows the workflow in the model of clinical US.

In addition to workflow differences, clinical bedside US has low expenses related to capital equipment, physical plant and supplies. The US machine is a less expensive mobile unit located in the ED and moved to
the patient’s bedside. Hospitals are turning to lower cost archiving alternatives to PACS, US management systems (also known as middleware or workflow solutions) or cloud based software solutions which allow readily accessible digitally archived images.

CPT values physician work (wRVU) required for common emergency US at approximately 40% of the global RVU (total professional plus total technical). Active emergency US programs allow the hospital to bill technical fees which support the cost of the machine, supplies, and arriving/quality assurance software.

Efficiencies gained by incorporating bedside US imaging in the care of emergency medicine patients can produce an overall cost savings to the health care system. Clinical point-of-care ultrasound may provide significant benefits by reducing the needs for hospitalization, improved diagnosis and improved outcomes. With these benefits, shared savings should be attributed appropriately to the entity which affected the change.

A more detailed calculation of work depends on the specific clinical system organization and division of labor/resources. Future alternative payment structures such as value based purchasing, bundled payments, or accountable care organizations (ACOs) should appropriately factor the resources, efficiency and value of clinical based US into the value and reimbursement of emergency medical care.

**Section 7- Clinical US Leadership in Healthcare Systems**

Increasingly, many specialties have an interest in utilizing US in their clinical practice across diverse patient care settings. Consequently, there is a need for direction, leadership, and administrative oversight for hospital systems to efficiently deliver this technology in an organized and coordinated manner. Emergency physicians by nature have a broad scope of practice and interact with essentially all specialties and are thus uniquely positioned to take this role. Specifically, healthcare and hospital systems should:

1) consider clinical, point-of-care ultrasonography separate from consultative imaging and
2) use these guidelines for design of institutional clinical US programs, and
3) strongly consider experienced emergency physician US leaders for system leadership in clinical, point-of-care ultrasonography.

There are many approaches to institutional oversight of multidisciplinary US programs including consensus from major utilizers, the formation of a governing body such as a clinical US steering committee or the creation of the position of an institutional clinical US director, who has a broad understanding of all the uses of clinical US. Specific items to consider which require leadership and coordination include policy development, equipment purchase, training and education, competency assessment and credentialing, quality assurance, and value/reimbursement.

Inherently, there will be a large number of requests for point-of-care US equipment. There may be significant advantages to standardizing or coordinating hardware and software when possible so that providers may share equipment across departments. This standardization may allow purchasing and cost saving advantages due to bulk deals and offers advantages in training and machine familiarity (eg, resuscitation areas). Standardization may have some negative effects with vendor exclusivity in regards to advancement in technologies and feature availability which may benefit individual settings.

In academic and community centers there will be a need for educating all levels of trainees. Ideally, education for each individual specialty should come from within that specialty. In the situation where education is needed, but there are no leaders within a specific specialty, then the training may fall to the director or committee as described above. In these cases, the director should work with the leadership within each specific specialty to make sure the training meets the specific need of that department. “Train the trainer” programs
should be encouraged. It is crucial to develop multiple leaders within the hospital to meet the ever-increasing educational needs. Once these leaders are established it will be useful to have the committee or director to oversee and coordinate to make sure the education is consistent across specialties, and that resources and work effort are shared and not duplicated.

Credentialing for each specialty should follow national guidelines and be specialty specific. However if national training guidelines for specialties do not exist, the director or committee should work to create general credentialing guidelines based on the ACEP structure, that are flexible enough to work with each specialty to meet their needs for specific applications.

Quality assurance should be organized and run within a department; however, frequently, there are not leaders with the time, qualifications, and/or interest in providing this service and need. In these cases, the director or committee should develop a plan to meet this need. Institutions must provide appropriate resources to system-wide Clinical US programs to allow efficient operations including hardware (US machines) and software such as US management programs. (See Section 5 –Quality and US Management)

Clinical US in hospital and health care systems can be coordinated with successful initiation, maturation, and continual operation of a well-developed plan led by knowledgeable physicians with point-of-care experience. Coordination of specialties, equipment, software, education, quality review, and reimbursement are essential elements of such programs.

Section 8- Future Issues

Recent technological advances have improved access and overall US imaging. Wireless transducers, handheld systems and app based imaging connected via smart device are all reality. These enhancements represent novel and exciting forms of US technology that expand the availability of US to new clinical settings due to increased portability and relative affordability. These new devices are currently being evaluated in a variety of clinical settings and more diverse situations that had not previously been possible.

Telesonography is a rapidly developing model which allows transfer of US images and video from remote locations to obtain consultation and treatment recommendations. Recent advances in US and informatics allow remote experts to direct on-site less experienced ultrasonographers to obtain and interpret images that can impact patient care in real-time. An expert US mentor could potentially guide distant untrained health care providers geographically dispersed over multiple locations around the world. This paradigm may be utilized across all applications including procedural assistance. The practice of remote telesonography has the potential to improve quality of care in underserved communities in both domestic and international settings.

The automation of clinical US is yet another developing arena. Several companies have announced plans to build automated diagnostic protocols such as B-line detection in lung US and echocardiographic parameter assessment. These automated protocols may become the great equalizers by allowing a relative novice access to the same diagnostic information others have spent years training to attain. Finally, transducer technology will continue to change, including high resolution transducers that optimize sonographic windows, integrated probe/machine devices, and devices that use existing and new computer connections. Continuous advancements will allow clinicians to utilize US technology more and more and to limit inherent limitations and obstacles to use.

Other health care providers are also now realizing the utility of clinical US in their daily practice. Advanced practice professionals, nurses, emergency medical service personnel and others recognize the potential in their practice settings and desire to learn appropriate applications. Emergency physicians will continue to work with
our colleagues at local, regional and national levels to help educate and establish appropriate training and practice standards for the safety of our patients. Leadership, supervision, and collaboration with other point-of-care specialists will continue to be critical to assure the safe, effective use of clinical US.

Advanced users of US in emergency, clinical, and point-of-care US have been creating a subspecialty of expert ultrasonographers who provide education, research, and advanced clinical practice with US. In addition, quality programs such as the Clinical Ultrasound Accreditation Program will provide leadership to EDs who can meet the criteria in this document.

As emergency US moves forward, continued high quality research in the field needs to occur. Future methodological improvements focused on patient outcomes are crucial for the advancement of point-of-care US within medicine. Multi-center studies producing higher level of evidence will allow the continued growth and appropriate use of US in emergency care. The future, while undeniably bright still requires much effort on the part of us all.

Section 9 – Conclusion

ACEP endorses the following statements on the use of emergency, clinical, point-of-care US:

1. Emergency, clinical point-of-care ultrasound performed, interpreted, and integrated into clinical care by emergency physicians is a fundamental skill in the practice of emergency medicine.
2. The scope of practice of emergency US can be classified into categories of resuscitation, diagnostic, symptom or sign-based, procedural guidance, and monitoring/therapeutics in which a variety of emergency US applications exists, including the core applications of trauma, pregnancy, abdominal aorta, cardiac/HD assessment, biliary, urinary tract, deep venous thrombosis, thoracic-airway, soft-tissue/musculoskeletal, ocular, bowel and procedural guidance.
3. Training and proficiency requirements should include didactic, experiential and integrative components as described within this document.
4. Emergency US training in emergency medicine residency programs should be fully integrated into the curriculum and patient care experience.
5. Emergency US should be considered a core credential for emergency physicians undergoing privileging in modern healthcare systems without need for external certification.
6. US QA and management require appropriate resources including physician direction, dedicated US machines, digital US management systems, and resources for QA.
7. Healthcare clinical point-of-care ultrasound programs optimally led by emergency physicians should be supported with resources for leadership, quality improvement, training, hardware and software acquisition and maintenance.
8. Emergency US is an independent procedure that should be reimbursed and valued, independent of the ED history, physical examination, and medical decision-making.
9. Emergency physicians with advanced US expertise should contribute leadership in clinical ultrasonography at the departmental, institutional, system, national, and international level.
10. Evolving technological, educational, and practice advancements may provide new approaches, efficiencies, and modalities in the care of the emergent patient.
Table 1. Relevant Ultrasound Definitions

<table>
<thead>
<tr>
<th>Definition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resuscitative</td>
<td>US use directly related to a resuscitation</td>
</tr>
<tr>
<td>Diagnostic</td>
<td>US utilized a diagnostic imaging capacity</td>
</tr>
<tr>
<td>Symptom or Sign-Based</td>
<td>US used in a clinical pathway based upon the patient’s symptoms or sign (eg, shortness of breath)</td>
</tr>
<tr>
<td>Therapeutic and Monitoring</td>
<td>US use in therapeutics or physiological monitoring</td>
</tr>
<tr>
<td>Procedural Guidance</td>
<td>US used as an aid to guide a procedure</td>
</tr>
<tr>
<td>Consultative Ultrasound</td>
<td>A written or electronic request for an US examination &amp; interpretation for which the patient is transported to a laboratory or imaging department outside of the clinical setting.</td>
</tr>
<tr>
<td>Emergency Ultrasound</td>
<td>Performed and interpreted by the provider as an emergency procedure and directly integrated into the care of the patient</td>
</tr>
<tr>
<td>Clinical Ultrasound</td>
<td>US used in the clinical setting, distinct from the physical examination, that adds anatomic, functional and physiologic information to the care of the acutely ill patient.</td>
</tr>
<tr>
<td>Educational Ultrasound</td>
<td>US performed in a non-clinical setting by medical students or other clinician trainees to enhance physical examination skills. Exams usually performed on cadavers or live models.</td>
</tr>
</tbody>
</table>
Table 2. Other emergency ultrasound applications (adjunct or emerging)

- Advanced Echo
- Transesophageal Echo
- Adnexal Pathology
- Testicular
- Transcranial Doppler
- Vascular
- Contrast Studies
- ENT
- Infectious Disease
Figure 1. ACEP 2016 Emergency US Guidelines Scope of Practice

Core Applications
- Trauma
- Intrauterine Pregnancy
- AAA
- Cardiac/HD Assessment
- Biliary
- Urinary Tract
- DVT
- Soft-tissue/Musculoskeletal
- Thoracic/Airway
- Ocular
- Bowel
- Procedural Guidance

Resuscitative → Diagnostic → Procedural Guidance → Symptom- or Sign-Based → Therapeutic

Resuscitative
Diagnostic
Procedural Guidance
Symptom- or Sign-Based
Therapeutic
Figure 2. Pathways for emergency ultrasound training, credentialing, and incorporation of new applications

**Residency Training**

**Didactics**
- Attends residency curriculum covering emergency ultrasound curriculum

**Experiential**
- Training in residency per Emergency Medicine Residency Ultrasound Guidelines and ACGME Milestones

**Proficiency**
- Residency Director and/or Ultrasound Coordinator certifies ultrasound training categorized by the ACEP emergency ultrasound proficiency guidelines and ABEM "The Model of the Clinical Practice of Emergency Medicine"

**Credentialing**
- Acquired at local hospital setting within departmental privileges.

**Ongoing review and education**
- Quality review of ultrasound performed continuously. CME attended in accordance with specialty guidelines.

**New Applications**
- New applications adopted after CME, research, or other training.

**Practicing Physician**

**Didactics**
- Attends introductory emergency ultrasound course or courses that cover core emergency US applications

**Experiential**
- Performs ultrasounds under supervision over-reads, gold standards confirmatory testing or patient outcome review within departmental ultrasound plan

**Proficiency**
- Ultrasounds are obtained with documentation and reviewed to meet ACEP emergency ultrasound proficiency guidelines. Ultrasound available for departmental and hospital examination.
Figure 3 – Clinical Ultrasound Workflow

Clinician Performed Ultrasound

<table>
<thead>
<tr>
<th>Reimbursement</th>
<th>Work performed by</th>
<th>Payment to</th>
</tr>
</thead>
<tbody>
<tr>
<td>E&amp;M</td>
<td>Initial Patient Assessment</td>
<td>ED Physician</td>
</tr>
<tr>
<td>Reimbursed - Technical Component</td>
<td>Preparation for performing US</td>
<td>Hospital</td>
</tr>
<tr>
<td>Reimbursed - Professional Component</td>
<td>US image acquisition</td>
<td>ED Physician</td>
</tr>
<tr>
<td>US image Interpretation</td>
<td>US results documentation</td>
<td></td>
</tr>
</tbody>
</table>

Actions:
- Decision to Perform US
- US order
- US Machine Set Up
- Mobile US machine located
- US Machine moved to patient room
- US Images recorded
- Image maintenance
- Image interpretation
- Communication of findings to patient
- Final report generated
- Image archival
Appendix 1. Evidence for Core Emergency Ultrasound Applications

Trauma

The use of US in a trauma patient is typically for the detection of abnormal fluid or air collection in the torso. This application applies to both blunt and penetrating trauma in all ages. Perhaps the first bedside US technique studied in the hands of non-radiologists was the focused assessment with sonography in trauma (FAST) examination. First demonstrated in Europe and by surgeons, the technique was later adopted by emergency physicians. In one early prospective study, FAST was 90% sensitive and 99% specific in detecting peritoneal bleeding in blunt trauma, and 91% sensitive and 100% specific in penetrating trauma. A retrospective review of patients with penetrating thoracic trauma demonstrated 100% sensitivity for the detection of pericardial effusion and more rapid diagnosis and management when US was employed in their assessment. Recently, a prospective randomized controlled study assessed 262 blunt trauma patients managed using the FAST exam as a diagnostic adjunct vs. no FAST exam. Patients randomized to the FAST exam group had more rapid disposition to the operating room, required fewer CT scans, and incurred shorter hospitalizations, fewer complications, and lower charges than those in whom the FAST was not performed. During the last decade, pneumothorax has been added to the FAST exam as the EFAST examination. FAST examination also may have an effect on the utilization of ionizing radiation tests.

