American College of Emergency Physicians®

ADVANCING EMERGENCY CARE

Board of Directors Meeting

Virtual Meeting

October 23, 2020

https://acep.zoom.us/j/98842858632
You will be prompted to register.
Meeting ID#: 988-4285-8632
Phone: 855-880-1246 or 877-853-5257

acep UNCONVENTIONAL 2020

American College of Emergency Physicians®

ADVANCING EMERGENCY CARE

POLICY STATEMENT

Approved January 2019

Antitrust

Reaffirmed January 2019, June 2013 and October 2007

Revised October 2001 and June 1996

Approved April 1994

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 reimburser.
- 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.

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

POLICY STATEMENT

Conflict of Interest

Approved January 2017

Revised by the ACEP Board of Directors January 2017, June 2011, June 2008

Reaffirmed by the ACEP Board of Directors October 2001

Revised by the ACEP Board of Directors September 1997

Approved by the ACEP Board of Directors January 1996

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 hall 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.

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Board of Directors Meeting
October 23, 2020

https://acep.zoom.us/j/98842858632
You will be prompted to register.
Meeting ID#: 988-4285-8632
Phone: 855-880-1246 or 877-853-5257

TIMED AGENDA

All times listed are Central Time Zone.

Friday, October 23, 2020

1. Open Session Call to Order — Dr. Hirshon — 8:00 am
   a. Announcements
   b. Changes to the agenda
   c. Status of items postponed definitely to this agenda
      – *Staff Merit Increases FY 2020-21*
   d. Conflict of interest disclosure

2. Consent Agenda — Dr. Hirshon — 8:00 am
   Minutes (A1)
   a. Board of Directors Meeting
      1. June 24-25, 2020
   b. Board of Directors Executive Session Meeting
      1. June 24, 2020
   c. Special Board of Directors Conference Calls
      1. August 20, 2020
      2. October 2, 2020
   d. Board of Directors Conference Call Meeting
      1. September 23, 2020
   e. Ratify Actions Taken by the Chair of the Board to Approve Fellow Applications (A2)
   f. Ratify Action Taken by the President to Approve "Low Level Disinfection for Ultrasound Transducers Used for Percutaneous Procedures" (A3)
   g. ED Patient Advocate Role & Training (A12b)
   h. ED Planning & Resource Guidelines (A13a)
   i. Patient Support Services (A14a)
   j. Telehealth Inclusion (A14b)
   k. Third-Party Payers & Emergency Care (14c)
   l. Worldwide Nuclear Disarmament (A15)
   m. Bonus Award Program for ACEP Staff FY 2020-21 (A16)
   n. Managed Security Services Budget Modification (A18)
   o. *ACEP20* Expense and Revenue Budget Modification (A19)
   p. Handoffs: Transitions of Care for Children in the ED (A21)
   q. Patient- and Family-Centered Care & the Role of Emergency Physicians Providing Care to a Child in the ED (A23)
   r. Adult Psychiatric Emergencies (A24a)
   s. Influenza & SARS-CoV-2 Testing & Treatment Survey of Emergency Physicians (A29)
   t. NEMPAC Articles of Incorporation (A30)

3. President's Report — Dr. Jaquis — 8:05 am

4. Executive Director's Report — Ms. Sedory — 8:20 am

5. Secretary-Treasurer's Report a. September 30, 2020 Financial Statements (A4)	Dr. Kang	8:35 am
6. Emergency Medicine Residents' Association Report	Dr. Blutinger	8:50 am
7. Compensation Committee a. Board Member and Officer Stipends for FY 2020-21 (A10)	Dr. Coppola	9:00 am
8. Board Officer Candidate Declarations a. Chair of the Board b. Vice President c. Secretary-Treasurer	Dr. Friedman	9:15 am
9. Emergency Telehealth Section a. Practice Guidance for Emergency Telehealth & Acute Unscheduled Care Telehealth (A25)	Dr. Shaheen	9:30 am
BREAK		***10:00 am***
10. Clinical Policies Committee a. Critical Issues in the Management of Adult Patients Presenting to the ED with Community Acquired Pneumonia (A9)	Dr. Wolf	10:15 am
11. Residency Engagement Task Force Final Report (A26)	Dr. Finnell/Dr. Jarou	10:30 am
12. EMS Committee a. Support for the Committee for Tactical Emergency Casualty Care and The National TEMS Initiative and Council (A11)	Dr. Goodloe Dr. Piazza	11:30 am
13. Academic Affairs Committee a. Overcoming Barriers to Promotion of Women and Underrepresented in Medicine Faculty in Academic Emergency Medicine (A6)	Dr. Finnell	11:50 am
14. Late 2020 Council Resolutions (D1)	Dr. Katz	12:10 pm
BREAK		***12:30 pm***
15. Sepsis Task Force a. Early Care of Adults with Suspected Sepsis in the ED & Prehospital Environment (A28)	Dr. Yealy	1:00 pm
16. Rural Emergency Care Task Force Final Report (A27)	Dr. Wadman	1:20 pm
17. Emergency Medicine Practice Committee a. Deferral of Care After Medical Screening of ED Patients (12a) b. Emergency Physician Compensation Transparency (A13b)	Dr. Freess	 2:20 pm 2:40 pm
18. *ACEP20* Preview		3:00 pm
ADJOURN		***3:15 pm***

****

Executive Session		**3:20 pm**
1. *Annals Editor in Chief Evaluation* (A31)	Dr. Schmitz	
2. Next Generation Digital Platform – Source Selection Task Force Update	Dr. Terry/Dr. Goyal	
3. Data Analytics Plan	Dr. Terry/Goyal	

****

Reminder: Board Executive Session, Sunday, October 25, 8:00 am Central – discuss Reference Committee reports.

THESE MINUTES ARE PENDING APPROVAL BY THE BOARD OF DIRECTORS AT THE OCTOBER 23, 2020, MEETING. ANY CHANGES WILL APPEAR IN THE MINUTES OF THAT MEETING.

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Board of Directors Conference Call
June 24-25, 2020

Minutes

Chair of the Board Jon Mark Hirshon, MD, FACEP, called to order a conference call meeting of the Board of Directors of the American College of Emergency Physicians at 8:00 am Central time on Wednesday, June 24, 2020.

Directors participating in all or portions of the meeting were: Stephen Anderson, MD, FACEP, L. Anthony Cirillo, MD, FACEP; J.T. Finnell, MD, FACEP; Vidor Friedman, MD, FACEP, immediate past president; Jeffrey Goodloe, MD, FACEP; Alison Haddock, MD, FACEP; Jon Mark Hirshon, MD, FACEP, chair of the Board; William Jaquis, MD, FACEP, president; Christopher Kang, MD, FACEP, secretary-treasurer; Gabor Kelen, MD, FACEP; Mark Rosenberg, DO, FACEP, president-elect; Gillian Schmitz, MD, FACEP, vice president; Ryan Stanton, MD, FACEP; and Aisha Terry, MD, FACEP.

Speaker of the Council Gary Katz, MD, FACEP, and Vice Speaker of the Council Kelly Gray-Eurom, MD, FACEP, also participated in all or portions of the meeting.

Other members and guests participating in all or portions of the meeting were: Michael Baker, MD, FACEP; Erik Blutinger, MD; Beth Brooks, CAE; Daniel Freess, MD, FACEP; Andrea Green, MD, FACEP; Omar Hammad, MD, FACEP; Alan Heins, MD, FACEP; Robert Linton, II, MD, FACEP; Sarah Marshall; Liz Mesberg; Joshua Moskovitz, MD, FACEP; Aimee Moulin, MD, FACEP; Alex Rosenau, DO, FACEP; Alison Smith, MD; Gary Starr, MD, FACEP; Laura Tiberi, CAE; Janis Tupesis, MD, FACEP; Arvind Venkat, MD, FACEP; Matthew Watson, MD, FACEP; and Stephen Wolf, MD, FACEP.

Staff participating in all or portions of the meeting were: Pamela Autrey; Adriana Alvarez; Jerry Anderson; Holly Ayres; Peggy Brock; Michele Byers, CAE; Nancy Calaway, CAE; Shannon Campbell; Etta Carter; Gabe Casey; Mary Beth Collins; Bennie Davis; Jeff Davis; Tanya Downing; Faeeza Faruq, MPH; Mary Ellen Fletcher, CPC, CEDC; Riane Gay, MPA; Pawan Goyal, MD, MHA, FHIMSS; Jordan Grantham; Maude Suprenant Hancock; Deanna Harper; Robert Heard, MBA, CAE; Pat Hughes, CMP; Cindy Jones; Paul Krawietz, EdD, LAT, ATC; Adam Krushinskie; Srinivas Maranganti; Toni McElhinney, CMP; Maggie McGillick; David McKenzie, CAE; Mandie Mims, MLS; Harry Monroe; Leslie Moore, JD; Margaret Montgomery, RN; Sonja Montgomery, CAE; Rick Murray, EMT-P; Katie Muth; Tracy Napper; Jana Nelson; Maya Patel; Layla Powers, CPA; Craig Price, CAE; Shari Purpura; Julie Rispoli; Jen Rivera; Loren Rives, MNA; Sandra Schneider, MD, FACEP; Travis Schulz, MLS, AHIP; Sharon Scott; Susan Sedory, MA, CAE; Sam Shahid, MBBS, MPH; Cynthia Singh, MS; Jeanne Slade; Debbie Smithey, CAE, CMP; Kenneth Spresley; Jodi Talia; Ameet Vithalani; Julie Wassom; Chris Weller, CMP; Ginger Westbrook; Dean Wilkerson, JD, MBA, CAE; Cathey Wise, CAE; Carole Wollard; Laura Wooster, MPH; and Melissa Wunder.

Consent Agenda

The Board approved the following items by consent: 1) minutes of the April 15, 2020, Board of Directors conference call; 2) minutes of the April 15, 2020, Board of Directors executive session conference call; 3) minutes of the June 11, 2020, special Board of Directors executive session conference call; 4) actions taken by the chair of the Board to approve fellow applications; 5) National EM Excellence in Bedside Teaching Award recipients; 6) National Emergency Medicine Faculty Teaching Award recipients7) National Emergency Medicine Junior Faculty Teaching Award recipients; 8) cosponsoring a Bylaws amendment with the Bylaws Committee regarding ACEP Committee Quorum Requirement for submission to the 2020 Council; 9) taking no further action on Referred Resolution 11(19) International Member Eligibility for FACEP; 10) 2020 Compendium of ACEP Policy Statements on Ethical Issues; 11) "Medical Neutrality" policy statement; 12) revised Pain Management & Addiction Medicine Section Operational Guidelines; 13) COVID-19 Spokesperson of the Year Award recipient and presenting the Spokesperson of the Year

Award at the annual meeting each year instead of at the Leadership & Advocacy Conference; 14) ratifying action taken by the president to participate in California v. Texas amicus brief; 15) submitting a commendation resolution for Dean Wilkerson, JD, MBA, CAE, to the 2020 Council; 16) appointment of the chair-elect and additional individuals to serve on the ED Sickle Cell Care Coalition Board of Governors; and 17) supporting the preliminary committee objectives for 2020-21.

President's Report

Dr. Jaquis discussed the COVID-19 pandemic and various stimulus funding packages that are still in development. He reported that the Future of Emergency Medicine Summit will occur July 22, July 24, and July 29 and that he will appoint a task force on emergency department design to develop recommendations for structural and functional changes to the ED to mitigate transmission of communicable diseases to staff, patients, and visitors.

Executive Director's Report

Mr. Wilkerson provided a comprehensive report on the successes and challenges for the fiscal year and the phenomenal work done by staff and members in response to COVID-19 in addition to the comprehensive resources that are available from ACEP. It was suggested that an ACEP annual report be prepared and made available on the ACEP website.

Secretary-Treasurer's Report

The May 31, 2020, financial statements were provided to the Board. Year-to-date revenue was $(1,565,486) unfavorable to budget and year-to-date expense was $3,012,886 favorable to budget. Life-to-date unrealized gain on investments was $202,396. Year-to-date unrealized loss on investments was $1,125,473. Net from operations was $1,891,409 favorable to budget.

Emergency Medicine Residents' Association (EMRA)

Dr. Blutinger provided a written report from EMRA. He discussed several key initiatives currently in progress for EMRA.

Washington Update

Ms. Wooster reported on the Washington office relocation planned for December 1; the White House proposal regarding surprise billing; working with the family of Lorna Breen, MD, FACEP, on clinician mental health advocacy initiatives; collecting stories from members to share anonymously if they have avoided seeking mental health care because of fear of discrimination in their career or if they have experienced discrimination as a result of seeking mental health care; patient mental health and the bill that ACEP drafted last year is scheduled for a hearing with the Energy & Commerce Committee; PSA on emergency medicine "Standing in the Gap; planning activities for *ACEP20*; the AUCM alternative payment model and interest from private payers; and activities related to COVID-19 including responses to media coverage, limited liability protections, telehealth reimbursement during the pandemic and efforts to make the reimbursement eligibility permanent, the need for access to the Provider Relief Fund by emergency physicians, and communications with the Senate HELP Committee regarding lessons learned during the pandemic.

Finance Committee

Dr. Starr presented the committee's recommendations for the FY 2020-21 budget, capital expenditure budget, bonus award program for ACEP staff, and the Strategic Project Initiatives. He stated that the Finance Committee added $40,000 to the budget for diversity and inclusion focus groups, removed $17,320 in expenses for the Democratic National Convention, and removed $15,700 in meals for section meetings since *ACEP20* will be held as a virtual event. The deficit budget includes $1,500,000 for contract penalties related to the cancellation of *ACEP20* as a live meeting. Staff are working with the hotels and convention center to reduce or possibly avoid the penalties.

It was moved THAT THE BOARD OF DIRECTORS APPROVE THE FY 2020-21 OPERATING BUDGET WITH A DEFICIT OF $(1,488,186).

It was moved THAT TRAVEL EXPENSES FOR ALL IN-PERSON COMMITTEE MEETINGS BE REMOVED FROM THE BUDGET. The motion was not adopted.