Pregnancy

Use of emergency US in pelvic disorders centers on the detection of intrauterine pregnancy (IUP), detection of ectopic pregnancy, detection of fetal heart rate in all stages of pregnancy, dating of the pregnancy, and detection of significant free fluid. Bedside pelvic US during the first trimester of pregnancy can be used to exclude ectopic pregnancy by demonstrating an intrauterine pregnancy. Studies of EP-performed US in this setting have demonstrated sensitivity of 76-90% and specificity of 88-92% for the detection of ectopic pregnancy. In one study, EPs were able to detect an intrauterine pregnancy in 70% of patients with suspected ectopic pregnancy (first trimester pregnancy with abdominal pain or vaginal bleeding). When intrauterine fetal anatomy was visualized at the bedside, ectopic pregnancy was ruled out with a negative predictive value of essentially 100%. When bedside US evaluation was incorporated into a clinical algorithm for the evaluation of patients with suspected ectopic pregnancy, the incidence of discharged patients returning with ruptured ectopic pregnancy was significantly reduced. Pelvic US by emergency physicians also save resources including length of stay and consultative imaging.

Abdominal Aortic Aneurysm (AAA)

The use of emergency US of the aorta is mainly for the detection of AAA, though aortic dissection may occasionally be detected. Although CT scan and MRI often serve as the criterion standard for AAA assessment, US is frequently used by radiology departments as a screening modality as well. In the ED, bedside US demonstrates excellent test characteristics when used by emergency physicians to evaluate patients with suspected AAA. One study of 68 ED patients with suspected AAA demonstrated sensitivity, specificity, positive and negative predictive values of 100%. In another, 125 patients were assessed by EPs. Sensitivity was 100%, specificity 98%, positive predictive value 93% and negative predictive value 100% in this study. In both studies, CT scan, radiology US, MRI, and operative findings served as a combined criterion standard.
Emergent Echocardiography and Hemodynamic Assessment

Emergent cardiac US can be used to assess for pericardial effusion and tamponade, cardiac activity, a global assessment of contractility, and the detection of central venous volume status. One early study of bedside echocardiography by EPs demonstrated 100% sensitivity for the detection of pericardial effusion in the setting of penetrating chest trauma. In this series, patients evaluated with US were diagnosed and treated more rapidly when US was employed in their assessment.89,99 Test characteristics of EP-performed echocardiography (when compared to expert over-read of images) for effusion include sensitivity of 96-100%, specificity 98-100%, positive predictive value 93-100% and negative predictive value 99-100%. The prognostic value of EP-performed bedside echocardiography has been well-established.100 In one study of 173 patients in cardiac arrest, cardiac standstill on US was 100% predictive of mortality, regardless of electrical rhythm (positive predictive value of 100%).101 US has been incorporated into the resuscitation of the critically ill and arrest patient. In the assessment of patients with undifferentiated hypotension, EP assessment of cardiac contractility correlated well and has improved diagnostic accuracy (R=0.84).102-104 Emergent cardiac US has expanded to the use of heart failure and dyspnea.105-106 In addition hemodynamic assessment with US for preload, cardiac function, and afterload has become an accepted diagnostic and monitoring tool.107-116

Hepatobiliary System

The use of emergency US for hepatobiliary disease has centered on biliary inflammation and biliary obstruction. Although many sonographic criteria for acute cholecystitis exist (including gallstones, thickened gallbladder wall, pericholecystic fluid, sonographic Murphy’s sign, and common bile duct dilatation), gallstones are present in 95-99% of acute cholecystitis cases.117 This finding is quite accessible to the EP using bedside US, and may be placed into the context of an individual patient’s clinical picture (presence of fever, tenderness, laboratory evaluation, etc.). The test characteristics for gallstone detection by bedside US are: sensitivity 90-96%, specificity 88-96%, positive predictive value 88-99% and negative predictive value 73-96%.118-121 A retrospective review of 1252 cases of suspected cholecystitis demonstrated that bedside emergency physician US vs radiology US evaluation decreased length of stay by 7% (22 minutes) overall, and up to 15% (52 minutes) when patients were evaluated during evening or nighttime hours.122

Urinary Tract

The use of emergency US in the urinary tract is for detection of hydronephrosis and bladder status. The detection of hydronephrosis on bedside US, when combined with urinalysis and clinical assessment, may be helpful in differentiating patients with acute renal colic.123-124 Bedside renal US by experienced EPs has demonstrated sensitivity of 75-87% and specificity of 82-89% when compared with CT scan.125-126 Urinary tract US has also been shown similar to radiology US and CT imaging for imaging for patients with suspected renal colic.127

Deep Vein Thrombosis

The use of emergency US for detection of DVT has centered on the use of multilevel compression US on proximal veins, especially in the lower extremity.128-129 A number of ED studies have examined the test characteristics of EP-performed limited venous compression sonography for the evaluation of DVT. A recent systematic review of six studies, (with a total of 132 DVTs in 936 patients) found a pooled sensitivity and specificity of 95% and 96%, respectively.41,130 One study demonstrated more rapid disposition for
patients undergoing bedside US for DVT assessment compared with radiology department DVT assessment (95 vs. 225 minutes).  

**Soft Tissue/Musculoskeletal**

The use of emergency US in soft-tissue has focused on soft-tissue infection, foreign bodies, and cutaneous masses. Although a host of musculoskeletal applications of bedside US have been studied by EPs, among the most common and best described is the assessment of cellulitis and abscess at the bedside. Ultrasound has been shown to improve the clinical assessment of patients with cellulitis and possible abscess in several studies. In one study of 105 patients with suspected abscess, US demonstrated sensitivity of 98%, specificity 88%, positive predictive value 93% and negative predictive value 97% compared with needle aspiration. Another study demonstrated that bedside US altered the management of patients with cellulitis (and no clinically obvious abscess) in 56% of cases. These patients were found to have abscesses or require surgical evaluations which were not evident on clinical examination alone. Fractures have been identified in series and prospective studies with good accuracy. Tendons injuries and joint effusions have been studied with excellent clarity.

**Thoracic-Airway**

The use of emergency US in the thorax has been for the detection of pleural effusion and pneumothorax, interstitial and inflammatory disorders. Bedside US for the evaluation of thoracic disorders was described in the 1990s in European critical care settings. Since then, emergency physicians have utilized the technology for the detection of pneumothorax and other acute pathology. In the setting of blunt thoracic trauma, EP-performed US demonstrated sensitivity of 92-98%, specificity 99%, positive predictive value 96-98% and negative predictive value 99% compared with CT scan or air release during chest tube placement. In the last decade, tracheal and airway assessment and endotracheal guidance has been studied with US. Recent cardiac resuscitation guidelines have included tracheal US as a alternative confirmatory test in cardiac arrest.

**Ocular**

The use of emergency US in the eye has described for the detection of posterior chamber and orbital pathology. Specifically, US has been described to detect retinal detachment, vitreous hemorrhage, and dislocations or disruptions of structures. In addition the structures posterior to the globe such as the optic nerve sheath diameter may be a reflection of other disease in the central nervous system.

**Bowel**

Abdominal US can aid in the diagnosis a wide array of bowel pathology. Appendicitis is the most common surgical emergency of the abdomen and has traditionally been diagnosed by CT; however trained emergency physicians have been capable of diagnosing appendicitis with point-of-care US with 60-96% sensitivity and 68-98% specificity. Emergency US has been shown to decrease radiation exposure and length of stay. Ultrasound for ileus and small bowel obstruction has been performed for decades. It has been shown to be more sensitive and specific for obstruction than x-ray, and can be performed accurately by emergency providers. Pneumoperitoneum can be also diagnosed by US with high sensitivity and specificity, and due to its availability and speed, has been proposed as a screening tool in the acute abdomen. In some countries, US is the first line imaging modality for the diagnosis of diverticulitis. With proper training and experience, emergency providers can use this tool to facilitate diagnosis of diverticulitis. Ultrasound can give quick information about abdominal wall masses and suspected hernias, even aiding in
the classification of hernias. In addition, it can be performed dynamically and facilitate the reduction of hernias in real-time. Ultrasound plays a particularly important role in the pediatric population and is the initial diagnostic method of choice for both intussusception and pyloric stenosis. Studies have shown that emergency providers with limited training can effectively diagnose these conditions.

Procedural Guidance

Ultrasound guidance has been studied as a useful adjunct to many common ED procedures, including venous access, thoracentesis, paracentesis, joint aspiration, and others. Studies since the early 1990s have demonstrated the efficacy of US guidance for central venous cannulation, and the use of this technology has been advocated by the United States Agency for Healthcare Research and Quality as one of the top 11 means of increasing patient safety in the United States. Recently, a randomized controlled study of 201 patients undergoing central venous cannulation demonstrated higher success rates with dynamic US guidance (98% success) when compared with static US guidance (82%) or landmark-based methods (64%).
Appendix 2. Emergency Ultrasound Learning Objectives

Listed below are recommended learning objectives for a comprehensive EUS clinician curriculum, rotation, or series of training courses. For detailed indications, limitations, protocols, documentation requirements, and other important details for each application, please refer to the ACEP Emergency Ultrasound Imaging Criteria Compendium.5

Introduction
• Distinguish between consultative, clinical, point of care, and emergency ultrasound (EUS).
• Recognize primary EUS applications.
• Discuss support for EUS from key organizations including ACEP, AMA, ABEM, SAEM, and AIUM.
• Describe ACEP recommendations on training and credentialing in EUS.

Physics & Instrumentation
• Explain ultrasound physics relevant to EUS:
  Piezoelectric effect
  Frequency
  Resolution
  Attenuation
  Echogenicity
  Doppler including pulse wave, color and power
• Operate the EUS system as needed to obtain and interpret images adequate for clinical decision making including:
  Image mode
  Gain
  Time gain compensation
  Focus
  Probe types
• Recognize common ultrasound artifacts including:
  Reverberation
  Side lobe
  Mirror
  Shadowing
  Enhancement
  Ring-down

Trauma
• Describe the indications, clinical algorithm, and limitations of EUS in blunt and penetrating thoracoabdominal trauma.
• Perform the EUS protocol for Trauma.
• Identify relevant US anatomy including the pleura, diaphragm, inferior vena cava, pericardium, liver, spleen, kidneys, bladder, prostate and uterus.
• Recognize pathologic findings and pitfalls in the evaluation of pneumothorax, hemothorax, hemopericardium, cardiac activity, volume status, and hemoperitoneum.
• Integrate Trauma EUS findings into individual patient, departmental, and disaster management.
First-Trimester Pregnancy
• Describe the indications, clinical algorithm, and limitations of EUS in first-trimester pregnancy pain and bleeding.
• Understand the utility of quantitative B-HCG in the evaluation of first-trimester pregnancy pain and bleeding.
• Perform EUS protocols for transabdominal and transvaginal views as needed, including fetal heart rate and gestational age measurement techniques.
• Identify relevant US anatomy including the cervix, uterus, adnexa, bladder and cul-de-sac.
• Recognize the relevant findings and pitfalls when evaluating for intrauterine and ectopic pregnancy:
  – Early embryonic structures including the gestational sac, yolk sac, fetal pole, and heart
  – Location of embryonic structures in pelvis
  – Embryonic demise
  – Molar pregnancy
  – Findings of ectopic pregnancy including pseudogestational sac, free fluid, and adnexal masses
• Integrate First Trimester Pregnancy EUS findings into individual patient and departmental management.

Abdominal Aorta
• Describe indications, clinical algorithm, and limitations of EUS in the evaluation of aortic pathology.
• Perform EUS protocols to evaluate the abdominal aorta including measurement techniques.
• Identify relevant US anatomy including the aorta with major branches, inferior vena cava, and vertebral bodies.
• Recognize pathologic findings and pitfalls when evaluating for aortic aneurysm and dissection.
• Integrate Aorta EUS findings into individual patient and departmental management.

Echocardiography and HD Assessment
• Describe the indications and limitations of emergency echocardiography.
• Perform standard echocardiography windows (subcostal, parasternal, and apical) and planes (four chamber, long and short axis).
• Identify relevant US anatomy including pericardium, cardiac chambers, valves, aorta and inferior vena cava.
• Estimate qualitative left ventricular function and central venous pressure to guide HD assessment of patient.
• Recognize cardiac arrest, pericardial effusions with or without tamponade, and dilation of the aortic root or the descending aorta.
• Integrate Emergency echocardiography findings into individual patient and departmental management.

Biliary Tract
• Describe the indications and limitations of EUS of the biliary tract.
• Perform EUS protocols to evaluate the biliary tract.
• Identify relevant US anatomy including the gallbladder, portal triad, inferior vena cava, and liver.
• Recognize the relevant findings and pitfalls when evaluating for cholelithiasis and cholecystitis.
• Integrate EUS of the biliary tract into individual patient and departmental management.

Urinary Tract
• Describe the indications and limitations of EUS of the urinary tract.
• Perform EUS protocols to evaluate the urinary tract.
Identify relevant US anatomy including the renal cortex, renal pelvis, ureter, bladder, liver, and spleen.

- Recognize the relevant findings and pitfalls when evaluating for hydronephrosis, renal calculi, renal masses, and bladder volume.
- Integrate EUS of the urinary tract into individual patient and departmental management.

Deep Vein Thrombosis

- Describe the indications and limitations of EUS for the detection of deep venous thrombosis.
- Perform EUS protocols for the detection of deep venous thrombosis of the upper and lower extremities including:
  - Vessel identification
  - Compression
  - Doppler imaging of respiratory variation and augmentation.
- Identify relevant US anatomy of the upper and lower extremities including the deep venous and arterial systems, major nerves, and lymph nodes.
- Recognize the relevant findings and pitfalls when evaluating for deep venous thrombosis.
- Integrate EUS for deep venous thrombosis into individual patient and departmental management.