It was moved THAT DISCUSSION OF MERIT INCREASES FOR ACEP STAFF, POTENTIALLY RETROACTIVE TO JULY 1, 2020, BE POSTPONED DEFINITELY TO THE APRIL 2021 BOARD MEETING.

IT WAS MOVED THAT THE MOTION BE AMENDED TO POSTPONE DISCUSSION OF STAFF MERIT INCREASES DEFINITELY TO THE OCTOBER 2020 BOARD MEETING. The motion was adopted.

It was noted that additional funds to address ACEP's cyber security needs may be required. Staff were directed to develop recommendations and a budget modification if required.

The main motion was then voted on and adopted.

It was moved THAT THE BOARD OF DIRECTORS APPROVE THE FISCAL YEAR 2020-21 CAPITAL EXPENDITURE BUDGET OF $1,219,236. The motion was adopted.

It was moved THAT THE BOARD OF DIRECTORS APPROVE THE BONUS AWARD PROGRAM FOR ACEP STAFF FOR FY 2020-21 WITH NO CHANGES. The motion was adopted.

It was moved THAT THE BOARD OF DIRECTORS CONTINUE TO SUPPORT THE FOUR STRATEGIC PROJECT INITIATIVES THAT WERE APPROVED IN 2019. The motion was adopted.

Ethics Committee

Dr. Venkat presented the committee's proposed policy statement "Expert Witness Cross-Specialty Testimony for Standard of Care."

It was moved THAT THE BOARD OF DIRECTORS APPROVE THE POLICY STATEMENT "EXPERT WITNESS CROSS-SPECIALTY TESTIMONY FOR STANDARD OF CARE." The motion was adopted.

Ms. Moore presented the committee's proposed revised "Procedures for Addressing Charges of Ethical Violations and Other Misconduct."

It was moved THAT THE BOARD OF DIRECTORS:

1. APPROVE THE REVISED "PROCEDURES FOR ADDRESSING CHARGES OF ETHICAL VIOLATIONS AND OTHER MISCONDUCT."
2. COSPONSOR THE COLLEGE MANUAL RESOLUTION WITH THE ETHICS COMMITTEE FOR SUBMISSION TO THE 2020 COUNCIL
3. COSPONSOR THE BYLAWS AMENDMENT WITH THE ETHICS COMMITTEE FOR SUBMISSION TO THE 2020 COUNCIL.

There was consensus to add a virtual component to ethics reviews. The motion was then voted on and adopted.

Clinical Policies Committee

Dr. Wolf presented the committee's proposed *Clinical Policy: Critical Issues Related to Opioids in Adult Patients Presenting to the Emergency Department.*

It was moved THAT THE BOARD OF DIRECTORS APPROVE THE *CLINICAL POLICY: CRITICAL ISSUES RELATED TO OPIOIDS IN ADULT PATIENTS PRESENTING TO THE EMERGENCY DEPARTMENT.* The motion was adopted.

It was moved THAT THE BOARD OF DIRECTORS RESCIND THE 2012 *CLINICAL POLICY: CRITICAL ISSUES IN THE PRESCRIBING OF OPIOIDS FOR ADULT PATIENTS IN THE EMERGENCY DEPARTMENT.* The motion was adopted.

Special Board of Directors Meetings – Bylaws Amendment

Ms. Sonja Montgomery presented a proposed Bylaws resolution regarding notice requirements for Board of Directors meetings.

It was moved THAT THE BOARD OF DIRECTORS APPROVE SUBMITTING A RESOLUTION TO THE 2020 COUNCIL TO AMEND THE BYLAWS ARTICLE IX – BOARD OF DIRECTORS, SECTION 3 – MEETINGS, PARAGRAPH FOUR REGARDING SPECIAL MEETINGS OF THE BOARD OF DIRECTORS.

It was moved THAT THE NOTICE REQUIREMENT IN THE PROPOSED BYLAWS AMENDMENT BE CHANGED FROM "NOT LESS THAN 24 HOURS NOTICE" TO "NOT LESS THAN 48 HOURS NOTICE." The motion was adopted.

The amended main motion was then voted on and adopted.

Ethics Committee (continued)

Dr. Kelen presented the committee's recommendation to allow the policy statement "Reporting Of Medical Errors" to Sunset." It was noted that a policy statement is no longer needed because the reporting of medical errors has become a standard part of the health care delivery system in the United States. Additionally, ACEP has a current policy statement "Disclosure of Medical Errors."

It was moved THAT THE BOARD OF DIRECTORS ALLOW THE POLICY STATEMENT "REPORTING OF MEDICAL ERRORS" TO SUNSET." The motion was adopted.

FY 2020-23 Strategic Plan

Mr. Wilkerson presented the updated FY 2020-23 Strategic Plan with COVID-related tactics.

It was moved THAT THE BOARD OF DIRECTORS APPROVE CHANGES TO THE 2020 – 2023 STRATEGIC PLAN RELATED TO COVID AND POST-COVID INITIATIVES. The motion was adopted.

EMS Committee

Dr. Goodloe explained that the proposed policy statement "High-Threat Event Casualty Care" has been removed from the agenda. A proposed policy statement will be submitted to the Board for discussion at a future meeting.

Medical-Legal Committee

Mr. Price explained that the revised policy statement "Interpretation of EMTALA in Medical Malpractice Litigation" has been removed from the agenda. A proposed policy statement will be submitted to the Board for discussion at a future meeting.

Freestanding Emergency Centers Accreditation

Mr. McKenzie presented a recommendation regarding a revision to the contract with the Center for Improvement in Healthcare Quality.

It was moved THAT THE BOARD OF DIRECTORS APPROVE REVISING THE CURRENT CONTRACT WITH THE CENTER FOR IMPROVEMENT IN HEALTHCARE QUALITY (CIHQ) TO RECEIVE A FLAT ROYALTY FEE RATHER THAN A PERCENTAGE OF PROFITS. The motion was adopted.

Leadership and Volunteers Conduct Policy

Ms. Moore presented the proposed policy statement "Leadership and Volunteers Conduct Policy."

It was moved THAT THE BOARD OF DIRECTORS APPROVE THE POLICY STATEMENT "LEADERSHIP AND VOLUNTEERS CONDUCT POLICY." The motion was adopted.

Dues Financial Hardship

The Board discussed the financial hardships being experienced by some members and requested that the Membership Committee review the "Guidelines for Eligibility for Dues Waivers Due to Financial Hardship" and provide a recommendation to the Board regarding any potential revisions. There have been 40 requests for dues waivers received to date.

COVID-19 Pandemic Effect on International Emergency Medicine

Dr. Tupesis addressed the Board regarding the impact of the COVID-19 pandemic on emergency medicine throughout the world.

Emergency Medicine Practice Committee

Dr. Freess presented the committee's proposed revisions to the policy statement "Guidelines Regarding the Role of Physician Assistants and Advanced Practice Registered Nurses in the Emergency Department."

It was moved THAT THE BOARD OF DIRECTORS APPROVE THE REVISED POLICY STATEMENT "GUIDELINES REGARDING THE ROLE OF PHYSICIAN ASSISTANTS AND ADVANCED PRACTICE REGISTERED NURSES IN THE EMERGENCY DEPARTMENT" WITH THE REVISED TITLE "GUIDELINES REGARDING THE ROLE OF PHYSICIAN ASSISTANTS AND NURSE PRACTITIONERS IN THE EMERGENCY DEPARTMENT." The motion was adopted.

Emergency PA/NP Utilization Task Force

Dr. Hirshon summarized the Board's April 15, 2020 decision to accept the final report of the task force.

It was moved THAT THE BOARD OF DIRECTORS RESCIND THE PREVIOUS DECISION OF APRIL 15, 2020 TO ACCEPT THE FINAL REPORT OF THE EMERGENCY PA/NP UTILIZATION TASK FORCE. The motion was adopted.

It was moved THAT THE WORD "CURRENTLY" BE REPLACED WITH THE WORD "NECESSARILY" IN THE DOCUMENT PREAMBLE. The motion was adopted.

It was moved THAT THE BOARD OF DIRECTORS FILE THE FINAL REPORT OF THE EMERGENCY PA/NP UTILIZATION TASK FORCE. The motion was adopted.

The Board recessed at 4:17 pm Central time and reconvened in open session at 9:00 am Central time on Thursday, June 25, 2020.

2019-20 Section Grants

Dr. Schmitz presented the Sections Subcommittee's recommendations for 2019-20 section grant program funding.

It was moved THAT THE BOARD OF DIRECTORS APPROVE FUNDING FOR THE FOLLOING PROJECTS UNDER THE 2019-20 SECTION GRANT PROGRAM:

1. Palliative Medicine Section and Geriatric Emergency Medicine Section – *EMS Education of Palliative Care and Hospice Patients* – $2,750.
2. Forensic Medicine Section – *Evaluation and Management of the Patient Who Has Been a Victim of Interpersonal Violence* – $2,990.
2. Wellness Section – *Whitepaper and Poster Development: The Chief Wellness Officer, A Champion for Wellness* – $828.
3. Tactical Emergency Medicine Section and EMS-Prehospital Care Section – *Development of a Prehospital Care and Operational Medicine Virtual Grand Rounds and Educational Resources Web-Repository for Latin American Providers. The LATAM V-OpMed Project* – $4,159.10.
4. Emergency Medical Services-Prehospital Care Section and Pediatric Emergency Medicine Section – *Managing Childbirth and Newborn Resuscitation Toolkit for the EMS Provider* – $9,996.
5. Toxicology Section – *Toxicologists Delivering Core Content for Improved Emergency Medical Training* – $4,845.

The motion was adopted.

Public Health & Injury Prevention Committee

Dr. Heins presented the committee's proposed policy statement "Adult Behavioral Health Emergencies."

It was moved THAT THE BOARD OF DIRECTORS APPROVE THE POLICY STATEMENT "ADULT BEHAVIORAL HEALTH EMERGENCIES."

There were concerns raised about using the term "behavioral emergencies" instead of the term "psychiatric emergencies."

It was moved THAT THE POLICY STATEMENT BE REFERRED BACK TO THE COMMITTEE TO CONSIDER CHANGING THE WORD "BEHAVIORAL" THROUGHOUT THE POLICY. The motion was adopted.

Dr. Heins presented the committee's proposed policy statement "Antimicrobial Stewardship."

It was moved THAT THE BOARD OF DIRECTORS APPROVE THE POLICY STATEMENT "ANTIMICROBIAL STEWARDSHIP."

It was moved THAT THE WORD "LIMITED" BE REPLACED WITH THE WORDS "REDUCTION OF" AND THE WORD "EFFECTIVE" BE ADDED BEFORE THE WORD "ANTIMICROBIAL" IN LINE ONE. The motion was adopted.

It was moved THAT THE WORDS "SHARED DECISION MAKING" IN LINE 17 BE DELETED. The motion was adopted.

The amended main motion was then voted on and adopted.

Dr. Heins presented the committee's proposed revisions to the policy statement "Role of the Emergency Physician in Injury Prevention and Control for Adult and Pediatric Patients."

It was moved THAT THE BOARD OF DIRECTORS APPROVE THE REVISED POLICY STATEMENT "ROLE OF THE EMERGENCY PHYSICIAN IN INJURY PREVENTION AND CONTROL FOR ADULT AND PEDIATRIC PATIENTS." The motion was adopted.

Annals of Emergency Medicine

A written report from *Annals of Emergency Medicine* was provided to the Board of Directors.

Emergency Medicine Foundation (EMF)

A written report from EMF was provided to the Board of Directors.

JACEP Open

A written report from *JACEP Open* was provided to the Board of Directors.

National Emergency Medicine Political Action Committee (NEMPAC)

A written report from NEMPAC was provided to the Board of Directors.

Next Meeting

The next regular meeting of the Board of Directors will be held by conference call on October 23, 2020.

With no further business, the conference call meeting was adjourned at 9:24 am Central time on Thursday, June 25, 2020.

Respectfully submitted,

Dean Wilkerson, JD, MBA, CAE
Executive Director

Approved by,

Jon Mark Hirshon, MD, FACEP
Chair of the Board

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Special Board of Directors Conference Call
August 20, 2020

Minutes

Chair of the Board Jon Mark Hirshon, MD, FACEP, called to order a special conference call meeting of the Board of Directors of the American College of Emergency Physicians at 10:02 am Central time on Thursday, August 20, 2020.

Directors participating in all or portions of the meeting were: Stephen Anderson, MD, FACEP, L. Anthony Cirillo, MD, FACEP; J.T. Finnell, MD, FACEP; Vidor Friedman, MD, FACEP, immediate past president; Jeffrey Goodloe, MD, FACEP; Alison Haddock, MD, FACEP; Jon Mark Hirshon, MD, FACEP, chair of the Board; William Jaquis, MD, FACEP, president; Christopher Kang, MD, FACEP, secretary-treasurer; Gabor Kelen, MD, FACEP; Mark Rosenberg, DO, FACEP, president-elect; Gillian Schmitz, MD, FACEP, vice president; Ryan Stanton, MD, FACEP; and Aisha Terry, MD, FACEP.

Speaker of the Council Gary Katz, MD, MBA, FACEP, and Vice Speaker of the Council Kelly Gray-Eurom, MD, FACEP, also participated in all or portions of the meeting.

Other members and guests participating in all or portions of the meeting were: Michael Baker, MD, FACEP; Erik Blutinger, MD' Andrew Sama, MD, FACEP; and Arvind Venkat, MD, FACEP.

Staff participating in all or portions of the meeting were: Michele Byers, CAE, CMP, DES; Nancy Calaway, CAE; Gabe Casey; Mary Ellen Fletcher, CPC, CEDC; Pawan Goyal, MD, MHA, FHIMSS; Robert Heard, MBA, CAE; Maggie McGillick; Leslie Moore, JD; Sonja Montgomery, CAE; Jana Nelson; Craig Price, CAE; Layla Powers, CPA; Sandra Schneider, MD, FACEP; Susan Sedory, MA, CAE; Kenneth Spresley; Jodi Talia; Carole Wollard; Laura Wooster, MPH; and Melissa Wunder.