Soft Tissue & Musculoskeletal

- Describe the indications and limitations of soft tissue and musculoskeletal EUS.
- Perform EUS protocols for the evaluation of soft tissue and musculoskeletal pathology.
- Identify relevant US anatomy including:
  - Skin
  - Adipose
  - Fascia
  - Muscle
  - Tendons and Ligaments
  - Muscles
  - Lymph Nodes
  - Bones and Joints
- Recognize the relevant findings and pitfalls when evaluating the following:
  - Soft tissue infections: Abscess versus cellulitis
  - Subcutaneous fluid collection identification
  - Foreign body location and removal
  - Tendon injury (laceration, rupture)
  - Fractures
  - Joint identification
- Integrate soft tissue and musculoskeletal EUS findings into individual patient and departmental management.

Thoracic - Airway

- Describe the indications and limitations Thoracic EUS
- Perform EUS protocols for the detection of:
  - Pneumothorax
  - Pleural Effusion
  - Alveolar Interstitial Syndromes
- Identify relevant US anatomy of thoracic structures.
- Recognize the relevant findings and pitfalls when evaluating for thoracic pathology
• Recognize the sonographic findings of tracheal and esophageal anatomy, especially in regard to EM procedures
• Integrate thoracic EUS findings into individual patient and departmental management.

Ocular
• Describe the indications and limitations of ocular EUS.
• Perform EUS protocols for the detection of vitreous hemorrhage, retinal detachment, and other pathology.
• Identify relevant US anatomy of the globe and orbital structures.
• Recognize the relevant findings and pitfalls when evaluating for ocular pathology.
• Integrate ocular EUS into individual patient and departmental management.

Procedural Guidance
• Describe the indications and limitations when using US guidance for bedside procedures.
• Perform EUS protocols for procedural guidance including both transverse and longitudinal approaches when appropriate. These procedures may include:
  – Vascular access: Central and peripheral
  – Confirmation of endotracheal intubation
  – Pericardiocentesis
  – Paracentesis
  – Thoracentesis
  – Foreign body detection removal
  – Bladder aspiration
  – Arthrocentesis
  – Pacemaker placement and capture
  – Abscess identification and drainage
• Identify relevant US anatomy for each particular procedure.
• Recognize the relevant findings and pitfalls when performing EUS for procedural guidance.
• Integrate EUS for procedural guidance into individual patient and departmental management.

Bowel
• Describe the indications and limitations of Bowel EUS
• Perform EUS protocols for the detection of:
  – Appendicitis
  – Bowel Obstruction
  – Pneumoperitoneum
  – Diverticulitis
  – Hernia
  – Pediatric Intussception and Pyloric Stenosis
• Identify relevant US anatomy of bowel structures.
• Recognize the relevant findings and pitfalls when evaluating for bowel pathology
• Integrate bowel EUS findings into individual patient and departmental management.
Appendix 3. Recommendations for an EM Residency EUS Education Program

Successful EUS Residency Education in accordance with these guidelines requires significant departmental and institutional support. The purpose of these additional recommendations is to delineate the scope of resources required to facilitate the rapid development and maintenance of EUS Residency Education programs. Application of these recommendations is dependent on EM Residency size, current and planned EUS utilization, and institutional capabilities.

EUS Faculty:
1. EUS Director: At least one full time EM attending faculty with sufficient EUS program coordination expertise. Sufficient non-clinical time for planning and conducting all EUS program activities is essential to ensuring adequate resident training.
2. EUS Faculty: At least one additional full time EM attending faculty member committed to actively developing EUS program expertise. Sufficient non-clinical time for conducting EUS program activities is essential to ensuring adequate resident training. The number of dedicated EUS faculty needed is dependent on the size of the residency and quality of the training program provided.
3. Credentialed EUS Faculty: To adequately supervise and educate residents in EUS, a minimum of fifty percent of Core Faculty members at all EM residency programs need to be credentialed in EUS. For example, if a program has 12 core faculty, then 6 need to be credentialed in EUS. May be inclusive of the EUS Director and Faculty.

Equipment and Materials:
1. EUS systems with appropriate transducers and imaging capabilities readily available for immediate resident clinical use 24/7.
2. EUS online or print text reference resources readily available in the ED.
3. Recent and landmark EUS literature as well as opportunities to participate in local quality improvement and research projects need to be provided to residents and core US faculty.

Educational Program Activities:
1. Initial EUS Training: Didactic and hands on instruction in EUS physics, machine use, and at least one springboard application such as the Trauma exam need to be provided early in residency as a half or full day course.
2. Annual EUS Rotations: Two week rotation in the first year to learn basic EUS knowledge and skills, followed by at least one week in each subsequent year to reinforce learning and acquire more advanced skills. One rotation without continued learning within the EM residency curriculum is inadequate. For each trainee, a minimum of 80 hours of dedicated EUS rotation time is recommended during an EM residency.
3. Suggested rotation educational methods and assessment measures:
   a. Orientation: Begin rotation with a baseline EUS skills assessment to identify trainee’s unique learning needs. Follow with hands on small group instruction in the ED focusing on machine operation, exam protocols, image optimization and interpretation, documentation, as well as integration of EUS findings into daily clinical practice.
   b. Daily supervised scanning shifts with EUS faculty in the ED to provide opportunities for both proctored and semi-independent image acquisition and interpretation. All training exams are submitted for timely quality assurance review.
   c. Weekly Academic Day:
      i. Quality Assurance Review session during which a portion of current trainee’s EUS exams are discussed, focusing on challenging cases, pathology, and integration into daily patient and ED management.
ii. Simulation cases and review of image libraries for additional exposure to less common pathology.

iii. Journal club including a discussion of a recent or landmark EUS literature, an online narrated didactic or live lecture, or chapter review.

iv. Hands on small group instruction in the ED focusing on current trainees learning needs identified during QA Review or scanning shifts.

d. End the rotation with a final assessment of EUS knowledge utilizing a standardized exam such as the ACEP US Online Exams, as well as an additional EUS skill assessment.

e. Provide a timely end of EUS rotation assessment of knowledge and skills to each resident. Additionally, provide trainees with continued opportunities to evaluate the EUS program itself.

4. Achieving EUS exam requirements: Completion of set number procedural benchmarks documents adequate experience to develop proficiency. Additional assessment measures described in these guidelines are needed to ensure EUS competency such as participation in QA sessions, SDOT’s, OSCE’s, and simulation assessments.

5. Ongoing Quality Assurance System: Digital archiving system for EUS exam images and interpretations for timely quality assurance review and trainee feedback on individual exams.

a. All trainee exams need to be reviewed by EUS faculty until minimum benchmarks are achieved. After this, a proportion of trainee exams need to be reviewed on an ongoing basis throughout residency.

b. Timely exam feedback must be provided to trainees during and between EUS rotations. Trainees need ready access to individual exam feedback and total exams completed by application and overall.

6. Integrated EUS training in the residency curriculum: Learning needs to be reinforced during quarterly or biannual EUS workshops comprised of EUS didactics and hands on instruction. An additional 20 hours of dedicated EUS learning between rotations is recommended during a 3 or 4 year residency.
Appendix 4. Recommendations for an EUS Course

Successful training courses in EUS require significant advance planning and resource commitment. Each course requires a curriculum designed by the course director that includes a local trainee needs assessment, learning objectives, educational methods, and assessment measures. The learning objectives for any EUS Course or rotation are listed in Appendix 2. Important considerations are discussed below

1. Faculty: Course director must be an emergency ultrasound faculty physician. The course director will recruit other clinicians already credentialed in EUS to assist with knowledge learning, skills training, and trainee assessment. A faculty planning meeting is needed during curriculum development. Additionally, a meeting immediately prior to the course provides all faculty with an understanding of the setup and curriculum.

2. Site and Set Up: The ideal course site includes a large didactic room as well as separate rooms or areas for scanning stations. Private areas for endovaginal US are required.
   a. Ultrasound Stations: Appropriate machines and transducers are necessary. The student to instructor ratio should be no higher than 5 to 1 to ensure appropriate skills training.
   b. Ultrasound Models: Image acquisition protocols may be learned on normal live models. Image interpretation requires the incorporation of patients with known pathologic findings, simulators, or incorporation of image libraries.
      i. Pathology models may include otherwise healthy paid or volunteer persons with pericardial effusions, cholelithiasis, aortic aneurysms and chronic ambulatory peritoneal dialysis patients.
      ii. Full informed consent should be obtained from all models and a signed waiver of responsibility is recommended. If an undiagnosed finding is discovered in a model, then the Course Director must appropriately notify the model and ensure appropriate follow up.

3. Knowledge Learning:
   a. An introductory course for trainees must include instruction in basic US physics, machine operation, and a small number of initial EUS applications to be clinically utilized. Suggested initial applications include Trauma Ultrasound, Central and Peripheral Venous Access, and Abdominal Aortic Aneurysm Ultrasound. However, the initial applications will vary by local site as determined by a pre-course needs assessment completed by the course director and local trainee leadership.
      i. A half day introductory course is appropriate for a single application. Longer courses are required for additional applications. Shorter, repeated courses, supplemented by routine, quality assured, EUS performance during clinical work, are more likely to improve learning and utilization.
   b. Pre and post course educational materials must be provided to reinforce course learning. Suggested sources of information include course director approved online narrated lectures, podcasts, websites, traditional textbooks, didactic syllabi, and journal articles.
      i. Utilization of the flipped classroom provides the opportunity for more focused didactics reviewing key concepts and answering trainee questions at the course. Focused didactics provide the opportunity for increased skill training.
      ii. Frequent rotations between didactics and skills training sessions improve trainee and faculty engagement.
4. Skills Training:
   a. The technical laboratory is an integral component of any ultrasound course.
      a. Based on the needs assessment, appropriate and specific learning objectives need to be defined for each station.
         i. Trainees should be deliberately assigned to small groups not necessarily including immediate peers to create more focused learning teams.
         ii. For trainees with prior EUS experience, an initial skills assessment with an SDOT or simulator will help to ensure that trainee specific instruction is provided.
         iii. Instructors should work to maximize the time that the transducer is the trainee's hands, avoid over teaching of advanced concepts beyond the trainees needs, encourage questions, and consistently engage each trainee.
Appendix 5. EUS and CUS Training for Medical Students

EUS Training during a one month EM Rotation:
General EM clerkships should include an introduction to EUS that may entail a single dedicated emergency US shift with direct faculty supervision, a one-day EUS course, or simply case-by-case incorporation of EUS into patient care in the ED. Students should strive to become familiar with a single emergency US application such as the FAST exam, and should be exposed to additional EUS exams over the course of the clerkship. EUS literature and selected textbook chapters should be made available for student review.

Dedicated EUS rotation recommendations:
1. Emergency US rotations begins with instruction in Physics/Instrumentation, followed by select applications such as FAST, Aorta, Renal, Biliary Cardiac, Procedures, Pelvic (including endovaginal US), Deep Venous Thrombosis, and Skin/Soft Tissue/Musculoskeletal.
2. Didactic education should be delivered in electronic, preferably online, format in an attempt to maximize hands-on education in the clinical area. Course directors may choose to utilize the emergency US didactic materials available on the ACEP Web site.
3. Assessment should include an online pre-test including still image/video interpretation and case-based applications of EUS. To assess their progress, students will complete the test again at the end of the rotation.
4. Each student should obtain approximately 100 scans over the course of a 4-week rotation, or approximately 75 scans over the course of a 2-week rotation. Dedicated shifts may include evenings or weekends to maximize exposure to pathology and interesting emergency US cases. Students should generate personal log of EUS exams on which to build during their postgraduate education.
5. All student-performed scans should be directly supervised by EUS credentialed faculty or recorded for subsequent quality assurance review with the rotation director.
6. Students should complete the reading of one EUS text or viewing of an online curriculum over the course of the rotation. In addition, students should identify a current publication relevant to EUS and discuss their findings with the rotation director.

Additional Opportunities for CUS Training in Undergraduate Medical Education:
Additionally, opportunities abound for EUS directors to get involved in medical student education at the various levels of medical school training. With the advent of more US in the various specialties, this preparation in medical school can benefit students with interests outside of emergency medicine.

EUS directors could consider incorporating US into:
1. Gross anatomy course highlighting common US anatomy (eg, FAST exam during study of the abdomen, heart)
2. Physiology course highlighting doppler, M mode, and basic waveform analysis.
3. Pathology course highlighting common pathologies such as fluid in potential spaces, depressed cardiac function, cellulitis, abscesses, retinal detachment or other commonly seen pathologies in the ED.
4. Introduction to Clinical Medicine course highlighting US guided vascular access.
5. Ultrasound in the physical exam. Although US use in clinical practice is a diagnostic test that warrants a generated report, it can be used to teach components of the physical exam. For example, teaching the traditional cardiac auscultation can be augmented with cardiac images of the heart.
6. Ultrasound training before clinical rotations. Some schools have developed short clinical skills time before rotations where US can be implemented to help student learners see how US is used in that particular field.
7. Ultrasound electives in the 4th year can include a longitudinal program where US lectures, hands on, and journal club can be incorporated into a course.
The future of US in medical education is still being built. It seems like there are early adopters trying to implement US yet there is still a lack of consensus if or how US should be optimally applied in medical education. The key component is finding an US champion to spearhead US into the undergraduate medical education framework. From there, getting students involved through an US interest group can improve the impact through direct feedback and student motivation. The two methods of a top down administrative implementation of US in medical education is the best method, yet warrants buy in from the dean and the curriculum committee. A bottom up approach through student interest, electives and extracurricular exposure takes longer but can still impact student competence in US. The next 5-10 years are sure to bring more clarity to this topic as US continues to expand.
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References


42. Damewood S, Jeanmonod D, Cadigan B. Comparison of a multimedia simulator to a human model for teaching FAST exam image interpretation and image acquisition. *Acad Emerg Med.* 2011;18:413-9.