Emergency Medicine Group Ownership Task Force

Dr. Sama presented the task force's recommendation to proceed with retaining a consulting firm to perform the research and analysis to address Amended Resolution 58(19) Role of Private Equity in Emergency Medicine.

It was moved THAT THE BOARD OF DIRECTORS APPROVE MOVING FORWARD WITH RETAINING MILLIMAN TO PERFORM THE RESEARCH AND ANALYSIS OF THE MARKET PENETRATION OF VARIOUS EMERGENCY MEDICINE GROUP OWNERSHIP MODELS AND, TO THE EXTENT POSSIBLE, IDENTIFY THE IMPACTS OF DIFFERENT MODELS ON PHYSICIANS, QUALITY OF CARE, AND COST OF CARE. The motion was adopted.

Ms. Sedory will work with staff to prepare a recommendation for funding the project with an estimated cost of $300,000 – $350,000.

With no further business, the conference call meeting was adjourned at 10:45 am Central time on Thursday, August 20, 2020.

Respectfully submitted,

Susan E. Sedory, MA, CAE
Executive Director

Approved by,

Jon Mark Hirshon, MD, FACEP
Chair of the Board

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Special Board of Directors Conference Call
October 2, 2020

Minutes

Chair of the Board Jon Mark Hirshon, MD, FACEP, called to order a special conference call meeting of the Board of Directors of the American College of Emergency Physicians at 5:03 pm Central time on Friday, October 2, 2020.

Directors participating in all or portions of the meeting were: Stephen Anderson, MD, FACEP, L. Anthony Cirillo, MD, FACEP; J.T. Finnell, MD, FACEP; Jeffrey Goodloe, MD, FACEP; Jon Mark Hirshon, MD, FACEP, chair of the Board; William Jaquis, MD, FACEP, president; Christopher Kang, MD, FACEP, secretary-treasurer; Gabor Kelen, MD, FACEP; Mark Rosenberg, DO, FACEP, president-elect; Gillian Schmitz, MD, FACEP, vice president; Ryan Stanton, MD, FACEP; and Aisha Terry, MD, FACEP.

Speaker of the Council Gary Katz, MD, MBA, FACEP, and Vice Speaker of the Council Kelly Gray-Eurom, MD, FACEP, also participated in all or portions of the meeting.

Other members and guests participating in all or portions of the meeting were: Erik Blutinger, MD' James Shoemaker, Jr., MD, FACEP; and Arvind Venkat, MD, FACEP.

Staff participating in all or portions of the meeting were: Michele Byers, CAE, CMP, DES; Nancy Calaway, CAE; Mary Ellen Fletcher, CPC, CEDC; Pawan Goyal, MD, MHA, FHIMSS; Robert Heard, MBA, CAE; Paul Krawietz; Adam Krushinskie; Leslie Moore, JD; Sonja Montgomery, CAE; Harry Monroe; Jana Nelson; Craig Price, CAE; Sandra Schneider, MD, FACEP; Travis Schulz, MLS, AHIP; and Susan Sedory, MA, CAE.

2020 Council Resolutions

Dr. Cirillo presented the remainder of recommendations regarding resolutions 24-39 assigned to Reference Committee B. There was consensus for the Board to support resolutions 28 (with amendment), 29 (with amendment), 34, 35, 36 (first resolved only), 37 (first resolved only), 38, 39 (with amendment); take no position on resolutions 24 and 27; take no position and provide information on resolutions 30, 31, 32; and oppose resolutions 33, 36 (last three resolveds), and 37 (last two resolveds),

Dr. Anderson presented recommendations regarding resolutions 40-52 assigned to Reference Committee C. There was consensus for the Board to support resolutions 41 (with amendment to first resolved), 43, 49 (with amendment to first resolved), 50, and 51; take no position on resolutions 42 and 47 (oppose if the word "encourage" is removed); take no position and provide information on resolution 44; oppose resolutions 40, 45, 46, and 52; and recommend referral to the Board on resolution 48.

Ms. Montgomery will prepare a summary document of the Board's position on each resolution and will distribute it with the guidance information for commenting on resolutions that she is working on with Dr. Hirshon and Ms. Sedory.

With no further business, the conference call meeting was adjourned at 6:29 pm Central time on Friday, October 2, 2020.

Respectfully submitted,

Susan E. Sedory

Susan E. Sedory, MA, CAE
Executive Director

Approved by,

Jon Mark Hirshon, MD, FACEP
Chair of the Board

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Board of Directors Conference Call
September 23, 2020

Minutes

Chair of the Board Jon Mark Hirshon, MD, FACEP, called to order a conference call meeting of the Board of Directors of the American College of Emergency Physicians at 10:03 am Central time on Wednesday, September 23, 2020.

Directors participating in all or portions of the meeting were: Stephen Anderson, MD, FACEP, L. Anthony Cirillo, MD, FACEP; J.T. Finnell, MD, FACEP; Vidor Friedman, MD, FACEP, immediate past president; Jeffrey Goodloe, MD, FACEP; Alison Haddock, MD, FACEP; Jon Mark Hirshon, MD, FACEP, chair of the Board; William Jaquis, MD, FACEP, president; Christopher Kang, MD, FACEP, secretary-treasurer; Gabor Kelen, MD, FACEP; Mark Rosenberg, DO, FACEP, president-elect; Gillian Schmitz, MD, FACEP, vice president; Ryan Stanton, MD, FACEP; and Aisha Terry, MD, FACEP.

Speaker of the Council Gary Katz, MD, MBA, FACEP, and Vice Speaker of the Council Kelly Gray-Eurom, MD, FACEP, also participated in all or portions of the meeting.

Other members and guests participating in all or portions of the meeting were: Michael Baker, MD, FACEP; Erik Blutinger, MD' James Shoemaker, Jr., MD, FACEP; and Arvind Venkat, MD, FACEP.

Staff participating in all or portions of the meeting were: Michele Byers, CAE, CMP, DES; Nancy Calaway, CAE; Gabe Casey; Jeff Davis; Mary Ellen Fletcher, CPC, CEDC; Pawan Goyal, MD, MHA, FHIMSS; Maude Suprenant Hancock; Robert Heard, MBA, CAE; Paul Krawietz; Adam Krushinskie; Maggie McGillick; Mandie Mims, MLS; Leslie Moore, JD; Sonja Montgomery, CAE; Harry Monroe; Jana Nelson; Craig Price, CAE; Layla Powers, CPA; Sandra Schneider, MD, FACEP; Travis Schulz, MLS, AHIP; Susan Sedory, MA, CAE; Kenneth Spresley; Jodi Talia; Laura Wooster, MPH; and Melissa Wunder.

Consent Agenda

The Board approved the following items by consent: 1) budget modification to remove $106,772 in travel and meeting expenses for two meetings in the FY 2020-21 budget; 2) revised "Guidelines for Eligibility for Dues Waivers Due to Financial Hardship" with the revised title "Guidelines for Eligibility for Dues Waivers Based on Financial Hardship;" and 3) ratify action taken by the president to approve the revised Emergency Care Quality Consortium Operational Guidelines.

Funding for Emergency Medicine Group Ownership Research Project

Ms. Sedory presented a recommendation to fund the emergency medicine group ownership research project from member equity reserves. The Board reviewed the response from the Finance Committee regarding the proposed funding and discussed the process that is followed for Finance Committee review of funding requests. The Finance Committee did not support funding the project from member's equity or from operations because of concerns about the upcoming performance of ACEP20 and additional expenses needed for cyber security that will require budget modifications.

Dr. Jaquis and Mr. Price explained that Phase 1 of the project would include identification and prioritization of data elements, research of the available data sources, development of a matrix of data sources per data element, and identification of data gaps that might preclude the ability to make connections between ownership models and their impacts.

It was moved THAT THE BOARD OF DIRECTORS APPROVE A BUDGET MODIFICATION OF $75,000, FUNDED FROM OPERATIONS, FOR PHASE I OF THE PROJECT AND REVISE THE REPORT TO THE COUNCIL REGARDING AMENDED RESOLUTION 58(19) ROLE OF PRIVATE EQUITY IN EMERGENCY MEDICINE TO INCLUDE THIS INFORMATION AND WHAT WILL BE ACCOMPLISHED IN PHASE I OF THE RESEARCH PROJECT.

It was moved THAT THE MOTION BE AMENDED TO INCLUDE PROVIDING A REPORT TO THE FINANCE COMMITTEE AND THE COUNCIL WITH THE FINDINGS FROM PHASE I. The motion was adopted.

The amended main motion was then voted on and adopted.

2020 Council Resolutions

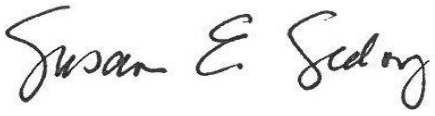
Dr. Friedman presented recommendations regarding resolutions 9-23 assigned to Reference Committee A. There was consensus for the Board to support resolutions 9, 11, 14, 15, 16, and 20; take no position on resolutions 10, 12, 13, 17, 19, and 21; take no position and provide information on resolutions 18 and 22; and oppose resolution 23 as written.

Dr. Cirillo presented recommendations regarding resolutions 24-39 assigned to Reference Committee B. There was consensus for the Board to support resolutions 25, 26 (with amendment); and take no position on resolutions 24, 27.

There was consensus to postpone definitely to another time the remainder of the discussion on resolutions assigned to Reference Committee B and Reference Committee C resolutions. Ms. Montgomery will send a poll to the Board to determine everyone's availability for a conference call next week.

With no further business, the conference call meeting was adjourned at 12:04 pm Central time on Wednesday, September 23, 2020.

Respectfully submitted,



Susan E. Sedory, MA, CAE
Executive Director

Approved by,

Jon Mark Hirshon, MD, FACEP
Chair of the Board

American College of Emergency Physicians®

ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: Jon Mark Hirshon, MD, PhD, MPH, FACEP
Chair of the Board

Date: October 16, 2020

Subj: Approval of Actions Taken by the Chair

Recommendation

That the Board of Directors approve the actions taken by the Chair of the Board.

Summary of Actions

Between June 26 and September 30, 2020, I approved 166 applications for fellow status. The list is attached.

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

Applications for Fellow Status

Name	Chapter	Name	Chapter
Adedoyin Adesina, MD	TX	Kendal Farrar, MD	MN
Justin Adkins, MD	NE	Dinali Fernando, MD	NY
Shantanu Agrawal, MD	DC	Cyril Olivares Fider, MD	GS
Kellen D Alstatt, MD	TX	Jonathan R Ford, MD	TX
Jennifer M Aviles, MD	WA	Rebecca M Foster, MD	DC
David Barnett, MD	NV	Christopher E Gainey, MD	SC
Jesse B Basford, MD	AL	Jayna Marie Gardner-Gray, MD	MI
Christopher Lee Bass, DO	OK	Martina Ghiardi, DO	MI
Andres Bayona, MD	TX	Olga Gokova, MD	AZ
Jennifer Beck-Esmay, MD	NY	Katarzyna Maria Gore, MD	IL
Joseangel Bedoya, MD	GA	B Bryan Graham, DO	OH
Jennifer T Behrens, MD	IL	Cherie A Hargis, MD	CA
William L Berry, MD	AR	Ashley Ivkovich Heaney, MD	OH
Amar Bhardwaj, MD	IL	Luis C Herrera Robles, MD	INT'L
Monisha Bindra, DO	PA	Amy Follmer Hildreth, MD	GS
Kirby Black, MD	NY	Allison Houston, DO	MN
Brandon B Bleess, MD, EMT-T	IL	Angela Hua, MD	NY
Jacquelyn M Bowers, MD	LA	Adnan Hussain, MD	IL
Erin Elizabeth Brennan, MD	MI	Breanne M Jacobs, MD	VA
James F Brown, MD	FL	Namita Jayaprakash, MD	MI
Aaron Reed Brown, MD	TX	Kelly Johnson, MD	SC
Catherine Burdett, MD	PA	Andrew Frost Kalnow, DO	OH
Martin A Carrillo, MD	CA	Adam Kelly, MD	MI
Kiersten Leigh Carter, MD	CA	Jacob P Kesterson, MD	MO
Jessica G Cartoski, MD	VA	Imad M Khojah, MD	DC
Mary Chang, MD, MPH	TX	Stephen William Knight, MD	AL
Betty Chang, MD	NY	Babette Witkind Koenig, MD	AZ
Alice Chao, MD	CA	Benjamin M Krainin, MD	GS
Hassan M Chaudhary, DO	TX	James Austin Krueger, MD	PA
Benjamin Chin, DO	MA	Alicia Mikolaycik Kurtz, MD	CA
Kene A Chukwuanu, MD	MO	Austin John Lamb, MD	IL
Nicole Cimino-Fiallos, MD	MD	Lee E LaRavia, DO	GA
Heather M Clark, MD	IN	Johnathon LeBaron, DO	NY
Matthew Clark, MD	TN	Amy Elizabeth-Buth Lee, MD	MI
Casey Collins, MD	MD	Christopher J Lepak, MD	OK
Amy Costigan, MD	MA	Theo Leriotis, DO	PA
Trevor Cummings, MD	MI	Russell S Lieurance, MD	PA
Amy Cutright, MD	NE	Lisa Lincoln, MD	NY
Derek J Davis, DO	OH	Jamie Lynn Linker, MD, MBE	CO
Russell G Day, MD	GS	Andrew Garrett Little, DO	FL
John G DeAngelis, MD	NY	Joshua G Long, MD	NC
Christine A DeForest, DO	GS	Kito Lord, MD, MBA	TN
Shanteria D Dixon, MD	FL	John D Manning, MD	NC
Luke Donnelly, MD	HI	Frances M McCabe, MD	OR
Maia Dorsett, MD, PhD, FAEMS	NY	Matthew Merriman, MD	GS
Adam F Duley, MD	KY	Stefan H Meyering, DO	MI
Daniel A Dworkis, MD, PhD	CA	Brian Leonard Miller, MD	TX
Alexander D Dzurik, MD	OH	Christopher C Milligan, DO	MI
Benjamin David Easter, MD	CO	Nikhil Mohan, DO	OH
John M Edwards, MD	CA	Brandon B Morshedi, MD	TX
Andrew Ehrhard, MD	ME	Brooke Michelle Moungey, MD	GS
Molly Estes, MD	CA	Neeraja Murali, DO	MD
Andrew Eyre, MD	MA	Utsav Nandi, MD, MSCI	MS
Holly Weymouth Fanjoy, MD	ME	David Ngo, MD	CA
Lawrence Patrick Fannon, MD	VA	Joan Noelker, MD	MO
Risa L Farber, DO	NY	John Michael O'Neal, MD	TX