The American College of Emergency Physicians (ACEP) recommends that:

- All bicyclists wear a properly fitted Consumer Product Safety Commission (CPSC)-approved bicycle helmet.
- Emergency physicians inform patients and parents of the importance of wearing a bicycle helmet and the dangers of riding without a helmet.
- Retail and rental bicycle outlets have available low-cost CPSC-approved helmets for bicyclists.
- Helmet manufacturers provide educational materials that emphasize the advantages of protective headgear.
- State and local governments enact legislation requiring universal helmet use.
- Community coalitions be developed to promote bicycle safety training, including helmet use.
- The popular media depict helmet use among all bicyclists.
The American College of Emergency Physicians (ACEP) believes:

- All Americans must have health care coverage;
- Health care coverage will contain a benefits package that provides for timely, unrestricted access to quality emergency care;
- Any benefit package should reflect generally accepted standards of medical practice supported by outcome-based evidence, where available.
Unscheduled Procedural Sedation: 
A Multidisciplinary Consensus 
Practice Guideline

This guideline has been organized by the American College of Emergency Physicians and has been endorsed by the American Academy of Emergency Medicine, the American Board of Emergency Medicine, the American College of Cardiology, the American College of Medical Toxicology, the American College of Osteopathic Emergency Medicine, the Association of Academic Chairs of Emergency Medicine, the Emergency Medicine Residents’ Association, the Emergency Nurses Association, the Society for Academic Emergency Medicine, and the Society for Pediatric Sedation

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ABSTRACT

The American College of Emergency Physicians organized a multidisciplinary effort to create a clinical practice guideline specific to unscheduled, time-sensitive procedural sedation, which differs in important ways from scheduled, elective procedural sedation. The purpose of this guideline is to serve as a resource for practitioners who perform unscheduled procedural sedation regardless of location.
or patient age. This document outlines the underlying background and rationale, and issues relating to staffing, practice, and quality improvement.

INTRODUCTION

The provision of sedation and analgesia to facilitate the humane performance of painful and/or anxiety-provoking procedures is now a widespread and integral practice for a variety of specialists. The safety of procedural sedation is supported by a large and robust body of literature, with serious adverse events being extremely rare. The multidisciplinary field of procedural sedation has fostered a strong safety culture following many decades of close attention to provider training, patient evaluation, physiologic monitoring, and other critical safeguards.1-41

Various specialty societies, including the American College of Emergency Physicians (ACEP), have crafted practice guidelines to outline core procedural sedation principles and to address specialty-specific needs, challenges, and patient populations. However, a limitation of existing guidelines has been their primary emphasis on issues and practices germane to scheduled, elective sedation encounters. Many patients in various clinical settings regularly require unscheduled procedural sedation on short notice to facilitate urgent or emergent procedures, for which many aspects of patient management must differ from elective procedural sedation.1-30 To better address the needs of time-sensitive, unscheduled procedural sedation, ACEP has organized a multidisciplinary effort to create a clinical practice guideline specific to unscheduled procedural sedation regardless of location or patient age.

WHY DOES UNSCHEDULED SEDATION REQUIRE A SEPARATE GUIDELINE?

To provide patient care that is safe, effective and patient-centered, some procedures require urgent or emergent sedation and cannot be scheduled or delayed. Unique aspects of unscheduled sedation include:

- For urgent and emergent procedures, the sedation provider must manage not just the sedation encounter, but also the acute pain, anxiety, and associated circumstances of the precipitating injury or illness.
- Fasting may not be an option for time-sensitive procedures.
- Unscheduled procedures must often be performed while a patient is in a dynamic physiological state or prior to a definitive diagnosis.
- The goals and requirements for unscheduled procedural sedation can differ from elective procedural sedation, and some practices specific to the latter may unnecessarily complicate or delay preparations for the former to the detriment of patient comfort and care.
- Existing regulatory and accreditation standards focus primarily on elective procedural sedation, and extrapolation to unscheduled, time-sensitive procedures can confuse and impede patient care.

METHODS

Given the identified need, ACEP organized the effort to produce this consensus guideline.

Literature search: This guideline is based on critical analysis of the existing literature. Our medical librarian performed searches of the MEDLINE and Scopus databases. We limited all searches to human studies from English-language sources published between January 1, 2000 and August 10,
2018. Key words/phrases for literature searches: sedation, unscheduled sedation, procedural sedation, conscious sedation, dissociative sedation, dissociative anesthetics, presedation, urgent, emergent, emergency medicine, pediatric emergency medicine, ketamine, skill set, professional skills, privileging, credentialing, support personnel, equipment, supplies, patient evaluation, oral intake, adjunctive, regimen, supplemental oxygen, recovery, and variations and combinations of the key words/phrases. We screened titles and abstracts of all articles identified by the search, with full text review of reports pertinent to the guideline. We reviewed the reference lists of identified publications and consulted with content experts to identify additional reports.

Writing committee: ACEP commissioned a writing committee of three general emergency physicians and two pediatric emergency physicians—each of whom had extensive experience with procedural sedation practice, research and/or policy management, extensive familiarity in the related literature, and no financial conflicts of interest.

Multidisciplinary review: We identified specialties other than emergency medicine that also regularly administer unscheduled procedural sedation (FIGURE 1), and invited them to appoint a representative to critically review and provide input on serial iterations of the document. To ensure optimal perspective, we asked that these representatives be practicing members of their primary specialty with regular clinical exposure to unscheduled procedural sedation, and to be free from relevant conflicts of interest (disclosures shown in the APPENDIX).

The writing group and organizational representatives met in Dallas, TX on June 21, 2018 to debate and edit the draft. Further refinement occurred during subsequent review cycles.

DEFINITIONS

We adopted this previously published⁴ and cited⁸-¹⁰ definition of procedural sedation: “the use of anxiolytic, sedative, hypnotic, analgesic, and/or dissociative medication(s) to attenuate anxiety, pain, and/or motion. These agents are administered in order to facilitate amnesia or decreased awareness and/or patient comfort and safety during a diagnostic or therapeutic procedure.”⁴

We adopted definitions for levels of procedural sedation as shown in FIGURE 2, listed in increasing order of complexity and potential risk. Any administration of sedative drugs for which apnea is the desired endpoint is general anesthesia and not sedation, and is beyond the scope of this guideline.

Procedural sedation can be unscheduled or elective. We define unscheduled procedures as medical, surgical, or dental interventions that are emergent or urgent and, to optimize patient outcomes, must be performed within a short time frame unsuitable for that used to schedule elective procedures.

Examples of unscheduled procedures that can be time-sensitive (whether urgent and emergent) include, but are not limited to: cardioversion, tube thoracostomy, central venous line placement, imaging, fracture and dislocation reduction, cardiac catheterization, upper endoscopy, arthrocentesis, abscess incision and drainage, lumbar puncture, laceration repair, care of contaminated wounds, and foreign body removal.

We adopted the previously published⁹ and cited¹⁰ definition of a procedural sedation-related adverse event, as an “unexpected and undesirable response(s) to medication(s) and medical intervention used to facilitate procedural sedation and analgesia that threaten or cause patient injury or discomfort.”⁹
We defined procedural sedation rescue as one or more interventions to correct adverse physiologic consequences from procedural sedation. Although the word “rescue” suggests an alarming situation, its interventions may occur in response to adverse events presenting either low or high risk.

SCOPE OF GUIDELINE

This document provides guidance for practitioners of unscheduled, time-sensitive procedural sedation, as defined above. We did not seek to address scheduled elective procedural sedation, the administration of analgesics to achieve analgesia or sedatives to achieve anxiolysis or sedation in the absence of a concurrent procedure, and minimal sedation (FIGURE 2) given its negligible patient risk.

We intend this guideline to be applicable to the practice of all emergency providers, and have incorporated multidisciplinary input in the belief that it will be useful to other practitioners of unscheduled procedural sedation.

GUIDING PRINCIPLES

The principal difference between this guideline and its predecessors is the focus on the special needs and issues relating to unscheduled procedural sedation. Other guiding principles are:

Evidence-based guideline components: We sought to be parsimonious—emphasizing what is known to be important, and omitting or deemphasizing that which is not.

Patient- and family-centered care: Given their importance, we have prioritized patient-centered and family-centered care more strongly than prior guidelines. The ethical imperative to diminish pain, alleviate anxiety, and optimize patient comfort during unscheduled procedures may be even greater given the added stress of the precipitating acute condition.

Time is of the essence for urgent and emergent procedures—not just to minimize physical harm from the active condition, but to minimize distress for the patient and their family. Delaying procedural sedation for reasons not supported by evidence may result in extended periods of unremitting pain and anxiety with a negligible decrease in risk and must be avoided.

All sedation states: To accommodate the wide range of unscheduled procedures for which sedation is required and to maximize the applicability and usefulness of this guide, we discuss all states of sedation beyond minimal sedation. (Some guidelines omit deep or dissociative sedation.) With the exception of dissociative sedation with ketamine, sedation exists as a continuum, and patients will move up and down the sedation continuum and can transition between defined sedation states during any given procedure. Dissociative sedation has particular utility for urgent or emergent procedures, especially in children, non-fasting patients, and those with co-morbid conditions.

Multidisciplinary field: Procedural sedation (whether elective or unscheduled) has always been administered by providers of different backgrounds working in diverse settings. This multispecialty experience fosters productive debate and innovation.

Accordingly, it is appropriate that institutional oversight of procedural sedation practice be collaborative and multidisciplinary, usually in the form of a local procedural sedation committee.
single individual may chair such a committee; however, all procedural sedation providers should have sufficient and diverse representation in this process such that sound, evidence-based procedural sedation advances receive full and appropriate consideration. When unmet procedural sedation needs are identified, the collaborative multidisciplinary leadership should assist with forming strategies for their solution.13-45 Procedural sedation leadership crosses multiple specialties with the demonstrated skills and commitment to safety.14,43-46

**Ventilatory adequacy versus responsiveness:** When the first procedural sedation guidelines appeared in 1985,47,48 pulse oximetry and capnography were unavailable in the outpatient setting, and physiologic monitoring was limited to cardiac rhythm and vital signs. Sedation levels were defined by the patient’s response to verbal or tactile stimulation, with ventilatory quality descriptors secondary (FIGURE 2).

This responsiveness-based taxonomy is valuable for targeting procedural sedation depth to ensure patient comfort but should not be promoted as the principal metric of sedation safety. Responsiveness is itself not a clinically useful safety measure, but rather represents a crude and indirect surrogate for ventilatory adequacy.49,50 Furthermore, responsiveness is an imprecise measure of procedural stress and subsequent procedural recall.51,52 A consequence of this focus is that procedural sedation providers and monitors feel compelled to repeatedly stimulate their patients to re-verify their targeted sedation level—with such disturbances fundamentally counterproductive to the intended state of tranquility. An additional adverse consequence of this taxonomy is that, given the inherent subjectivity of these definitions, their incorporation into guidelines and policy has fomented semantic disputes regarding procedural sedation boundaries, eg, what is the dividing line between moderate and deep sedation, and between deep sedation and general anesthesia?44-46,49,50,53

Modern procedural sedation practice is best served by focusing on patient responsiveness when the intent is to ensure effectiveness,54 while focusing on ventilatory adequacy when the intent is to ensure safety49,50—with both assessments occurring concurrently throughout the procedural sedation encounter. Cardiovascular stability is of similarly vital concern; however clinically important hemodynamic alterations are rare in patients without serious systemic disease or acute cardiovascular compromise. If a sedated patient has a stable and effective ventilatory pattern, from a safety perspective it is functionally irrelevant whether at that moment they are responsive to voice or to pain. Such ventilatory adequacy is verified through close, continual observation of the airway and chest wall motion, supplemented with physiologic monitoring of oxygenation (pulse oximetry) and ventilation (capnography). This safety focus is compared to the traditional effectiveness focus in FIGURE 2.

Given continued advances in ventilatory monitoring technology and real-time computational data analysis and algorithm development, it seems highly likely that responsiveness-defined sedation levels will be replaced in many procedures with objective physiological monitoring that continually predicts the ongoing risk of serious ventilatory impairment.49,50,55

**Procedural sedation depth, not drug:** A longstanding hallmark of procedural sedation guidelines is the concept of a sedation continuum, ie, that all sedatives and opioids, excluding ketamine—depending upon dose and patient response—are capable of producing any sedation depth along this scale from minimal sedation to general anesthesia. Accordingly, it is more meaningful and useful to focus clinical decisions and management upon sedation depth and ventilatory adequacy rather than the specific drug itself, recognizing that different drugs have different pharmacological properties and windows of effect and side effect. There is no evidentiary or pharmacological basis1-6,12-15,32,36-
for the designation of specific procedural sedation agents as intended or not intended for general anesthesia, or for restricting them on this basis.42

Skill sets, not specialty: A vital role for a procedural sedation guideline is to specifically outline the skill sets that render practitioners competent and suitable for procedural sedation privileges.56 Given ample evidence that modern procedural sedation is widely and safely practiced by a variety of specialists, competencies and privileges for procedural sedation should not be defined solely by specialty training. Instead, they should focus on whether the provider possesses specific procedural sedation knowledge in addition to assessment, management, and rescue skills targeted to sedation needs, the procedure, and the individual patient (FIGURE 3).56 Providers may acquire and demonstrate procedural sedation competency as part of the curricula of their specialty training programs. Alternatively, providers may acquire and demonstrate procedural sedation competency through additional focused training and education.56 All sedation practitioners must maintain their skills over time.

Intervention-oriented definitions for adverse events: An important advance in the evaluation of procedural sedation adverse events for quality improvement and for research is the shift away from event and threshold-based definitions (eg, apnea for >30 s) to the more clinically relevant intervention-based orientation (eg, assisted ventilation for apnea).8,10 The act of performing an intervention is typically unambiguous, and thus more likely to be reported in a standardized, reproducible fashion. Intervention-based definitions better predict clinical importance, as any event would be trivial if no intervention was performed in response to its occurrence.8,10 Periodic interventions are an expected part of procedural sedation practice, and their performance does not necessarily signify a clinical error.