Garrett S Pacheco, MD	AZ
Alejandro A Palma, MD	IL
Chinmay Patel, DO	TX
Amit J Patel, MD	CA
Dipesh S Patel, MD	CA
Nicholas J Peacock, DO	IL
Tyrone H R Philipson, MD	TX
Frederick Pich, DO	AL
Kristina M Polk, MD	GS
Jamila Michelle Power, MD	MI
Michael Gregory Purcell, MD	OH
Essie Marie Reed – Schrader, MD	PA
Anthony Regis, MD	ME
Carl Richards, MD	CO
Alexander Riss, DO	NJ
Schon C Roberts, MD	NV
Gerardo Roel Rodriquez, MD	WA
Jeffrey P Roger, MD	WA
Patrick Rogers, DO	NJ
Matthew Alexander Roginski, MD	NH
Jeremy Rose, MD	NY
Megan Rybarczyk, MD	MA
Haley Sauder, MD	OH
Andrew Sawyer, MD	AL
Imran Shaikh, MD	OH
Manpreet Singh, MD	CA
Chastity Fowler Skinner, DO	FL
Valori Slane, MD	FL
Alison L Smith, MD, MPH	UT
Mario Soto, MD	GS
Jesse Duane Spangler, MD	VA
Nathaniel James Spencer, MD	CA
Meredith E Sprince, MD	MI
David Strong, MD, PhD	MI
Kunal Sukhija, MD	CA
Matthew L Sullivan, MD	TX
Sharon Tang, MD	CA
Lindsay Anne Taylor, MD	VA
Godfrey Tutay, MD	NY
Alexandra Ubilla, MD	PR
Alycia Moria Valente, MD	MA
Anna F Van Tuyl, MD	NY
Ariel E Vera, MD	FL
Catherine Marie Waggy, DO	NC
Gabriel Wardi, MD	CA
Kevin Watkins, MD	OH
Christopher J Watras, DO	MN
Leigh-Ann Webb, MD	VA
Jessica Wentling, DO	TX
Scott David White, MD	MN
Anne Whitehead, MD	IN
Kami Michelle Hu Windsor, MD	MD
Neil Wingkun, MD	TX
Svetlana Zakharchenko, DO	NJ

Total =166

American College of Emergency Physicians®

ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: John T. Finnell, II, MD, MSc, FACEP
Board Liaison, Emergency Ultrasound Section

Date: October 18, 2020

Subj: Low-Level Disinfection for Ultrasound Transducers Used for Percutaneous Procedures

Recommendation

That the Board of Directors ratify the president's action to approve the joint policy statement "Low-Level Disinfection for Ultrasound Transducers Used for Percutaneous Procedures" (Attachment A).

Background

This summer, several ACEP Emergency Ultrasound Section members reported that recent The Joint Commission (TJC) reviews at their sites resulted in a citation regarding probe disinfection. TJC is requiring high-level disinfection in situations where the American Institute of Ultrasound in Medicine (AIUM), ACEP and the Centers for Disease Control and Prevention (CDC) agree that low-level disinfection was appropriate. Sandy Schneider, MD, FACEP, was able to arrange a call with TJC on August 11, 2020. Dr. Schneider, Vivek Tayal, MD, FACEP, and Julie Rispoli met with several representatives of TJC. It was clear that TJC favored policies that have been endorsed by the Association for Professionals in Infection Control and Epidemiology (APIC) and the Society for Healthcare Epidemiology of America (SHEA). TJC encouraged ACEP to work with APIC and SHEA on future policies.

Around the same time, the American Institute of Ultrasound in Medicine (AIUM) convened a task force and developed the ultrasound probe cleaning policy, "Low-Level Disinfection for Ultrasound Transducers Used for Percutaneous Procedures." The task force members included ACEP Representatives Dr. Tayal, current Emergency Ultrasound Section Chair Nova Panebianco, MD, FACEP, as well as representatives from AIUM, Society of Diagnostic Medical Sonography (SDMS), Association for Professionals in Infection Control and Epidemiology (APIC) and the Society for Healthcare Epidemiology of America (SHEA).

AIUM requested each organization to approve the policy approved as quickly as possible. Dr. Jaquis approved the policy statement on behalf of the Board on October 1.

ACEP has an existing policy statement, "Guideline for Ultrasound Transducer Cleaning and Disinfection" (Attachment B) as well as a COVID-19 related addendum, "ACEP Guideline on COVID-19: Ultrasound Machine and Transducer Cleaning" (Attachment C) This joint policy is in addition to the existing ACEP policies.

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

Prior Board Action

March 2020, approved the addendum "ACEP Guideline on COVID-19: Ultrasound Machine and Transducer Cleaning."

June 2018, approved the policy statement "Guideline for Ultrasound Transducer Cleaning and Disinfection."

Fiscal Impact

Budgeted committee and staff resources for development and distribution of policy statements.

Low-Level Disinfection for Ultrasound Transducers used for Percutaneous Procedures

INTER-SOCIETAL POSITION STATEMENT

We, the signing organizations, wish to address the urgent issue of disinfection of transcutaneous ultrasound transducers used for percutaneous procedures or for the purpose of monitoring other invasive procedures. Current guidelines from multiple clinical societies have endorsed the use of low-level disinfection (LLD) for transcutaneous ultrasound transducer cleaning and disinfection used for guidance of percutaneous procedures.[1, 2] Some organizations are not uniform in regards to their recommendations for disinfection.[1, 3-6] They misapply existing guidelines that address endocavitary transducers by application to percutaneous and vascular access applications. The Spaulding classification[7] is meant for *intended* uses, and some of the above guidelines reclassify *intended non-critical applications* as semi-critical.[4-6] Recommendations for high-level disinfection (HLD) for sheathed probes used for percutaneous procedures are imprudent as they will result in unwarranted and unnecessary costs, resources, and time spent, and increases the possibility of *safety events* without ultrasound guidance.[8] This statement addresses several specific points that we regard as pivotal for determining when the use of HLD or LLD is appropriate. Specifically:

1. Ultrasound guided percutaneous procedures are imaged transcutaneously, i.e. through intact skin, to monitor procedures done percutaneously in conjunction with a transducer cover and can be safely performed in conjunction with LLD.[9-11]
2. Transducer covers for transcutaneous procedures are meant to protect the sterility of the procedure, not to make the transducer sterile. An analogous situation exists for human hands in surgical procedures. The gloves that cover the hands adequately protect the procedure from contamination, even though only LLD via hand washing is performed prior to surgery. LLD via proper hand washing plus sterile gloves has been safely used for over a century and LLD of devices placed inside of sterile covers should be equally as safe.[9-11]
3. If contamination of covered transcutaneous transducers with blood or other bodily fluids occurs, it can be eliminated with LLD. Human hands are always cleaned LLD and covered with gloves.[12] This also applies to other non-critical items such as blood pressure cuffs[13] and bed rails.
4. HLD was meant to clean instruments intended for contact with internal organs or mucous membranes.[14-21] Evidence of infection in regards to US transducer relate to contaminated gel and improper cleaning of internal transducers.[14, 15, 18-20, 22, 23]

We recommend that health use cleaning and LLD for the reprocessing of transducers used for percutaneous US procedures on the basis of the scientific and safety information available. We also implore other organizations that address this issue to disclose contributions from manufacturers of US disinfection equipment.

Respectfully,

American College of Emergency Physicians (ACEP – pending board approval)
American Institute of Ultrasound in Medicine (AIUM – pending taskforce, TSC, and board approval)
Association for Professionals in Infection Control and Epidemiology (APIC – anticipated board approval)
Society of Diagnostic Medical Sonography (SDMS – pending board approval)
Society for Healthcare Epidemiology of America (SHEA – board approved)

References

1. AIUM. *Guidelines for Cleaning and Preparing External- and Internal-Use Ultrasound Transducers and Equipment Between Patients as well as Safe Handling and Use of Ultrasound Coupling Gel*. 2020 [cited 2020; Available from: https://www.aium.org/officialStatements/57.
2. ACEP. *Guideline for Ultrasound Transducer Cleaning and Disinfection*. 2018 [cited 2020; Available from: https://www.acep.org/patient-care/policy-statements/guideline-for-ultrasound-transducer-cleaning-and-disinfection/.
3. National Center for Immunization and Respiratory Diseases (NCIRD), D.o.V.D. *Environmental Cleaning and Disinfection Recommendations*. 2020 March 6, 2020 [cited 2020 March 24, 2020]; Interim Recommendations for US Community Facilities with Suspected/Confirmed Coronavirus Disease 2019]. Available from: https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/cleaning-disinfection.html.

4. SDMS, *Guidelines for Infection Prevention and Control in Sonography: Reprocessing the Ultrasound Transducer. Journal of Diagnostic Medical Sonography.* Journal of Diagnostic Medical Sonography, 2020. 36(4): p. 381-403.
5. World Federation for Ultrasound in, M., et al., *World Federation for Ultrasound in Medicine and Biology Position Statement: How to Perform a Safe Ultrasound Examination and Clean Equipment in the Context of COVID-19.* Ultrasound Med Biol, 2020. 46(7): p. 1821-1826.
6. Nyhsen, C.M., et al., *Infection prevention and control in ultrasound - best practice recommendations from the European Society of Radiology Ultrasound Working Group.* Insights Imaging, 2017. 8(6): p. 523-535.
7. Spaulding, E., *Chemical disinfection and antisepsis in the hospital.* Hosp Res, 1957. 9: p. 5-31.
8. Gase, K.A., K.M. McMullen, and M.O. Wright, *Survey responses to policy changes-Overextended consequences.* Am J Infect Control, 2019. 47(1): p. 114-115.
9. Adhikari, S., et al., *Comparison of infection rates among ultrasound-guided versus traditionally placed peripheral intravenous lines.* J Ultrasound Med, 2010. 29(5): p. 741-7.
10. Caturelli, E., et al., *Free-hand technique with ordinary antisepsis in abdominal US-guided fine-needle punctures: three-year experience.* Radiology, 1996. 199(3): p. 721-3.
11. Messina, C. and L.M. Sconfienza, *Ultrasound-Guided Percutaneous Irrigation of Calcific Tendinopathy.* Semin Musculoskelet Radiol, 2016. 20(5): p. 409-413.
12. Boyce, J.M. and D. Pittet, *Guideline for hand hygiene in health-care settings: recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force.* American journal of infection control, 2002. 30(8): p. S1-S46.
13. De Gialluly, C., et al., *Blood pressure cuff as a potential vector of pathogenic microorganisms: a prospective study in a teaching hospital.* infection control and hospital epidemiology, 2006. 27(9): p. 940-943.
14. Seki, M., et al., *Nosocomial outbreak of multidrug-resistant Pseudomonas aeruginosa caused by damaged transesophageal echocardiogram probe used in cardiovascular surgical operations.* J Infect Chemother, 2013. 19(4): p. 677-81.
15. Shaban, R.Z., et al., *Outbreak of health care-associated Burkholderia cenocepacia bacteremia and infection attributed to contaminated sterile gel used for central line insertion under ultrasound guidance and other procedures.* Am J Infect Control, 2017. 45(9): p. 954-958.
16. Paz, A., H. Bauer, and I. Potasman, *Multiresistant Pseudomonas aeruginosa associated with contaminated transrectal ultrasound.* J Hosp Infect, 2001. 49(2): p. 148-9.
17. Ferhi, K., et al., *Hepatitis C transmission after prostate biopsy.* Case Rep Urol, 2013. 2013: p. 797248.
18. Keizur, J.J., B. Lavin, and R.B. Leidich, *Iatrogenic urinary tract infection with Pseudomonas cepacia after transrectal ultrasound guided needle biopsy of the prostate.* J Urol, 1993. 149(3): p. 523-6.
19. Abdelfattah, R., et al., *Outbreak of Burkholderia cepacia bacteraemia in a tertiary care centre due to contaminated ultrasound probe gel.* J Hosp Infect, 2018. 98(3): p. 289-294.
20. (FDA), U.F.a.D.A., *UPDATE on Bacteria Found in Other-Sonic Generic Ultrasound Transmission Gel Poses Risk of Infection*, U.F.a.D. Administration, Editor. 2012, FDA Safety Communication.
21. (UK), M.a.H.P.R.A., *Reusable transoesophageal echocardiography, transvaginal and transrectal ultrasound probes (transducers)*. 2012, Medical Device Alert.
22. Canada, H. *Archived – Serious Risk of Infection From Ultrasound and Medical Gels – Revision* 2004 June 5, 2013 March 24, 2020]; Notice to hospitals - Important Safety Information on Ultrasound and Medical Gels]. Available from: https://www.healthycanadians.gc.ca/recall-alert-rappel-avis/hc-sc/2004/14289a-eng.php#.
23. O'Rourke, M., P. Levan, and T. Khan, *Current use of ultrasound transmission gel for transesophageal echocardiogram examinations: a survey of cardiothoracic anesthesiology fellowship directors.* J Cardiothorac Vasc Anesth, 2014. 28(5): p. 1208-10.