Modern procedural sedation is off-label: Current product labeling from the United States Food and Drug Administration (FDA) is incomplete and inconsistent with the extensive procedural sedation literature.46 As a result, essentially all medications used in modern procedural sedation practice are off-label, while simultaneously being highly safe and effective when used by those with proper training and support.1-41 Unless and until there is a comprehensive update of FDA product labeling to comply with recent decades of procedural sedation advances, such product labeling should not supersede the wealth of evidence from the procedural sedation-specific medical literature.1-7,12,13,15,31-33,35-41,45,46,51-53

SEDATION STAFFING

Two-person sedation team: Safe procedural sedation requires a minimum of two trained health care practitioners at the bedside: the sedation provider who takes responsibility for oversight of the procedural sedation encounter and a sedation monitor (commonly a registered nurse or respiratory therapist) whose primary duty is continuous patient monitoring and documentation. Requisite skill sets for each role are shown in FIGURE 3.

At least one individual present must be skilled in vascular access.

Procedural sedation provider skill set: The sedation provider is a licensed health care professional with the sedation provider skill set (FIGURE 3). The procedural sedation provider must possess these core skills regardless of targeted sedation depth. Rescue skills are essential, given that it is not always possible to predict how an individual patient will respond. Procedural sedation providers must also possess the skills to identify a patient who is beyond the intended target depth, and to be
prepared to correct any adverse physiologic consequences and return the patient to the originally intended level of sedation. Likewise, procedural sedation providers must recognize inadequate sedation and address the insufficient condition through administration of either more sedative or an alternative agent to achieve the optimal state while maintaining patient safety.

Emergency physicians have long-standing, proven procedural sedation skills and a track record as research leaders in this multidisciplinary field. The Centers for Medicare & Medicaid Services (CMS) acknowledged the special situation and training of emergency medicine: “The ED is a unique environment where patients present on an unscheduled basis with often very complex problems that may require several emergent or urgent interventions to proceed simultaneously to prevent further morbidity or mortality.” They continue: “emergency medicine–trained physicians have very specific skill sets to manage airways and ventilation that is necessary to provide patient rescue. Therefore, these practitioners are uniquely qualified to provide all levels of analgesia/sedation.”

Although short courses such as Advanced Cardiac Life Support and Pediatric Advanced Life Support have educational merit, their completion does not assure appropriate sedation provider skills (FIGURE 3), and for some specialists—including emergency medicine and critical care—their residency or fellowship training offers a higher level of knowledge and skill acquisition than these courses and supersedes them. ACEP is a member of the Coalition to Oppose Medical Merit Badges, comprised of all major emergency medicine organizations. These organizations oppose credentialing or privileging based on brief, episodic courses for physicians who are already maintaining certification by the American Board of Emergency Medicine and the American Osteopathic Board of Emergency Medicine, as such maintenance of certification goes well beyond short courses designed to be taken by paramedics, nurses, and other providers. For other specialties, periodic short courses may be a helpful component of training and skills maintenance.

Airway repositioning and bag mask ventilation are the most common airway rescue interventions, even for emergency physicians and critical care physicians whose core training and practice includes intubation. For procedural sedation providers who do not intubate or place laryngeal mask airways regularly, it is preferable to focus their rescue skills on airway repositioning, bag mask ventilation, and the placement of oral and nasal airways rather than to stipulate intubation or laryngeal mask airway skills.

**Procedural sedation monitor skill set:** The sedation monitor is a licensed health care professional (commonly a registered nurse or respiratory therapist) with the sedation monitoring skills shown in FIGURE 3, and whose principal role is continuous monitoring and documentation. The sedation monitor can assist with minor, interruptible tasks as long as they do not materially interfere with effective procedural sedation monitoring. If suitably trained, such tasks may include sedative drug administration under the direct supervision of the sedation provider.

**Procedural sedation provider privileging and credentialing:** Competencies for procedural sedation should be defined by the specific sedation skill set a practitioner must be able to perform, rather than by specialty training (FIGURE 3). The granting of procedural sedation credentials and privileges can be comprehensive or focused.

Comprehensive procedural sedation privileges include all levels of sedation, including general anesthesia limited to emergency rapid sequence intubation and post-intubation management. Some providers will already possess comprehensive procedural sedation skills by virtue of their postgraduate training and ongoing clinical practice sufficient to support continued competence. For
example, the core curricula of emergency medicine, pediatric emergency medicine, and critical care residency and fellowship programs accredited by the Accreditation Council for Graduate Medical Education and American Osteopathic Association include advanced airway management, resuscitation, critical care, vascular access, monitoring, pharmacology, pain management, and training and supervised practice in all levels of procedural sedation. Graduates of these programs are routinely credentialed for rapid sequence intubation based upon this training and should, in essentially all cases, be simultaneously credentialed to manage all levels of procedural sedation.

Focused procedural sedation privileges are appropriate when a sedation provider possesses the skill set (FIGURE 3), but in accordance with his or her specific practice needs chooses to implement them in a manner restricted by sedation level or drug. One physician, for example, may be fully trained for moderate but not deep or dissociative sedation. In this case his or her procedural sedation skill set may appropriately be limited to the knowledge and skills pertinent to moderate sedation, ensuring that they possess rescue skills (FIGURE 3) and have no intent to perform dissociative or deep sedation. Another physician, for example, may be fully trained in moderate and deep sedation, but have never used ketamine nor feel any need to ever administer this agent. In this case, his or her procedural sedation skill set may appropriately omit the knowledge and skills unique to dissociative sedation.

Department medical directors and/or hospital procedural sedation committees can specify focused procedural sedation privileges based upon an individualized evaluation of each provider’s skills, experience, and competency. In some circumstances departmental training and/or proctoring can be used to confirm or expand privileges.

**Procedural sedation provider quality improvement:** As with every other aspect of medical practice, departmental leadership and/or hospital procedural sedation committees continually monitor ongoing competencies as part of a quality improvement process (discussed later). Renewal without additional action should be expected for those who regularly provide procedural sedation, have no deficiencies identified through this quality improvement, and demonstrate no other reason to question their ongoing skills. In all other cases departmental leadership and/or the hospital procedural sedation committee will evaluate the current status of each provider’s skills and competency on an individualized basis. If appropriate, privileges for specific sedation levels may be withdrawn or withheld contingent upon focused training and/or proctoring.

**Procedural sedation monitor privileging and credentialing:** The capability for a nurse, respiratory therapist, or other health care professional to serve as a procedural sedation monitor is a privilege based upon local oversight, training, and verification of skills.

**Procedural sedation roles:** When unscheduled moderate or dissociative sedation is performed, the procedural sedation provider may also be the provider performing the procedure, assuming that the procedure can be immediately halted should an adverse event occur that requires urgent attention or resuscitation.\(^1\,^6\)

Some procedural sedation guidelines specify that the sedation provider during deep sedation should be fully dedicated to sedation management and not involved in the procedure.\(^32\,^33,^42\) Although such a practice is optimal for both scheduled and unscheduled procedures, there is a longstanding track record of sedation providers (with standard back-up from their sedation monitors) simultaneously performing brief unscheduled procedures while managing moderate, dissociative, or deep sedation.
This practice has been shown to be safe, without evidence of any increased frequency of clinically important adverse events or outcomes.3,17,20,35-40

There remain circumstances in which time-sensitive deep sedation is necessary, but resources do not permit the timely availability of a third provider or the operating room without risk of physical harm based on the underlying condition and/or undue exacerbation of pain or anxiety for the patient and their family. Examples include a patient who promptly requires a tube thoracostomy, central line placement, cardioversion, or hip relocation. In these circumstances, the benefits outweigh the risks for the procedure and sedation to commence without delay, as assessed by the sedation provider—particularly when the procedure at hand can be readily interrupted. Should an adverse event require urgent attention or resuscitation, the sedation provider must be able to immediately halt the procedure and attend to the patient as appropriate. These circumstances also assume the rapid availability of additional licensed health care practitioners (eg, nurses, respiratory therapists) beyond the sedation provider and sedation monitor who can assist with rescue, as is typical in a hospital setting but may not be in a clinic or office.

**Nurse administration of sedatives:** Just as qualified registered nurses routinely administer sedatives and paralytics for intubation under direct supervision of an ordering provider, they are similarly qualified and capable of administering medications for procedural sedation while under the direct supervision of the ordering provider. Some state and nursing board regulations restrict (or are locally interpreted to restrict) such administration—but without supporting evidence. Nurses with the required skills to serve as sedation monitors (FIGURE 3) should be permitted to administer any and all medications used for unscheduled procedural sedation while under the direct supervision of the ordering provider, with the ordering provider specifying the dosing and administration.

**PROCEDURAL SEDATION PRACTICE**

**Procedural sedation needs assessment:** When clinical circumstances dictate the need for an unscheduled procedure, the sedation provider must first assess the specific circumstances of the situation. How urgent or emergent is the procedure? What depth of sedation will be needed to ensure patient comfort? What level of responsiveness on the sedation continuum (FIGURE 2) will be compatible with procedural success? What is the likely duration of the procedure? Are the key patient needs analgesia, anxiolysis, immobility, or some combination of the three? Is the patient at higher risk of adverse events based upon the pre-sedation patient evaluation (see full section below)? What level of ventilatory adequacy (FIGURE 2) is to be anticipated?

It may be possible that procedural sedation can be avoided, and that a high level of patient comfort can be attained through some combination of analgesics, local anesthesia, regional anesthesia, and non-pharmacological techniques (see section below). Conversely, if the patient is at high risk based upon their pre-sedation evaluation, consider the feasibility of referral for general anesthesia, while recognizing the delays required arranging an operating room, anesthesia services, and an operating surgeon or proceduralist.

The procedural sedation provider will discuss the sedation plan with the patient (and/or his or her parents or caregivers, as appropriate), including risks and benefits, using shared decision-making. Appropriate consent will be obtained in accordance with local policies. This process will of necessity be abbreviated for some urgent and emergent procedures.
Pre-sedation patient evaluation: Sedation providers should perform the following pre-sedation evaluation, which will at times require abbreviation based upon the urgent or emergent nature of the required procedure.

The procedural sedation provider should perform a focused history and physical examination, including a review of current medications. Does the patient have substantial underlying illness? Patients who are healthy or have mild systemic disease (commonly classified as American Society of Anesthesiologists (ASA) physical status I and II respectively) are generally excellent procedural sedation candidates. Those with severe systemic disease (ASA III or greater) are at greater risk of adverse events.21,22,31

What have been the patient’s prior experiences with procedural sedation or anesthesia? Have they experienced prior adverse events? Do they have any pertinent allergies? Do they have any absolute or relative contraindications to the specific sedatives being considered?

Does the patient have any anatomic or physiologic variants that put them at greater risk of airway or ventilatory compromise, or that might complicate assisted ventilation? Examples include: airway abnormalities (eg, micrognathia, macroglossia, laryngomalacia, tonsillar hypertrophy), short neck, severe obesity, a history of obstructive sleep apnea, very young age (such as infants under 3 months), and premature birth in an infant. There is no evidence that adding the Mallampati score to this general airway evaluation has any impact on clinical outcomes, and thus it cannot be recommended.60-63 This score—a graded visual assessment of the pharynx and tonsils—poorly predicts both difficult bag mask ventilation60 and endotracheal intubation,60,61,64 is unreliably assessed,62,65 and is frequently not obtainable in younger children who are unable to comply with the exam.63

Females of childbearing age should be questioned regarding the potential for pregnancy, although in urgent or emergent situations procedural sedation will likely need to proceed regardless. There is inadequate evidence to guide specific sedative agent selection in pregnancy.

Pre-sedation oral intake: The combination of vomiting and loss of airway protective reflexes is rare during procedural sedation, and resulting aspiration is extremely rare.31 To date, only nine reports of aspiration-associated deaths have been reported in the post-1984 procedural sedation literature, of which eight were during upper gastrointestinal endoscopy. None of these occurred in children or in healthy adults.66 Currently, there is no evidence that non-compliance with elective fasting guidelines increases the risk of aspiration or other adverse events.23-31 Any concerns regarding aspiration vastly exceed the actual risk.31,66-69

Providers of unscheduled procedural sedation should assess the timing and nature of recent oral intake. The urgency of the procedure will dictate the necessity of providing sedation without delay, regardless of fasting status. For patients with established risk factors for aspiration (eg, serious underlying illness,31,66 obstructive sleep apnea,31 obesity,70-73 age less than 12 months,31 upper endoscopy as the procedure,37,38,66,74,75 or bowel obstruction),31 consider the risks versus benefits of delaying procedural sedation after recent ingestion of a substantial meal. When such a delay is not feasible, consider the use of dissociative sedation, as unlike other sedatives ketamine helps preserve protective airway reflexes,5,32 and there have been no reported occurrences of aspiration (despite its association with vomiting and laryngospasm) in patients receiving this agent alone except in compromised neonates.5,66
Sedative regimens: Assuming that procedural sedation remains appropriate, the sedation provider will plan the sedative regimen based on the needs and considerations identified above. This must be customized to each patient, as no single sedative agent or combination of agents is ideal for every patient or procedure. A full discussion of drugs and administration strategies is beyond the scope of this guideline (examples can be found elsewhere).\textsuperscript{4,7,12,15} Agents used for unscheduled procedural sedation include but are not limited to opioids, benzodiazepines, barbiturates, ketamine, propofol, dexmedetomidine, etomidate, and nitrous oxide. Strategies include single versus combined agents. Drug doses and drug concentrations should be confirmed right before administration and calculated on a mg/kg basis for children.