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

POLICY STATEMENT

Approved June 2018

Guideline for Ultrasound Transducer Cleaning and Disinfection

Originally approved June 2018

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 (eg, 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 (ie, 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

1. Adhikari S, Blaivas M, Morrison D, et al. Comparison of infection rates among ultrasound-guided versus traditionally placed peripheral intravenous lines. J Ultrasound Med. 2010; 29:741–747.
2. Casalegno J, Carval K, Elbach D, et al. High risk HPV contamination of endocavity vaginal ultrasound probes: An underestimated route of nosocomial infection? *PLoS ONE* 2012; 7:e48137. https://doi.org/10.1371/journal.pone.0048137
3. Westerway SC, Basseal JM, Brockway A, et al. Potential infection control risks associated with ultrasound equipment–a bacterial perspective. Ultrasound Med Biol. 2017a; 43:421–426.
4. Abramowicz JS, Evans DH, Fowlkes JB, et al and WFUMB Safety Committee. Guidelines for cleaning transvaginal ultrasound transducers between patients. Ultrasound Med Biol. 2017; 43:1076–1079.
5. Nyhsen CM, Humphreys H, Koerner RJ, et al. Infection prevention and control in ultrasound - best practice recommendations from the European Society of Radiology Ultrasound Working Group. Insights Imaging. 2017; 8:523–535.
6. American Institute of Ultrasound in Medicine. Guidelines for Cleaning and Preparing External- and Internal-Use Ultrasound Probes Between Patients, Safe Handling, and Use of Ultrasound Coupling Gel, 2018. http://www.aium.org/officialStatements/57

7. Nomura, J.T. & Nagdev, A.D. (2018). Ultrasound safety and infection control. In V.S. Tayal, M. Blaivas, T.R. Foster (Eds.), *Ultrasound Program Management: A Comprehensive Resource for Administrating Point-of-Care, Emergency, and Clinical Ultrasound* (1st ed., pp. 243-268). Cham, Switzerland: Springer International Publishing AG.
8. ACEP Clinical Ultrasound Accreditation Program (CUAP). Frequently Asked Questions. https://webapps.acep.org/cuap/#/faq
9. Healthcare Infection Control Practices Advisor Committee. Guideline for Disinfection and Sterilization in Healthcare Facilities, 2008; Updated February 2017. Centers for Disease Control and Prevention. https://www.cdc.gov/infectioncontrol/guidelines/disinfection/

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

ACEP Guideline on COVID-19: Ultrasound Machine and Transducer Cleaning

Approved March 31, 2020

This policy is an addendum to the ACEP policy, ***Guideline for Ultrasound Transducer Cleaning and Disinfection, 2018.***

The ACEP Emergency Ultrasound Section wishes to provide guidance for cleaning and disinfection of ultrasound equipment in the context of the COVID-19 pandemic.

Special guidance regarding COVID-19 includes the following:

1. ***Removal of all nonessential equipment prior to entering the room of a suspected COVID-19 patient.***

   This prevents unnecessary items from contamination by droplets and may include removal of non-essential transducers or extraneous items (eg, peripheral IV cannulas, plastic film dressing, bags holding towels, etc.).

2. ***Clinicians should follow optimal hand hygiene by washing their hands between patients and wearing single-use gloves.***

   We recommend that before cleaning, clinicians remove gel and debris, then use one of the EPA recommended products in between each patient encounter to disinfect the probe.(1) Clinicians may find it advantageous to use a double-glove technique to help avoid cross-contamination from bare hands during the cleaning process.

3. ***When scanning patients who are at low-risk for COVID-19 or are not in droplet precautions, we recommend disinfecting the probe and surfaces that were touched during the examination (screen, keyboard, cable, etc.).***

   Due to recent knowledge that SARS-CoV-2, the causative agent of COVID-19 can be present on surfaces for days, we recommend disinfecting surfaces that either come into contact with the patient (cable and transducer) as well as surfaces that are touched by the clinician (keyboard, screen, handlebar, etc.).(2) We recommend the clinician remove gel and debris, and then use one of the EPA recommended products in between each patient encounter.(1,3)

4. ***In situations when aerosolization or high-risk procedures can occur, probes and machines should be covered (if possible) and disinfected with low-level disinfection (LLD) after every use.***

   We recognize that many clinicians will not have access to transparent covers for ultrasound systems. In those cases, the entire ultrasound system and frequently touched surfaces should be disinfected with LLD solution between each patient.(4)

   When performing an ultrasound examination in critically ill patients requiring active resuscitation where aerosolization is a risk (intubation, medication nebulization, chest compressions, non-invasive ventilation, etc.) the machine and its components should be protected as much as possible.(1,5) This

includes use of probe covers (sterile and non-sterile) and may involve draping material such as translucent bags. These covers should be discarded prior to exiting the patient's room taking care to avoid cross-contamination, in keeping with local infection control recommendations.

5. ***High-level disinfection (HLD) is not required when using ultrasound probes on intact skin***.

   Please refer to the current *ACEP Guideline for Transducer Cleaning and Disinfection* to determine when to use HLD.(3) There is no evidence that HLD offers benefit for disinfection from SARS-CoV-2.

   For ultrasound use during procedures (such as peripheral or central venous access), a sterile probe cover should be used, followed by LLD in accordance with the *ACEP Guideline for Transducer Cleaning and Disinfection.*

6. ***Handheld devices may be covered with device covers for both the touchscreen and the probe with its cord. All items should be cleaned with LLD after use on each patient.***

7. ***Innovative cleaning solutions should be discussed with local infection control and the vendors supplying the machine***.

   The stocking of different solutions and products vary across the country, and some systems are facing shortages of certain products. We recommend that, in conjunction with Infection Control, physicians and health systems consider common disinfectants for cleaning if there are no alternatives to commercial healthcare products. Examples would include soap and water, diluted bleach, and ammonium chloride derivatives. This should be discussed with the vendor to prevent inadvertent destruction of machine elements.

References

1. Environmental Protection Agency. List N: Disinfectants for Use Against SARS-CoV-2. *2020 Available at: https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2. (Accessed March 24, 2020)*

2. van Doremalen N, Bushmaker T, Morris DH, et al. Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1. *N Engl J Med*. 2020 Mar 17.

3. Guideline for Ultrasound Transducer Cleaning and Disinfection. Annals of Emergency Medicine. 2018 Oct;72(4):e45–7.

4. Centers for Disease Control and Prevention. Interim Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 (COVID-19) in Healthcare Settings. *2020* Available at: https://www.cdc.gov/coronavirus/2019-ncov/infection-control/control-recommendations.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fhcp%2Finfection-control.html#infection_control. (Accessed March 24, 2020)

5. Tellier R, Li Y, Cowling BJ, Tang JW. Recognition of aerosol transmission of infectious agents: a commentary. *BMC Infectious Diseases*. 2019 Jan 30;1-9.

PRIOR TO ENTERING ROOM	
	Ensure that all unnecessary materials are removed from the machine and the basket.
For Patients on DROPLET precautions, once the ultrasound is completed, remain inside the room with PPE on. Sanitize gloves and then:	
	Visually inspect the machine for any gel, bodily fluid or debris • Clean with low level disinfectant spray, soap + water, or approved wipe
 For a list of approved wipes check EPA site	Using approved wipe, disinfect all machine surfaces including: • surfaces that either come into contact with the patient • surfaces that are frequently touched by the clinician *** please remember that there is a "wet time" associated with all wipes, check the manufactures recommendation**
For patients on AIRBORNE precautions, once the ultrasound is completed, remain inside the room with PPE on. Sanitize gloves and then:	
	Visually inspect the machine for any gel, bodily fluid or debris • Clean with low level disinfectant spray, soap + water, or approved wipe
	While still in PPE, move the machine as far from the patient as possible. Using approved wipes, disinfect all machine surfaces including: • probes and cords • the keyboard • the screen • the power cord • the lid • the wheels • wells or buckets built into the machine • gel bottles and wipes containers *** please remember that there is a "wet time" associated with all wipes, check the manufacturers recommendation** ****Consider cleaning again immediately after leaving the room**
	Maintain wet for **required amount of time** before considering the device decontaminated *** In addition to the above, follow the policies of institutional infection control**

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: Dan Freess, MD, FACEP
Chair, Emergency Medicine Practice Committee

Alison Haddock, MD, FACEP
Board Liaison, Emergency Medicine Practice Committee

Date: October 11, 2020

Subj: Emergency Department Patient Advocate Role and Training

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

Recommendation

That the Board of Directors approve the revised policy statement "Emergency Department Patient Advocate Role and Training" with the revised title "Emergency Department Patient Navigator Role and Training" (Attachment C).

Background

The Emergency Medicine Practice Committee (EMPC) was assigned an objective for the 2019-20 committee year to review the policy statement "Emergency Department Patient Advocate Role and Training" as part of the policy sunset review process.

Members of the EMPC reviewed the policy and discussed the use of the term "advocate" in the title of the policy. There was agreement that the term could be interpreted as adversarial and that other members of the health care team, as well as families, advocate for patients. The committee agreed that the term "navigator" was preferred. The committee also recommended revising the last bullet, recognizing that the navigator role is not limited to disease-specific education.

Attachment A is the current policy statement. Attachment B is the draft revised policy statement with additions indicated by underlining and deletions indicated by strikethroughs. Attachment C is the proposed policy statement "Emergency Department Patient Navigator Role and Training."

Prior Board Action

June 2014, approved the policy statement "Emergency Department Patient Advocate Role and Training."

Fiscal Impact

Budgeted committee and staff resources for development and distribution of policy statements.

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

POLICY STATEMENT

Approved June 2014

Emergency Department Patient Advocate Role and Training

Originally approved June 2014

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.

Attachment B

Emergency Department Patient ~~Advocate~~ **Navigator** Role and Training
Draft, October 2020

The American College of Emergency Physicians (ACEP) supports the use of patient **navigators** ~~advocates~~ in the emergency department (ED). If EDs choose to use patient ~~advocates~~**navigators**, there are a number of ways in which patient **navigators** ~~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.~~ **With proper knowledge and training, may provide resources and community-level support to patients and their families.**

ACEP recognizes that there are a variety of training programs, commensurate with responsibilities, to prepare individuals for patient ~~advocacy~~**navigator** services in the ED. At a minimum, patient **navigators** ~~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.

Attachment C

Emergency Department Patient Navigator Role and Training
Proposed Policy Statement, October 2020

The American College of Emergency Physicians (ACEP) supports the use of patient navigators in the emergency department (ED). If EDs choose to use patient navigators, there are a number of ways in which patient navigators 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
- With proper knowledge and training, may provide resources and community-level support to patients and family.

ACEP recognizes that there are a variety of training programs, commensurate with responsibilities, to prepare individuals for patient navigator services in the ED. At a minimum, patient navigators 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.

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: Dan Freess, MD, FACEP
Chair, Emergency Medicine Practice Committee

Alison Haddock, MD, FACEP
Board Liaison, Emergency Medicine Practice Committee

Date: October 11, 2020

Subj: Emergency Department Planning and Resource Guidelines

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

Recommendation

That the Board of Directors approve the revised policy statement "Emergency Department Planning and Resource Guidelines" (Attachment B).

Background

The Emergency Medicine Practice Committee (EMPC) was assigned an objective for the 2019-20 committee year to review the policy statement "Emergency Department Planning and Resource Guidelines" as part of the policy sunset review process.

The EMPC recommends the following revisions:

- Add language referring to the role of the emergency physician as the leader of the emergency department (ED) team
- Include language to address the level of patient literacy for understanding discharge instructions
- Address family transport in private vehicles
- Revise language concerning personal protective equipment
- Add language to clarify that pharmacological/therapeutic drugs should be readily available or that arrangements be made to access them if not available in the ED.

Attachment A is the current policy statement. Attachment B is the revised policy statement with additions indicated by underlining and deletions indicated by strikethroughs.

Prior Board Action

April 2014, approved the revised policy statement "Emergency Department Planning and Resources Guidelines;" revised and approved October 2007, and June 2004; revised June 2001 with the current title; reaffirmed September 1996; revised and approved June 1991; originally approve December 1985 with the title "Emergency Care Guidelines."

Fiscal Impact

Budgeted committee and staff resources for development and distribution of policy statements.

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

POLICY STATEMENT

Approved April 2014

Emergency Department Planning and Resource Guidelines

Revised April 2014, October 2007, and June 2004, June 2001 with current title

Reaffirmed September 1996

Revised June 1991

Originally approved December 1985 titled "Emergency Care 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
   B. Necessary Elements
      1. Administration
      2. Staffing
      3. Facility
      4. Equipment and Supplies (See also Figure 1)
      5. Pharmacologic/Therapeutic Drugs and Agents (See also Figure 2)
      6. Ancillary Services (See also Figures 3 and 4)
   C. Relationships and Responsibilities

II. Figures
   A. Suggested Equipment and Supplies for EDs
   B. Suggested Pharmacological/Therapeutic Drugs for EDs
   C. Radiological, Imaging, and other Diagnostic Services
   D. Suggested Laboratory Capabilities
   E. References

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

bylaws and similar to the organizational plan of other clinical departments in the hospital should exist.

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.

- 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.

Analgesics
  Narcotic and non-narcotic
Anesthetics
  Topical, infiltrative, general
Anticonvulsants
Antidiabetic agents
Antidotes
  Antivenins
Antihistamines
Anti-infective agents
  Systemic/topical/post-exposure prophylaxis
Anti-inflammatories
  Steroidal/non-steroidal

Bicarbonates
Blood Modifiers
  Anticoagulants, including thrombolytics
  Hemostatics
    Systemic
    Topical
    Plasma expanders/ extenders
Burn Preparations

Cardiovascular agents
- Ace inhibitors
- Adernergic blockers
- Adernergic stimulants
- Alpha/Beta blockers
- Antiarrhythmia agents
- Calcium channel blockers
- Digoxin antagonist
- Diuretics
- Vasodilators
- Vasopressors

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

Rh_0(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)

Emergency Department Planning and Resource Guidelines
Draft, October 2020

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 **those who provide** prehospital ~~providers,~~ ~~ED providers~~, **emergency** 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. 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**s who provide** health care**,** ~~providers~~ and entities with whom they must interact. These include emergency medical services (EMS) ~~providers~~ **personnel**, ancillary hospital ~~personnel~~ **staff**, other physicians, and other health care and social service resources.