Room and supplies: Procedural sedation must be performed in an area with oxygen, suction, physiological monitoring equipment, resuscitation medications, and age- and size-appropriate equipment for airway and ventilatory rescue (eg, bag-valve mask, oral airway, nasal airway) and for intravenous access. When opioids or benzodiazepines are principal sedatives, their reversal agents should be readily available. Drugs to treat allergic reactions and recovery nausea and vomiting should be readily available. The need for intravenous access is dependent on the medications, the dose, the route used, and risk factors for adverse events. Ketamine, for example, can be safely administered intramuscularly without need for intravenous access.\textsuperscript{5} Inhaled nitrous oxide and intranasal medications can be safely administered without intravenous access.

Non-pharmacological and other adjunctive techniques: Age-specific interventions for managing fear and pain can often reduce anxiety and distress in children and their families, and augment the procedural sedation experience.\textsuperscript{76,77} The sedation provider should utilize developmentally appropriate interventions to reduce fear, anxiety and pain and, when available, enlist child life specialists specifically trained to provide this service. Immobilization devices in children should generally be avoided and should certainly not be used in lieu of non-pharmacological interventions as described above and, when appropriate, effective pharmacologic sedation.

Interactive monitoring: The sedation monitor must continually observe the quality of airway patency and ventilation, as noted in their specific skill set (FIGURE 3). The sedation provider must similarly observe the patient in an intermittent or continual fashion as per their specific skill set (FIGURE 3), and continually monitor sedation status to ensure patient comfort and to avoid oversedation.

The procedural sedation team should actively verify the procedure to be performed, the patient identity, and, when appropriate and when the proceduralist has not been in constant attendance with the patient, mark the correct anatomic site for the procedure. This “time-out” (as per The Joint Commission)\textsuperscript{34} should not delay care in a life-threatening situation.

Physiologic monitoring: The sedation monitor will observe and periodically document the output of physiologic monitors. The use of these devices has become routine during procedural sedation, although it must be acknowledged there is little or no convincing evidence that they specifically enhance clinically important outcomes beyond interactive monitoring.\textsuperscript{1,4,16} But given their simplicity, theoretical basis of utility, the reassurance they provide to caregivers, and their low added expense, cardiac monitoring, blood pressure assessment, and pulse oximetry should be used routinely during procedural sedation.
Cardiac monitoring permits the immediate continuous assessment of heart rate and rhythm. Clinically important bradycardia and other arrhythmias are extremely rare during procedural sedation but can be promptly identified with cardiac monitoring.

Blood pressure should be assessed at appropriate intervals including—if possible and not unduly disturbing to the patient—before, during, and after procedural sedation, and at the earliest evidence of potential cardiovascular compromise. Clinically important hypotension is rare during procedural sedation in patients without serious systemic disease or acute cardiovascular compromise. Greater attention and more frequent blood pressure measurements should occur in patients with serious underlying illness, and in those otherwise judged at higher risk. Patients with known or possible volume depletion should be rehydrated at the earliest time that is safe and feasible—prior to sedative drug administration whenever possible—and their blood pressure frequently monitored.

Pulse oximetry permits immediate identification of downward trends in oxygen saturation, and must be continuously monitored.

Capnography is now routine in most settings for deep sedation but is optional for moderate or dissociative sedation. Capnography provides continuous, immediate, objective verification of the quality of ventilation, and is more reliable for this purpose than pulse oximetry or interactive monitoring alone.\textsuperscript{16} Capnography is simple, noninvasive, easy to interpret, provides the earliest warning of hypoventilation and apnea, and its use can reduce the risk of developing hypoxia.\textsuperscript{2,3,16,55} Normal capnography can quickly and unambiguously confirm ventilatory activity. Abnormal capnography can signal clinicians to reevaluate their patients, to be prepared to provide ventilatory support and/or to administer a reversal agent, and to avoid administering additional doses of sedatives until the concern is resolved.\textsuperscript{55} Capnography also permits clinicians to safely administer supplemental oxygen (discussed below).

A limitation of physiologic monitoring is that anxious or frightened children and uncooperative adults may be unable to tolerate the blood pressure cuff, pulse oximetry sensor probe, or capnography cannula prior to procedural sedation. In these circumstances procedural sedation may need to be initiated without one or more of these monitoring modalities. Once the patient is sufficiently sedated the devices may then be fitted.\textsuperscript{32} At lower levels of sedation uncooperative patients may not be able to tolerate a capnography cannula, and continual capnography may not be feasible.

Given the absence of supporting evidence, the use of a precordial stethoscope\textsuperscript{32} during procedural sedation is optional.

**Supplemental oxygen:** In the event of apnea, high-flow pre-oxygenation delays oxygen desaturation by up to 6 minutes in a healthy adult and 2 to 4 minutes in a healthy child with a patent airway.\textsuperscript{78} Such hyperoxygenation can permit patients to safely tolerate short periods of respiratory depression or apnea without need for positive-pressure-assisted ventilation and its potential for gastric insufflation. Clinicians can instead closely monitor the patient and avoid further drug administration.\textsuperscript{79} Supplemental oxygen is commonly avoided when capnography is not used, thus permitting pulse oximetry to provide warning should interactive monitoring fail to detect ventilatory compromise. When using capnography to directly measure ventilatory status, high-flow supplemental oxygen can be administered throughout procedural sedation. In these situations, capnography can provide immediate evidence of apnea or hypopnea, and when respiratory effort has returned or is strengthening.
**Rescue:** The procedural sedation provider must be prepared to perform rescue interventions, according to their skill set (FIGURE 3), should the situation warrant, with efforts made to avoid positive pressure ventilation (and potential gastric insufflation) unless necessary. The procedural sedation team should recognize that ventilatory depression may occur shortly after a stimulating procedure has ceased, and the patient then becomes relaxed as the pain abates.

**Recovery:** Patients should be monitored post-sedation until they are no longer at risk for respiratory depression, their vital signs return to pre-sedation states, and they are alert and at age-appropriate baseline level of consciousness. There is no need to establish a willingness or ability to take oral liquids. If the patient is being discharged post-recovery, appropriate written care instructions should be given to the patient and their family or caregivers.

**Documentation:** The urgency of the procedure may not permit pre-sedation charting, but post-procedure the sedation provider must document the original procedural sedation plan; patient evaluation; procedural sedation course; drugs, drug doses, and when given; and any adverse events and their interventions. The sedation monitor will separately document sedation events and serial assessments of interactive and physiologic monitoring. This documentation must be sufficient to permit quality assurance reviews (discussed next).

**QUALITY IMPROVEMENT**

Each procedural sedation provider should be accountable to an organized quality assurance and improvement program (eg, departmental, institution-wide) that monitors procedural sedation practice, tracks adverse events, ensures satisfactory documentation and compliance with this guideline or local protocols, and identifies opportunities for improvement.

An example of a standardized tool for this purpose is TROOPS (Tracking and Reporting Outcomes Of Procedural Sedation, http://proceduralsedation.org/troops-overview), which was developed through a rigorous multidisciplinary consensus process.

**THE FUTURE**

We pose key steps for future procedural sedation research and practice. First, as with this document, we believe that there should be greater collaboration between specialties in the development and oversight of optimal practice recommendations for this longstanding multidisciplinary field.

Although the safety of procedural sedation practice by a variety of specialists is now well established, research should focus on patient-centered outcomes. How can we improve the quality of the experience for patients and their families? Can we increase satisfaction? Can we decrease the frequency and magnitude of procedural awareness? Without compromising safety or efficacy, are there ways in which the procedural sedation encounter can be accomplished more quickly or more cost-effectively?

Target-controlled infusion technology has yet to be rigorously studied in procedural sedation. Such computer-driven drug administration based upon pharmacokinetic modeling smooths out the peaks and troughs of sedative drug concentrations, and thus should diminish hypoventilation, help ensure more consistent patient comfort, and permit the sedation provider to more closely focus on the patient without the distraction of repeat bolus sedative drug administration.
Future research should better define optimal procedural sedation strategies for patients who require time-sensitive procedural sedation despite substantial underlying illness, and for those who are pregnant.

Given the exceptionally low risk of pulmonary aspiration with procedural sedation and absent evidence of an impact from fasting, reform is appropriate for recommendations regarding pre-procedural oral intake.\textsuperscript{23-31}

Regarding clinical practice, there should be a continued refocusing of sedation provider credentialing and privileging on specific pertinent skill sets as outlined in this guideline, and away from specialty training alone. Future research should better clarify the role of simulation in procedural sedation training. State-based nursing regulations should, where barriers exist, be amended to permit qualified nurses to administer any and all medications used for unscheduled procedural sedation while under the direct supervision of the ordering provider.

As noted earlier, the next few years will hopefully permit movement beyond our current responsiveness-based cognitive framework for the sedation continuum, and shift our focus from sedation depth to sedation risk.\textsuperscript{49,50,55} The application of computational tools for analysis of continuous, high-resolution monitoring data may permit ongoing, real-time estimates of risk, allowing clinicians to titrate drug administration and focus interactive monitoring based upon such risk assessments rather than upon repeated patient stimulation.\textsuperscript{49,50,55}

REFERENCES


48. Guidelines for the elective use of conscious sedation, deep sedation, and general anesthesia in pediatric patients. Committee on drugs. Section on anesthesiology. *Pediatrics.* 1985;76:317-
321.


63. Iyer MS, Pitetti RD, Vitale M. Higher Mallampati scores are not associated with more adverse


FIGURE 1: Organizations involved in the development of this guideline

Organizations who participated and endorsed the guideline
- American College of Emergency Physicians
- American Academy of Emergency Medicine
- American Board of Emergency Medicine
- American College of Cardiology
- American College of Medical Toxicology
- American College of Osteopathic Emergency Physicians
- Association of Academic Chairs of Emergency Medicine
- Emergency Medicine Residents’ Association
- Emergency Nurses Association
- Society for Academic Emergency Medicine
- Society for Pediatric Sedation

Organizations who participated and provided input
- American Academy of Pediatrics
- American Academy of Pediatrics Section on Critical Care
- American Academy of Pediatrics Section on Pediatric Emergency Medicine
- American Society for Gastrointestinal Endoscopy
- Council of Emergency Medicine Residency Directors
- American Association of Oral and Maxillofacial Surgeons
- Society of Critical Care Medicine
- Society of Interventional Radiology

Organizations who provided review comments
- American Association of Nurse Anesthetists

Eight other organizations representing general medicine, anesthesiology, dentistry, and gastroenterology were invited to participate, but either declined or did not respond.
**FIGURE 2:** Common sedation state definitions listed in increasing order of complexity and potential risk, together with their corresponding airway and ventilatory focus.

<table>
<thead>
<tr>
<th>Responsiveness-Based Sedation State Definitions</th>
<th>Airway &amp; Ventilatory Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Minimal sedation</strong> (anxiolysis)</td>
<td>The airway and effective spontaneous ventilation are consistently maintained.</td>
</tr>
<tr>
<td>“A drug-induced state during which patients respond normally to verbal commands. Although cognitive function and coordination might be impaired, ventilatory and cardiovascular functions are unaffected.”</td>
<td></td>
</tr>
<tr>
<td><strong>Moderate sedation</strong></td>
<td>The airway and effective spontaneous ventilation are essentially always maintained.</td>
</tr>
<tr>
<td>“A drug-induced depression of consciousness during which patients respond purposefully to verbal commands, either alone or accompanied by light tactile stimulation. No interventions are required to maintain a patent airway, and spontaneous ventilation is adequate. Cardiovascular function is usually maintained.”</td>
<td></td>
</tr>
<tr>
<td><strong>Dissociative sedation</strong></td>
<td>The airway may require repositioning. Effective spontaneous ventilation is essentially always maintained.*</td>
</tr>
<tr>
<td>“A trance-like cataleptic state induced by the dissociative drug ketamine characterized by profound analgesia and amnesia, with retention of protective airway reflexes, spontaneous respirations, and cardiopulmonary stability.”²⁻⁶</td>
<td></td>
</tr>
<tr>
<td><strong>Deep sedation</strong></td>
<td>The airway may require repositioning. The ventilatory pattern may be at times slowed or irregular, but effective spontaneous ventilation is usually maintained such that assisted ventilation or other interventions are typically not required.</td>
</tr>
<tr>
<td>“A drug-induced depression of consciousness during which patients cannot be easily aroused but respond purposefully following repeated or painful stimulation. The ability to independently maintain ventilatory function may be impaired. Patients may require assistance in maintaining a patent airway and spontaneous ventilation may be inadequate. Cardiovascular function is usually maintained.”³⁴</td>
<td></td>
</tr>
<tr>
<td><strong>General anesthesia</strong></td>
<td>The airway and ventilatory pattern are often impaired, and patients often require assisted ventilation or other interventions.</td>
</tr>
<tr>
<td>“A drug-induced loss of consciousness during which patients are not arousable, even by painful stimulation. The ability to independently maintain ventilatory function is often impaired. Patients often require assistance in maintaining a patent airway, and positive pressure ventilation may be required because of depressed spontaneous ventilation or drug-induced depression of neuromuscular function. Cardiovascular function may be impaired.”³⁴</td>
<td></td>
</tr>
</tbody>
</table>

*Transient respiratory depression and apnea have been reported 1 to 2 minutes after rapid IV administration, and for this reason IV ketamine is typically administered over at least 30 seconds."⁵
FIGURE 3: Requisite Skill Sets for Procedural Sedation

Safe procedural sedation requires a minimum of two licensed health care practitioners in attendance: the procedural sedation provider who takes responsibility for oversight of the procedural sedation encounter, and a procedural sedation monitor whose primary duty is continuous patient monitoring and documentation. Requisite skill sets for each role are shown below.

<table>
<thead>
<tr>
<th>Cognitive skills</th>
<th>Procedural Sedation Provider</th>
<th>Procedural Sedation Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Must understand:</td>
<td>• airway, respiratory, and cardiovascular physiology and pathophysiology</td>
<td>• airway, respiratory, and cardiovascular physiology and pathophysiology</td>
</tr>
<tr>
<td></td>
<td>• the function and interpretation of continuous monitoring of cardiac rhythm, pulse oximetry, and capnography</td>
<td>• the function and interpretation of continuous monitoring of cardiac rhythm, pulse oximetry, capnography, and blood pressure</td>
</tr>
<tr>
<td></td>
<td>• sedative and antagonist drug pharmacology, e.g., pharmacokinetics, pharmacodynamics, dosing, administration, contraindications, adverse event profiles</td>
<td>• the sedative drugs being used, including their dosing, administration, duration, and adverse event profiles</td>
</tr>
<tr>
<td></td>
<td>• sedation adverse events and when intervention is appropriate</td>
<td>• sedation adverse events and when intervention is appropriate</td>
</tr>
<tr>
<td></td>
<td>• the principles of patient pre-sedation evaluation and factors which increase sedation risk</td>
<td>• the equipment used during rescue, and where it is stored</td>
</tr>
<tr>
<td></td>
<td>• the procedure to be performed and how it might impact the sedation course or sedation risk</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interactive monitoring skills</th>
<th>Must be able to:</th>
<th>Must be able to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitor airway patency, identify airway obstruction, and identify and distinguish obstructive and central apnea</td>
<td>• monitor airway patency, identify airway obstruction, and identify and distinguish obstructive and central apnea</td>
<td>• monitor airway patency and identify partial or complete airway obstruction</td>
</tr>
<tr>
<td>Monitor ventilatory adequacy using continual observation of chest wall motion supplemented with pulse oximetry and capnography</td>
<td>• monitor ventilatory adequacy using continual observation of chest wall motion supplemented with pulse oximetry and capnography</td>
<td>• monitor ventilatory adequacy using continual observation of the airway and chest wall motion supplemented with pulse oximetry and capnography</td>
</tr>
<tr>
<td>Monitor cardiovascular stability using physical assessment supplemented with cardiac rhythm and blood pressure monitoring</td>
<td>• monitor cardiovascular stability using physical assessment supplemented with cardiac rhythm and blood pressure monitoring</td>
<td>• monitor cardiovascular stability using physical assessment supplemented with cardiac rhythm and blood pressure monitoring</td>
</tr>
<tr>
<td>Recognize when a patient is excessively or inadequately sedated</td>
<td></td>
<td>• recognize when a patient is excessively or inadequately sedated</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rescue skills</th>
<th>Must be able to:</th>
<th>Must be able to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relieve airway obstruction through appropriate application of head tilt, chin lift, or placement of nasal or oral airway</td>
<td>• relieve airway obstruction through appropriate application of head tilt, chin lift, or placement of nasal or oral airway</td>
<td>• assist the sedation provider in resuscitation</td>
</tr>
<tr>
<td>Perform bag mask ventilation</td>
<td>• perform bag mask ventilation</td>
<td>• rapidly summon additional resuscitation assistance, if required</td>
</tr>
<tr>
<td>Manage a patient who is excessively sedated, with or without active intervention as appropriate</td>
<td>• manage a patient who is excessively sedated, with or without active intervention as appropriate</td>
<td></td>
</tr>
<tr>
<td>Rapidly initiate resuscitative measures for hypoxia, apnea, laryngospasm, hypotension, bradycardia, anaphylaxis, seizure, or cardiac arrest</td>
<td>• rapidly initiate resuscitative measures for hypoxia, apnea, laryngospasm, hypotension, bradycardia, anaphylaxis, seizure, or cardiac arrest</td>
<td></td>
</tr>
<tr>
<td>Rapidly summon additional resuscitation assistance, if required</td>
<td>• rapidly summon additional resuscitation assistance, if required</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX: Conflict of interest disclosures for guideline participants

Questions asked of participants:

- **Employment**: Please indicate the name of your employer and describe your position of employment, including the nature of the business of your employer, the position you hold and a description of your daily employment responsibilities.

- **Leadership**: Do you hold any positions of leadership in other organizations, chapters, commissions, groups, coalitions, agencies, and/or entities (e.g. board of director positions, committees and/or spokesperson roles)? If yes, please describe the position you hold, including a brief description of the nature and purposes of the organization or entity.

- **Relationships**: To the best of your knowledge, do you have any outside relationships with any person or entity from which ACEP obtains goods and services, or which provides services that compete with ACEP where such relationship involves: a) holding a position of responsibility; b) an equity interest (other than a less than 1% interest in a publicly traded company); c) any gift, gratuities, lodging, dining, or entertainment valued at more than $100? If yes, please explain:

- **Financial interests**: Do you have any financial interests or positions of responsibility in entities providing goods or services in support of the practice of emergency medicine (e.g. physician practice management company, billing company, physician placement company, book publisher, medical supply company, and/or a malpractice insurance company), other than owning less than a 1% interest in a publicly traded company? If yes, please explain.

- **Other potential conflict**: Do you have any other interest that may create a conflict with your fiduciary duty to ACEP or that may create the appearance of a conflict of interest?

- **Health administration**: Do you have any outside relationships with any healthplan, health insurance company, delegated payer, health insurance company administrative service organization, or health insurance company related philanthropic organization or entity where such relationship involves: a) holding any position of responsibility; b) an equity interest (other than a less than 1% interest in a publicly traded company); c) any stipend, contribution, gift, gratuities, lodging, dining, or entertainment valued at more than $100? If yes, please explain.

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- **Employment**: Associate Professor, Department of Pediatrics, Section of Emergency Medicine, Baylor College of Medicine; Co-Chair, Sedation Oversight Committee, Texas Children’s Hospital.

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- **Financial interests**: None.

- **Other potential conflict**: None.

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- Health administration: None.

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• Financial interests: None.
• Other potential conflict: None.
• Health administration: None.

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• Financial interests: None.
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• Financial interests: None.
• Other potential conflict: None.
• Health administration: None.

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• Financial interests: None.
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• Relationships: None.
• Financial interests: None.
• Other potential conflict: None.
• Health administration: None.
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- Financial interests: None.
- Other potential conflict: None.
- Health administration: None.

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- Financial interests: Receive approximately $300 annually to edit chapter on lightning and electricity related issues for Merck Manual.
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- Financial interests: None.
- Other potential conflict: None.
- Health administration: None.

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- Relationships: None.
- Financial interests: None.
- Other potential conflict: None.
- Health administration: None.

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- Relationships: None.
- Financial interests: None.
- Other potential conflict: None.
- Health administration: None.

Eric M. Walser, MD
- Employment: Professor and Chair, Department of Radiology, The University of Texas Medical Branch at Galveston.
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- Relationships: None.
- Financial interests: None.
- Other potential conflict: None.
- Health administration: None.

Donald M. Yealy, MD
- Employment: Professor and Chair, Emergency Medicine, University of Pittsburgh and University of Pittsburgh Medical Center.
- Relationships: None.
- Financial interests: None.
- Other potential conflict: None.
- Health administration: None.
POLICY STATEMENT

Unsolicited Medical Personnel Volunteering at Disaster Scenes

The American College of Emergency Physicians (ACEP) and the National Association of EMS Physicians (NAEMSP) believe an organized approach is needed for the utilization of unsolicited medical personnel who volunteer to respond to disaster scenes or mass casualty incidents. Volunteer medical resources must integrate with the responding jurisdiction’s established incident command system (ICS).

To the end, ACEP and NAEMSP encourage its members to become affiliated with pre-established disaster response organizations. This includes becoming pre-registered as disaster response personnel through the Emergency System for Advance Registration of Volunteer Health Professionals (ESAR-VHP), which is present in every state and provides for license verification, personnel notification, and rostering of response teams. Affiliation with an established response team increases the likelihood of being mobilized in large scale events and provides training, integration into the emergency response with the in the jurisdiction, and logistical support. Examples include Medical Reserve Corps (local and state resource), Disaster Medical Assistance Team (DMAT, federal resource), Urban Search and Rescue (FEMA), and others.

ACEP and NAEMSP generally discourage health care provider self-deployment to a disaster scene, believing that a medical provider’s primary responsibility during a disaster or multi-casualty event is to respond to the facility or health system where he/she has staff privileges. An exception can occur when medical personnel are already present at a scene where an unanticipated incident occurs. These health care providers are encouraged to provide initial care as a Good Samaritan. Responding EMS and law enforcement will establish on-scene medical command and direct further scene coordination and care. Once ICS is established, responsibility of a volunteer medical provider will be determined by the incident commander based on the nature of the incident, skills of the provider, and other medical resources available.
An urgent care center is a walk-in clinic focused on the delivery of medical care for minor illnesses and injuries in an ambulatory medical facility outside of a traditional hospital-based or freestanding emergency department. Other names for similar types of facilities include, but are not limited to: after hours walk-in clinics, minute clinics, quick care clinics, minor emergency centers, and minor care clinics. In some instances, facilities have used the term “emergency” in their name or advertisements, for example, “Minor Emergency Clinic” or “We Treat Emergencies.”

Although the Urgent Care Association of America and the American Academy of Urgent Care Medicine have criteria for urgent care clinics, there are limited regulations or state licensing requirements. Criteria may include: that the facility be open 7 days a week, contain multiple exam rooms, have on-site diagnostic equipment, have a licensed physician as a medical director, accept walk-in patients during business hours, treat a broad spectrum of illnesses and injuries and perform minor medical procedures.

Urgent care clinics across the country offer a wide range of care. Some provide levels of care similar to the level of care of an emergency department (ED), including a board certified emergency physician, advanced diagnostic equipment, including CT scan, X-ray, and many onsite laboratory services. The majority of these facilities; however, are staffed by primary care physicians, advanced practice registered nurses and physician assistants, and have limited diagnostic equipment, often only including point-of-care testing and limited medications. Unlike EDs associated with a hospital, urgent care facilities do not have state or federal mandates to see, treat, or stabilize patients without regard for the patient’s ability to pay.

The American College of Emergency Physicians (ACEP) believes that any facility that does not meet the definition of an ED or Freestanding Emergency Department as defined by ACEP, and that advertises itself as providing unscheduled care should:

- not use the word “emergency” or “ER” in its name in any way.
- not use the word “emergency” or “ER” in any advertisements, claims of service, or to describe the type or level of care provided or as an
alternative to an ED. Doing so may be considered a deceptive trade practice, as defined by federal or applicable state law.

- be required to comply with appropriate state or federal licensing requirements that specify staffing and equipment criteria to provide clear information to patients accessing medical care.

ACEP believes that urgent care centers do hold a place in appropriate unscheduled care, but the lack of regulation of facilities has caused confusion for patients and has put the prudent layperson definition of an emergency at risk. Therefore, ACEP encourages all states to have regulations regarding urgent care centers and the use of the word “emergency” that are developed to be consistent with this policy and with input from ACEP chapters in the state.
Use of Antitussive Medications in the Pediatric Population

Recognizing the lack of efficacy and risk of adverse events associated with antitussive medications in pediatric patients, the American College of Emergency Physicians (ACEP):

1. Does not support the utilization of over-the-counter or prescription single ingredient antitussive or fixed-combination ingredient cough and cold preparations in the treatment of pediatric patients.

2. Agrees with the American Academy of Pediatrics (AAP) that cough and cold medicines should not be prescribed or recommended for respiratory illness in young children.

3. Supports the Food and Drug Administration (FDA) warning that codeine should not be used to treat cough in children younger than 12 years due to the risk of serious side effects, including slowed or difficult breathing and death.

4. Supports the FDA recommendation that codeine is not recommended to treat cough in adolescents between 12 and 18 years who are obese or have conditions such as sleep apnea or severe lung disease that may increase the risk of breathing problems.

5. Discourages the use of dextromethorphan-containing cough medicines in pediatric patients due to risk of serious adverse effects and insufficient evidence for efficacy.

6. Discourages the use of benzonatate-containing cough medicines in pediatric patients due to the risk of serious adverse effects and the lack of research regarding efficacy in the pediatric population.
Use of Nurse Implemented Order Sets

The American College of Emergency Physicians (ACEP) recognizes the practice of utilizing nurse implemented order sets. These sets are predetermined collections of departmental orders initiated based upon nursing assessment of the patient and are consistent with high-quality emergency care, enhanced patient safety and satisfaction.

It is the position of the College that the use of such order sets does not, in and of itself, create a physician-patient relationship.
The American College of Emergency Physicians (ACEP) supports the careful and appropriate use of patient restraints or seclusion.

The administration of restraints can be dangerous not only to patients but to the staff. Safety should always be of paramount concern and should be considered for the application of restraints for agitated patients. Staff should be appropriately trained for the safety of all patients.\(^1\)

CMS defines restraints as “Any manual method, physical or mechanical device, material, or equipment that immobilizes or reduces the ability of a patient to move his or her arms, legs, body, or head freely; or a drug or medication when it is used as a restriction to manage the patient’s behavior or restrict the patient’s freedom of movement and is not a standard treatment or dosage for the patient’s condition.”\(^1\)

Restraints can be both physical and chemical. CMS explains that a medication constitutes a restraint if it is not considered “standard treatment” and if “the overall effect of a medication is to reduce the patient’s ability to effectively or appropriately interact with the world around the patient.”

Treatment for acute psychiatric conditions often includes medication that can also be used for medical restraints therefore the use of a specific medication does not by itself constitute a restraint.\(^1\) Consider oral medications, if appropriate, prior to IM, IV routes of administration.

ACEP recognizes that patient restraint involves issues of civil rights and liberties, including the right to refuse care, freedom from imprisonment, and freedom of association. However, there are circumstances when the use of restraints is in the best interest of the patient, staff, or the public.

Patient restraint should be considered when a careful assessment establishes that the patient is a danger to self or others by virtue of a medical or psychiatric condition and when verbal de-escalation is not successful.

ACEP endorses the following principles regarding patient restraints:

- When appropriate and safe, verbal de-escalation and standard treatment of underlying medical or psychiatric conditions should be attempted before restraints.
• Restraint of patients should be individualized and employed in a manner that makes all reasonable attempts to maintain the patients’ privacy and dignity.