Policy sections include:

I. Resources and Planning

* These guidelines are intended to apply to either hospital-based or free-standing emergency departments open 24 hours a day.

A. Responsibilities and Public Expectations

1. EDs should be **emergency physician led and** 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 bylaws and similar to the organizational plan of other clinical departments in the hospital should exist.
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~~ **An** 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.
   - 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 ACEP's 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

- **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~~ **those who provide health care** 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~~ **those providing** prehospital ~~providers~~ **care** 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. **It must also be confirmed that the patient is reasonably able to read and understand these 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. **In the appropriate clinical setting, family may provide transport for patients in private 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 **or other electronic 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
- **Appropriate** 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
- Wheelchairs **and other mobility devices**
- Medication dispensing system with locking capabilities
- **Sterile** ~~S~~**s**eparately wrapped instruments (specifics will vary by department)
- ~~Availability of light microscopy for emergency procedures~~
- Weight scales (adult and infant)
- **Broselow tape**
- 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
- **Influenza swabs**
- **Other necessary infection-related swabs or assays**
- 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 etc~~.
- **Appropriate personal protective equipment, based on recommendations from the Centers for Disease Control and Prevention or other infectious disease authorities.**
- 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.)~~ **Equipment to perform pelvic exams.**
- 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
- **Portable ultrasound**
- Radiographic viewing capabilities
- Airways needs
  - Bag-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~~
  - **Access to baby warmer**

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. ***These items should be readily available, or arrangements should be in place to access them if not available in the ED.***

Analgesics
Narcotic and non-narcotic
Anesthetics
Topical, infiltrative, general
Anticonvulsants
Antidiabetic agents
Antidotes
  Antivenins
Antihistamines

Anti-infective agents
Systemic/topical/post-exposure prophylaxis

Anti-inflammatories
Steroidal/non-steroidal
Antipyretics

Bicarbonates
Blood Modifiers
Anticoagulants, including thrombolytics
Hemostatics
Systemic
Topical
Plasma expanders/ extenders
Burn Preparations

Cardiovascular agents
A~~ce~~**CE** inhibitors
Adernergic blockers
Adernergic stimulants
Alpha/Beta blockers
Antiarrhythmia agents
Calcium channel blockers
Digoxin antagonist
Diuretics
Vasodilators
Vasopressors
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
Medications to reverse electrolyte derangements

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
Bronchodilators
Decongestants
Leukotriene antagonist
Rh_0(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

Computed tomography or the ability to arrange for urgent CT scan

Pulmonary services
- Arterial blood gas determination
- **CO oximetry**
- Peak flow determination
- Pulse oximetry
- **Venous blood gasses**

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 ~~iso~~enzymes ~~(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
Mononucleosis spot
Serology (syphilis, recombinant immunoassay)
Pregnancy testing (qualitative and quantitative
Toxicology screening and drug levels
Urinalysis

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: Dan Freess, MD, FACEP
Chair, Emergency Medicine Practice Committee

Alison Haddock, MD, FACEP
Board Liaison, Emergency Medicine Practice Committee

Date: October 11, 2020

Subj: Patient Support Services

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

Recommendation

That the Board of Directors approve the revised policy statement "Patient Support Services" with revised title "Social Work and Case Management in the Emergency Department" (Attachment C).

Background

The 2019 Council and the Board of Directors adopted Amended Resolution 50(19) Social Work in the Emergency Department:

RESOLVED, That ACEP promote the consistent inclusion of social workers and/or care coordinators in the team of clinicians caring for patients in the ED; and be it further

RESOLVED, That ACEP provide educational materials to members to assist in advocating to hospital administrators on the need to include social workers and/or care coordinators on ED care teams; and be it further

RESOLVED, That ACEP compile information related to ED care models that include social workers and care coordinators and create resources to assist members in implementing multidisciplinary care models; and be it further

RESOLVED, That ACEP advocate for payment for care coordination services in emergency medicine.

The Emergency Medicine Practice Committee (EMPC) was assigned an objective to review the policy statement "Patient Support Services" and determine if revisions are needed to address Amended Resolution 50(19) Social Work in the Emergency Department.

The committee reviewed the policy statement "Patient Support Services" and recommends revisions to include reference to social determinants of health and the importance of having dedicated social service professionals to facilitate care for patients seen in the ED.

The EMPC recommends the following revisions:

- Change the name of the policy to more clearly identify the topic.
- Recognize the impact of social determinants on health and the importance of dedicated, trained staff to address these issues with patients in the ED.

- Expand the types of assistance addressed in the policy to include dental and medication coverage.
- Include reference to outreach programs for the prevention of admission, transition of care and visit reminders.

The committee also developed a Policy Resource & Education Paper (PREP) "Social Work and Case Management in the Emergency Department" as an adjunct to the policy statement. The PREP is included in the information agenda for your review.

Attachment A is the current policy statement. Attachment B is the draft revised policy statement with additions indicated by underlining and deletions indicated by strikethroughs. Attachment C is the proposed policy statement, "Social Work and Case Management in the Emergency Department."

Prior Board Action

April 2019, approved the revised policy statement "Patient Support Services;" reaffirmed June 2013; originally approved October 2007.

October 2019, adopted Amended Resolution 50(19) Social Work in the Emergency Department.

Fiscal Impact

Budgeted committee and staff resources for development and distribution of policy statements.

American College of Emergency Physicians®

ADVANCING EMERGENCY CARE

POLICY STATEMENT

Patient Support Services

Approved April 2019

Revised April 2019

Reaffirmed June 2013

Originally approved October 2007

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

~~Patient Support Services~~
Social Work and Case Management in the Emergency Department
Draft, October 2020

After discharge, patients seen in the emergency department **(ED)** frequently require access to community resources for medical and social reasons. ACEP recognizes the impact of social determinants **of health** 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.

The American College of Emergency Physicians (ACEP) further recognizes that comprehensively addressing these social determinants is best accomplished by dedicated staff, such as social workers and case managers, deployed in the ED, to work alongside other clinicians in the ED. ED-based social work interventions are time consuming for ED staff. Social service professionals have more time and resources to coordinate the safe and medically necessary out-patient follow-up care, chronic disease management, and social support. Social workers in many EDs play an important role in the assessment, treatment, and disposition of behavioral health patients. ACEP also believes that such interventions afford hospitals opportunities to provide safe and medically appropriate, yet cost-saving, outpatient alternative care and chronic disease management for these patients.

ACEP supports **the development** ~~that hospitals develop~~ and **maintenance** ~~maintain~~ **of case management services that are available to ED patients, and that such services include appropriate clinical personnel as well as** partnerships with community-based organizations, governmental agencies, and other appropriate entities to ensure prompt access to community resources for its patients**. These should** ~~to~~ include reliable 24/7 lines of communication, in order to facilitate and enhance care after discharge from the ~~emergency department~~ **ED**.

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**, dental, and prescription** coverage**, as well as access to affordable medication programs**
- Local federally qualified healthcare institutions
- Peer and other support groups
- ~~Domestic~~ **Intimate partner** violence shelters and ~~hot line~~ **hotline** information
- **Outreach to payor specific programs as alternatives to hospital admission**
- **Partnering with post-acute care community resources for care transition from the ED**

- **ED/emergency medical services (EMS) partnerships for home-based EMS visits of high utilizers of the ED for their chronic disease management or other social needs**
- **Use of visit reminders, via various platforms, to encourage the keeping of post-ED clinic visits**

ACEP also encourages the use of social work platforms to aid in addressing identified needs.

Social Work and Case Management in the Emergency Department
Proposed Policy Statement, October 2020

After discharge, patients seen in the emergency department (ED) frequently require access to community resources for medical and social reasons. ACEP recognizes the impact of social determinants of health including poverty, food insecurity, violence, poor medical literacy**,** inadequate access to health care, as well as substance use disorders and other psychiatric comorbidities, on the health and well-being of our patients.

The American College of Emergency Physicians (ACEP) further recognizes that comprehensively addressing these social determinants is best accomplished by dedicated staff, such as social workers and case managers, deployed in the ED, to work alongside other clinicians in the ED. ED-based social work interventions are time consuming for ED staff. Social service professionals have more time and resources to coordinate the safe and medically necessary out-patient follow-up care, chronic disease management, and social support. Social workers in many EDs play an important role in the assessment, treatment, and disposition of behavioral health patients. ACEP also believes that such interventions afford hospitals opportunities to provide safe and medically appropriate, yet cost-saving, outpatient alternative care and chronic disease management for these patients**.**

ACEP supports the development and maintenance of case management services that are available to ED patients, and that such services include appropriate clinical personnel as well a**s** partnerships with community-based organizations, governmental agencies, and other appropriate entities to ensure prompt access to community resources for its patients**.** These should include reliable 24/7 lines of communication, in order to facilitate and enhance care after discharge from the ED.

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, dental, and prescription coverage**,** as well as access to affordable medication programs
- Local federally qualified healthcare institutions
- Peer and other support groups
- Intimate partner violence shelters and hotline information
- Outreach to payor specific programs as alternatives to hospital admission
- Partnering with post-acute care community resources for care transition from the ED
- ED/emergency medical services (EMS) partnerships for home-based EMS visits of high utilizers of the ED for their chronic disease management or other social needs
- Use of visit reminders, via various platforms, to encourage the keeping of post-ED clinic visits

ACEP also encourages the use of social work platforms to aid in addressing identified needs.

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: Dan Freess, MD, FACEP
Chair, Emergency Medicine Practice Committee

Alison Haddock, MD, FACEP
Board Liaison, Emergency Medicine Practice Committee

Date: October 14, 2020

Subj: Telehealth Inclusion

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

Recommendation

That the Board of Directors approve the policy statement "Telehealth Inclusion" (Attachment A).

Background

The 2019 Council and the Board of Directors adopted Substitute Resolution 52(19) Telehealth Emergency Physician Inclusion:

> RESOLVED, That ACEP develop a policy statement specifically indicating that its policies apply to all locations of emergency medicine practice whether provided remotely or in-person.

The resolution was assigned to the Emergency Medicine Practice Committee (EMPC) to develop a policy statement as directed by the resolution.

Attachment A is the draft policy statement "Telehealth Inclusion."

Prior Board Action

October 2019, adopted Substitute Resolution 52(19) Telehealth Emergency Physician Inclusion.

Fiscal Impact

Budgeted committee and staff resources for development and distribution of policy statements.

Telehealth Inclusion
Draft, October 2020

Emergency medicine telehealth is defined as "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.[1]" The American College of Emergency Physicians (ACEP) policy statement "Definition of Emergency Medicine" states "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[2]."

All existing ACEP policy statements, where applicable, are also pertinent to the practice of emergency medicine delivered via telehealth.

[1]American College of Emergency Physicians. Emergency Medicine Telehealth (policy statement). Revised and approved February 2020, Originally approved January 2016.

[2]American College of Emergency Physicians. Definition of Emergency Medicine. (policy statement). Revised and approved June 2015. Replaces the original policy statement adopted March 1986 titled "Definition of Emergency Medicine and the Emergency Physician."

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: Dan Freess, MD, FACEP
Chair, Emergency Medicine Practice Committee

Alison Haddock, MD, FACEP
Board Liaison, Emergency Medicine Practice Committee

Date: October 14, 2020

Subj: Third-Party Payers and Emergency Medical Care

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

Recommendation

That the Board of Directors approve the revised policy statement "Third-Party Payers and Emergency Medical Care" (Attachment C).

Background

The Emergency Medicine Practice Committee (EMPC) was assigned an objective for the 2019-20 committee year to review the policy statement "Third-Party Payers and Emergency Medical Care" as part of the policy sunset review process.

Members of the EMPC discussed this policy statement and recommend the following changes:

- Add reference to programs such as Emergency Triage, Treat, and Transport (ET3) Model that are implemented with qualified emergency physician input
- Add a recommendation that co-pays and deductibles be the same for in- or out-of-network emergency department (ED) care
- Include a recommendation that there be emergency physician input and oversight of all initiatives to decrease ED utilization
- Add a reference to arbitration

Attachment A is the current policy statement. Attachment B is the draft revised policy statement with additions indicated by underlining and deletions indicated by strikethroughs. Attachment C is the proposed policy statement "Third-Party Payers and Emergency Medical Care."

Prior Board Action

April 2014, approved the revised policy statement "Third-party Payers and Emergency Medical Care;" revised and approved with the current title June 2007; revised and approved July 2000; revised and approved January 1999 titled "Managed Health Care Organizations and Emergency Care;" revised and approved March 1993; originally approved September 1987 titled "Managed Health Care Plans and Emergency Care."

Fiscal Impact

Budgeted committee and staff resources for development and distribution of policy statements.

American College of Emergency Physicians®

ADVANCING EMERGENCY CARE

POLICY STATEMENT

Approved April 2014

Third-party Payers and Emergency Medical Care

Revised April 2014, June 2007 with current title, July 2000, January 1999 titled "Managed Health Care Organizations and Emergency Care", March 1993

Originally approved September 1987 titled "Managed Health Care Plans and Emergency Care"

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

1. The Emergency Medical Treatment & Labor Act (EMTALA), 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. Amended September 9, 2003; 68:53221-53264.
   Third-party payers include: Medicare, Medicaid, managed care organizations, indemnity insurers, and businesses that contract for services.

Third-Pparty Payers and Emergency Medical Care
Draft, October 2020

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 **nearest** ED **without regard to the facility being in or out of network. .**

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.

Innovative initiatives that are intended to decrease utilization of the ED such as Emergency Triage, Treat, and Transport (ET3) Model should be done with qualified emergency physician input to ensure quality emergency care exists in the appropriate setting.