• The method of restraint should be the least restrictive necessary for the protection of the patient and others.

• Staff should be properly trained in de-escalation, trauma informed care, the appropriate use and application of restraints and in the monitoring of patients in restraint and seclusion.

• Protocols to ensure patient safety should be developed to address observation and treatment during the period of restraint and periodic assessment as to the need and means of continuing or discontinuing restraint.

• The use of restraints should be carefully documented, including the reasons for and means of restraint, alternatives to restraint, and the periodic assessment of the restrained patient.

• ACEP opposes any requirement by hospital representatives or medical staff that emergency physicians provide inpatient restraint or seclusion orders. Patient restraint or seclusion requires comprehensive patient assessment, and the emergency physician’s principal legal and ethical responsibility is to patients who present to be seen and treated in the emergency department.

• The use of restraints should conform to applicable laws, rules, regulations, and accreditation standards.

1 Department of Health and Human Services, Centers for Medicare and Medicaid; Hospital Conditions of Participation: Patients’ Rights; 42 CFR Part 482
Use of Peak Expiratory Flow Rate Monitoring for the Management of Asthma in Adults in the Emergency Department

The American College of Emergency Physicians (ACEP) endorses the following principles regarding the use of peak expiratory flow rate (PEFR) monitoring in the emergency department management of adult patients who present for treatment of an acute exacerbation of asthma:

- Determination of PEFR can provide a quantitative measurement of airflow obstruction.
- PEFR monitoring may aid emergency physicians during their evaluation and management of a patient with an acute exacerbation of asthma.
- The use of PEFR monitoring during the emergency department evaluation and management of adult patients with acute exacerbations of asthma has not been shown to improve outcomes, reliably predict the need for admissions, or limit morbidity or mortality.
- The decision to perform PEFR as part of the emergency department management of a patient with an acute exacerbation of asthma should be individualized for each patient.
- There is insufficient evidence to require the use of PEFR monitoring in the emergency department evaluation of all adult patients seeking care for an acute exacerbation of asthma.
The American College of Emergency Physicians (ACEP) believes that board certification by the American Board of Emergency Medicine (ABEM) or the American Osteopathic Board of Emergency Medicine (AOBEM) demonstrates comprehensive training, knowledge, and skill in the practice of emergency medicine. Although short course completion may serve as evidence of focused review; the topics covered in such courses are part of the core curriculum of emergency medicine. ABEM or AOBEM certification in emergency medicine supersedes evidence of completion of such courses. Additionally, maintenance of board certification requires mandatory retesting and continuing medical education (CME), making updated short courses redundant.

ACEP believes that the Comprehensive Advanced Life Support (CALS) course is a valuable educational experience and is an equally acceptable alternative to other advanced life support and/or trauma life support courses. CALS may be of particular value to those who practice rural emergency medicine as it is more comprehensive than other life support courses.

However, for physicians certified by ABEM or AOBEM, ACEP strongly opposes requiring completion of courses such as Advanced Cardiac Life Support (ACLS), Advanced Trauma Life Support (ATLS), Pediatric Advanced Life Support (PALS), CALS, and Basic Trauma Life Support (BTLS), or a specified number of CME hours in a sub-area of emergency medicine, as conditions for privileges, renewal of privileges, employment, qualification by hospitals, government agencies, or any other credentialing organization’s standards to provide care for designated disease entities.
Use of Social Media by Emergency Physicians

Social media is a powerful tool for communication with beneficial applications, including emergency medical education and public health awareness. The risks of social media activity for emergency physicians, particularly when the lines between one’s personal life and professional life intersect, include the potential for inappropriate patient relationships, confidentiality violations, and presenting oneself, one’s employer/hospital, or one’s profession in an unfavorable light. Social media can amplify errors in judgment, demeanor, and behavior far beyond their historical context.

When using social media for professional or personal purposes, emergency physicians should maintain proper standards of ethical and professional conduct.

- Emergency physicians have a responsibility to ensure that their social media activity does not violate patient rights to privacy and confidentiality. Assuring that no Protected Health Information (PHI) is posted is critical, but not sufficient, to meet this requirement. A posted timeline and description of specific events or people can reveal PHI in an inadvertent but unauthorized way.
- These concerns may extend to various information sharing or diagnostic platforms, including crowd sourcing of cases for clinical discussion or input. Verbal consent, either implicit or explicit, for such public disclosure is not adequate for a HIPAA-compliant authorization for disclosure of PHI and is not a defense or justification for such disclosures.
- Emergency physicians should maintain appropriate professional boundaries with patients, patients’ families, and colleagues, regarding social media.
- All social media activity may become public and exist indefinitely. Emergency physicians should therefore be aware that their personal social media activity can reflect on public perceptions of them as physicians, their healthcare organizations, and the specialty of emergency medicine.
- Social media has created an additional area of professional liability that is independent of clinical practice and can extend to the emergency physician’s administrative roles as well. In general, social media content
is not protected and is discoverable. Emergency physicians should therefore exercise great caution regarding the content of their social media messages.

- Doxxing is the malicious use of social media to reveal an individual’s personal information in an effort to injure, punish, or seek revenge against that person. Use of social media in this way by physicians is a clear violation of moral and professional responsibilities.
The American College of Emergency Physicians (ACEP) believes that a physician is an individual who has received a “Doctor of Medicine,” “Doctor of Osteopathic Medicine,” or an equivalent degree (eg, Bachelor of Medicine, Bachelor of Surgery ‘MBBS’) following successful completion of a prescribed course of study from a school of allopathic or osteopathic medicine.

ACEP strongly opposes the use of the term “doctor” by other professionals in the clinical setting, including by those with independent practice, where there is strong potential to mislead patients into perceiving they are being treated by a physician.

Therefore, ACEP recommends that anyone in a clinical environment including, but not limited to, a hospital, free-standing emergency department, urgent care, or retail clinic who has direct contact with a patient and presents himself or herself to the patient as a “doctor,” and who is not a “physician” according to the definition above, must specifically and simultaneously declare themselves a “non-physician” and define the nature of their doctorate degree.
POLICY STATEMENT

Verification of Endotracheal Tube Placement

Approved January 2016

Revised January 2016, April 2009

Originally approved October 2001 replacing “Expired Carbon Dioxide Monitoring” approved September 1994

Confirmation of proper endotracheal tube placement should be completed in all patients at the time of initial intubation both in the hospital and out-of-hospital settings. Physical examination methods such as auscultation of chest and epigastrium, visualization of thoracic movement, and fogging in the tube are not sufficiently reliable to confirm endotracheal tube placement. Similarly, pulse oximetry and chest radiography are not reliable as sole techniques to determine endotracheal tube location.

During intubation, direct visualization of the endotracheal tube passing through the vocal cords into the trachea, especially with the use of a video laryngoscope, constitutes firm evidence of correct tube placement, but additional techniques should be used as objective findings to confirm proper endotracheal tube position.

Use an end-tidal carbon dioxide detector (i.e., continuous waveform capnography, colorimetric and non-waveform capnography) to evaluate and confirm endotracheal tube position in patients who have adequate tissue perfusion.

Esophageal detector devices are not as reliable as the various forms of capnography for the verification of endotracheal tube placement.

For patients in cardiac arrest and for those with markedly decreased perfusion, both continuous and non-waveform capnography may be less accurate. In these situations, if capnography is inconclusive, other methods of confirmation such as an esophageal detector device, ultrasound, or bronchoscopy should be used.

Ultrasound imaging may be used to reliably confirm endotracheal tube placement. However, this should be performed by someone who is experienced in this technique.

Properly placed endotracheal tubes may become displaced due to movement of patients and/or equipment. Continuous assessment of correct endotracheal tube placement with continuous waveform capnography is ideal. Endotracheal tube position should be reconfirmed immediately in all patients when their clinical status deteriorates or at any time there is concern regarding proper location of the endotracheal tube.
The American College of Emergency Physicians (ACEP) strongly supports the goal of a society free from violence. ACEP recognizes that violence takes many forms, including but not limited to, sexual assault, intimate partner violence, child and elder abuse, terrorism and acts intended to cause mass casualty incidents, firearm violence, and anti-minority/politically motivated violence. ACEP believes emergency physicians have a public health responsibility to reduce the prevalence and impact of violence through advocacy, education, legislation, and research initiatives. ACEP will work to improve violence prevention programs and develop clinical tools for emergency departments (EDs) to treat patients presenting with the mental and physical consequences of violence.
The American College of Emergency Physicians (ACEP) reaffirms that Emergency Medical Services (EMS) systems provide essential healthcare elements in the health and wellbeing of communities. With innovative, involved physician medical oversight, EMS is capable of serving multiple roles across the spectrum of public health and public safety.

ACEP believes that optimal EMS medical care can only be achieved when patients, EMS professionals, and all other persons in the EMS care environment are protected against violent acts. Such acts constitute a preventable and significant public health problem.

As such, ACEP advocates for specific violence preventions and interventions in EMS, beyond the “awareness level” education that historically has largely constituted EMS violence-related initiatives.

Further, ACEP strongly encourages all states to enact legislation that provides the maximum category of offense and criminal penalty against individuals who consciously commit violence against EMS and all healthcare professionals.

To promote safety and security in the EMS environment, ACEP believes in supporting violence prevention and intervention initiatives that include:

- Attaining and maintaining an EMS culture of patient and personnel safety, based upon community/system specific risk assessments that include:
  - Adequate staffing of professionals on emergency apparatus
  - Sufficient training for professionals in violence risk assessment, violence avoidance/de-escalation maneuvers, self-defense tactics, and patient and colleague defense tactics
  - Provision, training, and utilization of devices designed as physical barriers against bodily injury
  - Provision of other security components deemed essential in collaboration with violence/law enforcement experts
periodic assessments to measure compliance and effectiveness of violence-related initiatives

- Coordinating with applicable law enforcement agencies, to provide rapid response of law enforcement officers to EMS patients and/or EMS professionals in distress related to violence.
- Developing written operational protocols, with relevant input from EMS professionals, for violent situations occurring in the EMS environment.
- Developing and enforcing mandatory reporting policies that require EMS professionals to promptly report verbal and/or physical assaults to a clearly defined authority established by applicable law and/or within EMS system policy. Such policies should clearly state that reporting will not result in any adverse action by the EMS system such as termination, threatening to terminate, demoting, suspending, or in any manner discriminating against an EMS professional who reports an assault in good faith.
- Adopt a zero tolerance policy for violence against EMS professionals, patients, and others in the EMS environment. Educate EMS professionals that any assault is not considered “part of the job.”
- Provide appropriate post-incident support for EMS professionals involved in violent events including prompt medical treatment, debriefing options, counseling resources, and professional assistance as indicated.
The American College of Emergency Physicians believes that:

- Hospitals and emergency physicians should work together to promote staffing of hospitals and their emergency departments with qualified individuals of diverse race, ethnicity, sex (including gender, gender identity, sexual orientation, pregnancy, marital status), nationality, religion, age, ability or disability, or other characteristics that do not otherwise preclude an individual emergency physician from providing equitable, competent patient care, and

- Attaining diversity with well qualified physicians in emergency medicine that reflects our multicultural society is a desirable goal.
Worldwide Nuclear Disarmament

The American College of Emergency Physicians adds its voice to other organizations and individuals urging our government to continue to seek international nuclear weapons control, reduction, and eventual disarmament.
The American College of Emergency Physicians (ACEP) believes that the best patient care occurs when there is no ambiguity as to which clinician is responsible for care of a patient. The clinician in charge of a hospitalized patient's care (e.g., the admitting physician) is established when he/she accepts responsibility for the patient’s care by verbal or written communication, by policy, or by providing, authorizing or writing admission orders for that patient. Emergency clinicians generally do not have admitting privileges and should not provide ongoing inpatient care. ACEP recognizes that the admitting physician (or designee) may not be immediately available to write admission orders. Thus, to avoid delays in care, emergency clinicians may write transition orders intended to facilitate transfer to the most appropriate inpatient unit. However, this is not intended to imply or invoke a responsibility on behalf of the emergency clinician to provide ongoing care of such patients once they leave the emergency department (ED) for their inpatient unit.

Therefore, ACEP endorses the following principles:

- Patients are best served when there is a clear delineation of which clinician has patient care responsibility.

- The best practice for patients admitted through the ED is to have the admitting physician (or designee) evaluate and write admitting orders for ED patients requiring hospitalization at the time of admission or as soon as possible thereafter.

- The admitting physician (or designee) is responsible for ongoing care of the patient after accepting responsibility for the patient’s care whether verbally, by policy, or by writing admission orders, regardless of the patient’s physical location within the hospital.

- The emergency clinician is responsible for ongoing care of the patient only while the patient is physically present in the ED and under his/her exclusive care.
• There are circumstances where, in the interest of patient care, patient safety and operational efficiency, an emergency clinician may be asked to and may choose to write transition orders.

• Transition orders are meant to include essential treatment and assessment parameters upon the patient’s initial admission to an inpatient bed; they should be time limited and should serve as a bridge before complete admission orders are provided by the admitting physician (or designee). It is ideal for the admitting physician (or designee) to write the admitting orders at the time of admission or as soon as possible thereafter.

• When it is necessary for an emergency clinician to write orders that appear to extend control and responsibility for the patient beyond treatment in the ED to the inpatient setting, it is understood that the admitting physician is responsible for providing inpatient care, and that by writing transition orders, the emergency clinician will not be assuming that responsibility.¹

• Hospital and ED policies and medical staff bylaws should clearly delineate responsibility and privileges for writing admission and transition orders and define an appropriately limited period of time for the admitting physician (or designee) to evaluate patients and write admission orders.

¹ This policy is not meant to address the emergency episodic care that emergency clinicians may provide to inpatients on a case by case basis (i.e. cardiac arrest, emergent procedures, etc.). Refer to the ACEP policy statement, “Emergency Physicians’ Patient Care Responsibilities Outside the Emergency Department.”