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.
- **Copays and deductibles should not differ for in- or out-of-network care in the ED, and copays should not be so high as to circumvent the intent of the prudent layperson standard or potentially delay care in the event of a bonified emergency.**
- 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.
- **All initiatives that serve to decrease ED utilization should have the input and oversight of qualified emergency physicians.**
- 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, **regardless of in- or out-of-network status,** 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 **and arbitration** 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 **regardless of network status.**
- Emergency physicians should assume an active, positive role in any contract negotiations involving ~~provider~~ **healthcare** institutions and payers, especially where emergency services are included as part of a comprehensive program of services.
-

References

1. The Emergency Medical Treatment & Labor Act (EMTALA), 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. Amended September 9, 2003; 68:53221-53264.
2. Third-party payers include: Medicare, Medicaid, managed care organizations, indemnity insurers, and businesses that contract for services

Third-Party Payers and Emergency Medical Care
Proposed, October 2020

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 emergency medical services (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 nearest ED without regard to the facility being in or out of network. .

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.

Innovative initiatives that are intended to decrease utilization of the ED such as Emergency Triage, Treat, and Transport (ET3) Model should be done with qualified emergency physician input to ensure quality emergency care exists in the appropriate setting.

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.
- Copays and deductibles should not differ for in- or out-of-network care in the ED, and copays should not be so high as to circumvent the intent of the prudent layperson standard or potentially delay care in the event of a bonified emergency.
- 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.
- All initiatives that serve to decrease ED utilization should have the input and oversight of qualified emergency physicians.
- 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, regardless of in- or out-of-network status, 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 and arbitration 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 regardless of network status.
- Emergency physicians should assume an active, positive role in any contract negotiations involving healthcare institutions and payers, especially where emergency services are included as part of a comprehensive program of services.

References

1. The Emergency Medical Treatment & Labor Act (EMTALA), 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. Amended September 9, 2003; 68:53221-53264.
2. Third-party payers include: Medicare, Medicaid, managed care organizations, indemnity insurers, and businesses that contract for services.

American College of Emergency Physicians®

ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: Carlton E. Heine, MD, PhD, FACEP
Chair, Federal Government Affairs Committee

Mark S. Rosenberg, DO, MBA, FACEP
Board Liaison, Federal Government Affairs Committee

Date: October 11, 2020

Subj: Worldwide Nuclear Disarmament

Recommendation

That the Board of Directors reaffirm the policy statement "Worldwide Nuclear Disarmament" (Attachment A).

Background

The Federal Government Affairs Committee was assigned an objective for the 2019-20 committee year to review the policy statement "Worldwide Nuclear Disarmament" as part of the policy sunset review process. The committee believes the information contained within the current policy statement is still relevant and recommends reaffirmation.

Prior Board Action

April 2014, approved the revised policy statement "Worldwide Nuclear Disarmament;" reaffirmed October 2008 and October 2002; originally approved October 1998.

Fiscal Impact

Budgeted committee and staff resources for development and distribution of policy statements.

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

POLICY STATEMENT

Approved April 2014

Worldwide Nuclear Disarmament

Revised and approved by the ACEP Board of Directors April 2014

Reaffirmed by the ACEP Board of Directors October 2008 October 2002

This policy statement was approved by the ACEP Board of Directors October 1998 originating from a Board Motion approved April 1982

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.

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Memorandum

To: Finance Committee
Board of Directors
Council Officers

From: Susan E. Sedory, MA, CAE
Executive Director

Date: September 11, 2020

Subj: Amended Bonus Award Program for ACEP Staff for FY 2020-21

Recommendation

That the Finance Committee and the Board of Directors approve the amended Bonus Award Program for ACEP Staff for FY 2020-21 (Attachment A).

Background

In June 2020, the Board of Directors approved the staff bonus for FY2020-21 (with no changes to the plan) according to the recommendation from the Finance Committee. During the FY2020 financial audit, the new Accounting Standards Codification (ASC) 606 Revenue from Contracts with Customers was implemented resulting in additional revenue being recognized from restricted and unrestricted contributions. For ACEP, most contributions recognized as restricted are single-payment, multiyear commitments that will become unrestricted revenue and used in subsequent years. The recommended change to the policy below is to exclude restricted contribution revenue from the staff bonus award program. Unrestricted contribution revenue, including revenue that was previously held as restricted, will continue to be included in the staff bonus award program in the year the revenue is used.

As a reminder, the purpose of the Bonus Award Program is to provide recognition and reward to staff for their accomplishments during the fiscal year. The executive director is not eligible for this program; however, all other staff members meeting the service requirement are eligible. The program is performance-based. Not only does the College have to meet or exceed a pre-determined financial target, but each staff member must also meet or exceed their individual performance objectives established at the beginning of the fiscal year. The bonus award fund is non-budgeted. Bonuses are awarded only if actual net revenue exceeds the pre-determined target recommended by the Finance Committee and approved by the Board of Directors at the beginning of each fiscal year, and revised based on additional approved spending during the year. Any budget variances attributable to realized gain/loss on investments or budget modifications related to government grants are not included in the calculation of the bonus fund. The maximum amount available for the fund is no more than 10% of the total salaries of all eligible staff; each staff member may receive no more than 10% of his/her annual base salary.

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

For FY 20-21 I recommend that the bonus award plan be approved with the change listed in item D below:

a) The target for net revenue shall be determined by the budgeted contribution to equity including all budget modifications occurring throughout the fiscal year. Additionally, any budget variance attributable to (i) realized gain/loss on investments or dividend and interest income, or (ii) budget modifications related to government grants shall not be included in the bonus calculation.
b) The split between member equity and staff bonus pool be 60% to member equity and 40% to the staff bonus pool unless modified by the Board, and
c) The maximum amount as a percent of salary that a staff member can receive from the bonus pool be 10%
d) Restricted revenue shall not be included in the bonus calculation.

Prior Board Action

The Bonus Award Program for ACEP staff was established in 1991. The Finance Committee and the Board review the program each year.

Fiscal Impact

Bonus awards are not a budgeted expense; they are paid only if the College's net revenue exceeds the target number established by the Board of Directors. The payment of bonus awards does, however, reduce the amount of contribution to members' equity by the amount available for payment of bonus awards. The target for the bonus pool is net budgeted revenue at June 30, 2021. The exact fiscal impact cannot be determined until the final budgeted revenue is known and the fiscal year end has occurred.

AMERICAN COLLEGE OF EMERGENCY PHYSICIANS
BONUS AWARD PROGRAM

I. PURPOSE

The purpose of ACEP's performance-based Bonus Award Program is to reward and recognize the collective and individual efforts of ACEP staff in meeting or exceeding activities, programs and member services designed to accomplish the stated mission of the College.

II. ELIGIBILITY

All staff except the Executive Director who are employed by the College by the first working day of the calendar year and through June 30 of the current fiscal year are eligible. In addition, those eligible for bonus awards must receive a performance rating of successful or excellent for the fiscal year being considered. Participation in the Bonus Award Program or receipt of an award is not a guarantee of continued employment with ACEP.

III. DEATH, RETIREMENT, LAYOFF, VOLUNTARY RESIGNATION, LEAVE OF ABSENCE OR INVOLUNTARY TERMINATION

If death, retirement, layoff, or voluntary resignation occurs after June 30 but before distribution of the bonus, the award due will be made to the individual or estate. Staff members who are on an approved leave of absence for twelve or fewer weeks during the fiscal year but otherwise meet the eligibility requirements of the program are eligible for the award. Staff members who are on an approved leave of absence for more than twelve weeks during the fiscal year but otherwise meet the eligibility requirements of the program are eligible for a pro-rated award which is 1/12 of their otherwise total bonus for each full month worked during the fiscal year. A staff member who is involuntarily terminated at any time during the year or prior to distribution of the bonuses is not eligible for the award.

IV. SOURCE OF REVENUE

The bonus award fund is non-budgeted. It is implemented only if actual net revenue exceeds a pre-established target recommended by the Finance Committee, approved by the Board of Directors at the beginning of each fiscal year, and revised based on additional approved spending during the year. Any budget variance attributable to realized gain/loss on investments or dividend and interest income or to budget modifications related to government grants shall not be included in the calculation of the staff bonus plan. **Revenue that remains restricted at the end of the fiscal year shall not be included in the bonus calculation.** The excess revenue is split 60% to members' equity and 40% to the bonus award fund unless otherwise modified by the Board.

The total amount available for the bonus award fund is limited to a maximum of 10% of total eligible staff salaries unless otherwise modified by the Board.

V. DISTRIBUTION OF BONUS AWARDS

Staff members whose performance is rated as successful or excellent are qualified to receive bonus awards. The maximum bonus award allowed to any staff member is 10% of the individual's annual base salary. Payments are made in the following manner unless otherwise recommended by the Finance Committee and approved by the Board:

A. After the financial status of the fiscal year is determined, senior staff reviews the amount of any money available for the bonus award fund. If the total fund is not sufficient to award meaningful payments, no bonus award payments are awarded; the bonus award fund dollars are contributed to Member Equity.

B. Staff members whose performance is rated as successful receive a basic percentage of their annual salary. This basic percentage is computed each year and varies from year to year based on the total funds available, the total salaries of staff in each of the two performance rating categories, and the number of staff in each performance rating category.

C. Staff members whose performance is rated as excellent receive twice the basic percentage as staff whose performance is rated as successful. Such percentage will not exceed 10% of the staff member's annual base salary.

D. Eligible staff members who are hired during the first six months of the fiscal year (by the first working day of the calendar year) receive 1/12 of their possible bonus for each full month worked.

VI. MODIFICATION OR TERMINATION OF PROGRAM

ACEP's Bonus Award Program may be modified or discontinued at any time at the discretion of the Board of Directors.

American College of Emergency Physicians®

ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: Susan E. Sedory, MA, CAE
Executive Director

Date: October 14, 2020

Subj: Managed Security Services - Budget Modification

Recommendation

That a budget modification of $66,694 be approved in FY20-21 for Managed Security Services (MSS) from Dell Secureworks.

Background

Mr. Gabe Casey presented the attached memo to the Finance Committee on October 2, 2020. The Finance Committee approved the staff recommendation to secure a contract with Dell Secureworks for managed security services for the next 12 months. The annual contract is $89,864 but because of the anticipated start date of November 1, 2020, the fiscal impact is estimated to be $66,694.

Fiscal Impact

Increase in FY20-21operating expense of $66,694.

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Attachment A

Memorandum

To: Gary C Starr, MD, FACEP
Co-Chair, Finance Committee

Joshua B Moskovitz, MD, MBA, MPH, FACEP
Co-Chair, Finance Committee

From: Gabe Casey
Chief Technology Officer

Date: September 30, 2020

Subj: Managed Security Services Budget Modification

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

Recommendation

That the Finance Committee recommend an engagement with Dell Secureworks to provide Managed Security Services (MSS) along with a corresponding budget modification for $89,864 (with $66,964 to be recognized in FY20-21).

Background

Cybersecurity is a constantly evolving and technically challenging task. Responding to incidents requires immediate attention and prioritization above all other tasks at the College. Meeting that standard, both from a skillset and a bandwidth perspective, is challenging with our current staffing in Technology Services. Outsourcing some to all aspects of cyber security to a competent provider allows us to leverage skills and knowledge at a scale we'll never be able to achieve in-house.

This resourcing gap has been clearly demonstrated with the recent cardholder breach in which customer cardholder data was exfiltrated from ACEP's online commerce system to malicious actors. The investigation of this breach is still ongoing, so the cost and impact is not fully known. What is clear is that a more timely and expert response would have minimized or even prevented the breach.

Strategy

Cybersecurity is an ideal function to outsource as it requires deep technical knowledge that can expensive to acquire or develop internally. Additionally, the state of the art is constantly evolving to keep up with the bad guys. Our MSS partner will help us shape and iterate on cybersecurity strategy but for purposes of scoping the initial engagement, the following goals have been identified.

- **Cyber Threat Intelligence as a Service (CITaaS)** – the goal of CTIaaS is to achieve a cybersecurity posture that is predictive, not just reactive. CTIaaS operates at both tactical and strategic levels.
- **Network Detection and Response** – we already have this in place for the network at the headquarters building with SecureWorks. We did not cover traffic flows to AWS when we moved our server infrastructure to the cloud.

- **Regular Penetration Testing** – we currently perform penetration tests on demand, usually in response to a specific initiative or incident.
- **Incident Response and Remediation** – in the event of a breach, expert response services are required to assist with identification and remediation.
- **User Training** – we currently have a highly successful end-user training program with KnowBe4. It has been instrumental in increasing the effectiveness of our "human firewall." However, we need to provide additional cybersecurity training to the Application and Web Development teams along with other teams, such as CEDR, that have more input in the designs of systems.

Providers

Several reputable cybersecurity companies offer MSS. We have received proposals from two vendors with whom we have worked previously: Optiv* and Dell Secureworks. The scopes of the two proposals are functionally the same but the way the companies approach it is different, making it a challenge to compare costs at the line-level.

Note: Neither provider offers security training for developers and architects. We will research other providers to meet this need.

	Optiv	Secureworks
Cyberthreat Intelligence as a Service and Network Detection and Response	$105,019	$40,218
Penetration Testing (Annually)	(incl. above)	$21,112
Incident Response Retainer	(incl. above)	$19,800
Implementation Cost	$8,752	$728
PCI Vulnerability Scanning (Quarterly)	$2,434	$8,006
Total	**$116,205**	**$89,864**

* *Optiv provided budgetary numbers but did not respond with a formal proposal before this memo was produced. Optiv's numbers are the annual portion of a 3-year agreement. Secureworks will lower their cost about 5% for a 3-year agreement.*

Provider Selection

Secureworks' approach is more infrastructure based which gives them an advantage in two ways: 1) they have more insight into end-user and server endpoints and 2) they are able to detect and respond to threats in near real-time using client-based software. This systematic approach also reduces the implementation time.

Optiv will likely be slightly more consultative as to our overall security posture but with a longer implementation time and potentially less effective ongoing threat identification and response.

Contract terms for both price and the ability to engage initially for one year are more favorable for Secureworks.

While recognizing this is a relatively large engagement that would typically warrant seeking additional proposals, I recommend proceeding with Secureworks for a 1-year term. To paraphrase General Patton: *a good managed security service contract executed today is better than a perfect contract executed next year*. If we find our needs could be better met, we can select another provider at the end of the 1-year term with little wasted in terms of implementation cost

Supporting Documentation Proposals are posted on the Finance Committee Basecamp.

American College of Emergency Physicians®

ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: Joshua B Moskovitz, MD, MBA, MPH, FACEP
Co-Chair, Finance Committee

Gary C Starr, MD, FACEP
Co-Chair, Finance Committee

Date: October 16, 2020

Subj: ACEP20 Expense and Revenue – Budget Modification

Recommendation

1. That a budget modification of $1,400,000 be approved to remove expense for potential contract penalties to move ACEP20 to a virtual meeting.

2. That a budget modification of $2,724,264 be approved to reduce ACEP20 budgeted revenue.

Background

The FY2021 approved budget included $1,500,000 in potential contract penalties to move ACEP20 from an in-person meeting to a virtual meeting. At the time that the FY2021 budget was approved, contract negotiations and rebooking was taking place and staff was not sure if ACEP would have to pay the contract penalties, so they were included in the budget. The Finance Committee asked for any unspent portion of the contract penalties to be removed from the budget once the information was finalized. ACEP has worked with the hotels, the convention center, etc. and was able to negotiate the penalties, but had to pay approximately $100,000 for work performed by Freeman and a few other vendors. This brings the unspent budgeted portion to approximately $1,400,000 resulting in decreasing expense by $1,400,000.

The FY2021 budget also included 10,000 total registrations resulting in total budgeted revenue of $5,872,500, expense of $2,197,933 (includes $1.5M in contract penalties), resulting in a net profit of $3,674,567. During the Finance Committee call on October 2, 2020, Michele Byers, CAE, CMP, DES, presented the ACEP20 chart in Attachment A that displays three different performance scenarios for conference registration. The chart builds in projections for registration growth two weeks prior to the conference of 30%, 40%, and 50%. As of September 30, 2020, there were 2,086 paid registrations. As of October 15, 2020, there are 3,069 paid registrations.

The Finance Committee discussed the projected performance scenarios and think that the 30% growth scenario, with conference attendance of 4,399, is a more accurate picture of how the conference will perform. The Finance Committee approved reducing the ACEP20 budgeted revenue from $5,872,500 to $3,148,236 resulting in a reduction of revenue of $2,724,264.

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

Fiscal Impact

The FY2021 approved operating budget is a deficit of ($1,488,186). The budget modification will decrease expense by $1,400,000 and decrease budgeted revenue by $2,724,264 resulting in a net decrease of ($1,324,264). This will bring the FY2021 operating budget to a deficit of ($2,812,450). The ACEP20 conference will have a budgeted net income of $2,350,303.

Attachment A

ACEP20 Performance Scenarios As of 09-29-20				
Projected Increase in Registration Two Weeks Prior to Event	Total Registrations	Revenue	Expenses	Net Income
30%	4,399 Total Registrants	$3,148,236.00	$ 701,538.63	$ 2,446,697.37
40%	5,102 Total Registrants	$3,458,398.25	$ 701,538.63	$ 2,756,859.62
50%	5,857 Total Registrants	$3,791,703.75	$ 701,538.63	$ 3,090,165.12
ACEP20 Budget	10,000 Total Registrants	$5,872,500.00	$ 2,197,933.00	$3,674,567.00

Proposed Budget Modification ACEP20	4,399 Total Registrants	$3,148,236.00	$ 797,933.00	$ 2,350,303.00

American College of Emergency Physicians®

ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: Ann Dietrich, MD, FACEP
Chair, Pediatric Emergency Medicine Committee

Jeffrey M. Goodloe, MD, FACEP
Board Liaison, Pediatric Emergency Medicine Committee

Date: October 18, 2020

Subj: Handoffs: Transitions of Care for Children in the Emergency Department

Recommendation

That the Board of Directors reaffirm the policy statement "Handoffs: Transitions of Care for Children in the Emergency Department" (Attachment A).

Background

The policy statement on Handoffs: Transitions of Care for Children in the Emergency Department is a joint policy statement authored by the American Academy of Pediatrics (AAP) Committee On Pediatric Emergency Medicine (COPEM), American College Of Emergency Physicians (ACEP) Pediatric Emergency Medicine (PEM) Committee And Emergency Nurses Association (ENA) Pediatric Committee The joint policy statement was originally approved in 2016 and is now undergoing cyclical review.

The ACEP PEM Committee has reviewed the policy statement recommends reaffirmation. Additionally, the AAP COPEM and the ENA Pediatrics Committee have also recommended reaffirmation.

Fiscal Impact

Budgeted committee and staff resources for the development and distribution of policy statements.

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

POLICY STATEMENT Organizational Principles to Guide and Define the Child Health Care System and/or Improve the Health of all Children

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™

Handoffs: Transitions of Care for Children in the Emergency Department

AMERICAN ACADEMY OF PEDIATRICS Committee on Pediatric Emergency Medicine, AMERICAN COLLEGE OF EMERGENCY PHYSICIANS Pediatric Emergency Medicine Committee, EMERGENCY NURSES ASSOCIATION Pediatric Committee

abstract

Transitions of care (ToCs), also referred to as handoffs or sign-outs, occur when the responsibility for a patient's care transfers from 1 health care provider to another. Transitions are common in the acute care setting and have been noted to be vulnerable events with opportunities for error. Health care is taking ideas from other high-risk industries, such as aerospace and nuclear power, to create models of structured transition processes. Although little literature currently exists to establish 1 model as superior, multiorganizational consensus groups agree that standardization is warranted and that additional work is needed to establish characteristics of ToCs that are associated with clinical or practice outcomes. The rationale for structuring ToCs, specifically those related to the care of children in the emergency setting, and a description of identified strategies are presented, along with resources for educating health care providers on ToCs. Recommendations for development, education, and implementation of transition models are included.

DOI: 10.1542/peds.2016-2680

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

FINANCIAL DISCLOSURE: The authors have indicated they have no financial relationships relevant to this article to disclose.

FUNDING: No external funding.

POTENTIAL CONFLICT OF INTEREST: The authors have indicated they have no potential conflicts of interest to disclose.

To cite: AMERICAN ACADEMY OF PEDIATRICS Committee on Pediatric Emergency Medicine, AMERICAN COLLEGE OF EMERGENCY PHYSICIANS Pediatric Emergency Medicine Committee, EMERGENCY NURSES ASSOCIATION Pediatric Committee. Handoffs: Transitions of Care for Children in the Emergency Department. *Pediatrics.* 2016;138(5):e20162680

INTRODUCTION

Patients who require emergency care for illness or injury may move among several areas of care, including the prehospital setting, the emergency department (ED), inpatient units, and operating rooms or procedure suites, before being transitioned back to the medical home. During transitions between care areas or even during care in a single area, a patient may be cared for by multiple health care personnel. It is likely that transitions of care (ToCs) occur more often in the ED than in any other hospital setting.[1] To provide the highest quality and safety, a patient's care is supposed to be seamless, despite multiple care providers and potentially multiple care areas.

At each patient care transition point, responsibility for the patient's care passes from 1 care provider to another, requiring accurate and timely transmission of important information. Referred to as a "handoff,"

"handover," "report," or "sign-out," a ToC occurs when ≥2 health care providers exchange information that is a summary of the patient's situation, specific to the mission of shaping subsequent treatment and decision-making; and the control over, or responsibility for, the patient is transferred from 1 care provider to another.[2,3] ToC entails the exchange of the following:

1. mission-specific information;
2. responsibility for patient care; and
3. authority for treatment and procedures.

ToC can occur between prehospital and ED providers, between ED providers at shift change, between ED and hospital providers when patients are transferred out of the ED or to another facility, and between ED providers and the patient's medical home when patients are discharged from the ED. All types of health care providers, including but not limited to physicians, nurses, advanced-practice nurses, physician assistants, respiratory therapists, paramedics, emergency medical technicians, social workers, and transporters, can be expected to participate in the transition of a patient's care. In an environment characterized by high patient volume, variable acuity, shift changes, and inopportune interruptions, maintaining focus on communication is especially challenging; however, intradepartmental, interdepartmental, prehospital, and interfacility processes can be designed to address these challenges systematically. These processes can include creating a structured and consistent ToC procedure that acknowledges human factors, operational procedures, team coordination, and care delivery systems.[4]

Published evidence is insufficient to define which system is the best approach to transitioning the care of patients in emergency and acute care settings. Current ToC practices have been criticized as being highly variable and unreliable. Results of a questionnaire and follow-up observation study revealed that ToC processes were unstructured, informal, and error prone, consistent with findings from other studies.[5] In another analysis of ToC processes, nonstandardized approaches led to adverse clinical consequences, near misses, and inefficient or duplicative care.[6]

In other high-risk industries, sign-outs have received considerable research attention, but only recently has the transfer of patient care been studied systematically and findings published in the health care literature. A systematic review of 18 studies that (1) had patient handoffs in hospitals as their explicit research focus and (2) reported at least 1 statistical test of an association between a handoff characteristic and outcome noted that research is highly diverse and quality is preliminary, so drawing general conclusions about ToC strategies is difficult.[7] Similarly, a clinical evidence review of nursing literature noted that ToC practices are in need of rigorous evaluation to determine which features lead to the best outcomes for patients in varied settings.[8] In addition to the need for more evidence gathering, surveys of graduate medical education program directors have concluded that there is a perceived need for emergency medicine and pediatric emergency medicine training programs to provide specific guidance to trainees regarding ToC processes.[9] A new clinical report from the Committee on Hospital Care of the American Academy of Pediatrics, "Standardization of Inpatient Handoff Communication," is published simultaneously in this issue of the Journal (http://www.pediatrics.org/cgi/doi/10.1542/peds.2016-2681).

IMPACT OF ToCs

Communication failures have been implicated as the root cause of more than 60% of sentinel events reported to The Joint Commission (formerly Joint Commission on Accreditation of Health Care Organizations).[10] The Institute of Medicine report "To Err Is Human" noted that 84% of treatment delays were later judged to be attributable to miscommunication, and 62% of these were continuum-of-care issues associated with shift changes.[11]

When care is transitioned, the patient is vulnerable to the cognitive biases of multiple providers.[12] Examples of cognitive biases include the following.[13–16]

- Framing effect: A decision is influenced by the way the scenario is presented.
- Diagnosis momentum: A particular diagnosis is established despite other evidence.
- Confirmation bias/ascertainment effect: Thinking is preshaped by expectations, and providers seek confirmatory data while ignoring data that may lead to the correct diagnosis.
- Triage cueing: Judgments made early in the patient care process predispose subsequent providers toward a particular decision.

BARRIERS TO EFFECTIVE ToCs

Numerous factors predictably lead to errors when humans work in complex systems, including memory, vigilance, and attention to detail. These factors can be exacerbated when people are fatigued or stressed,[17] as happens often when providing emergency care to children. The emergency setting is especially prone to errors because of human as well as environmental factors,[4,18–21] such as the following:

- simultaneous management of multiple ill patients;

- frequent workflow interruptions;
- wide fluctuations in patient volume;
- shift work, staff changes;
- authority gradients;
- experience gradients within the health care environment;
- limited knowledge of patients' history and preexisting conditions;
- high levels of diagnostic uncertainty; and
- high decision density.

When performed suitably, ToC practice promotes quality of care and protects patient safety by providing "audit points" for the detection and mitigation of failure,[22] for example, when the receiving health care provider may notice something overlooked by current providers.[23] Adequate ToC procedures offer the opportunity for rescue and recovery when situations are unclear or a practitioner's thinking is incomplete.[1] Allowing patients to be a part of the ToC process by using "bedside" handoffs has been shown to have positive outcomes for patients and the health care team, including increased patient satisfaction and patient involvement in their own care, with the potential for improved patient safety.[24–26] A physician exchange of information at bedside was shown to be a patient-preferred methodology that encourages patients to participate in their care.[27]

WHY STRUCTURE ToCs?

Consistently structuring 2-way, open, and concise communication provides a means for ensuring consistent, high-quality ToCs.[4] By using information from other high-risk industries, such as aerospace, nuclear power, and aviation, health care providers may learn the value of scripted, precise, unambiguous, impersonal, and efficient language embedded within a framework that allows opportunity for reassessing clinical reasoning and providing read-back of information. Benefits include the following:

- Memory trigger: Omitted information and faulty communication processes were identified as the root cause of most errors linked to ToCs.[10] Structured and consistent processes and the use of checklists serve as a memory trigger during ToCs.
- Opportunity to ask and respond to questions: As part of the 2008 National Patient Safety Goals, The Joint Commission published specific recommendations on physician ToCs, including the need for a standardized ToC process involving certain elements and the opportunity to ask and respond to questions.[28]
- Mitigation of authority gradients: Authority gradients in the workplace can stand in the way of communication.[29] Adopting structured and consistent communication strategies helps put all team members on a level playing field while they work together to keep patients safe.[1] One study found that role variability (information provider versus receiver) created conflicts that made quality-improvement efforts challenging, and the research team hypothesized that these challenges would transfer to different contexts and health care professions.[14]
- Mitigation of experience gradients: Experience gradients can also pose challenges because of varying opinions regarding the best method for ToCs. The results of a multimethod study of ToCs during nursing shift changes by Carroll et al[20] showed "considerable variability" in ToC practices originating from novice versus more experienced nurses.
- Limiting diagnosis momentum: ToCs very frequently transmit judgments about severity of illness, diagnostic considerations, or patient prospects.[2] A structured and consistent ToC that explicitly states the severity of illness and cardinal features with diagnostic considerations will prevent transmitting certainty in diagnosis when uncertainty remains.[21] The opportunity to question or discuss these judgments in a structured, nonthreatening ToC setting can prevent bias in the continuation of care.[30]
- Promotion of family-centered care: Because pediatric patients may lack the communication skills, knowledge, and/or intelligence to participate meaningfully in their own care, it is especially important to consider family presence as a standard means to involving patients in their own care. Honoring the context of the patient's family, culture, values, and goals will result in better health care, safety, and patient satisfaction.[31] Structuring ToC processes to be clear, concise, and nonjudgmental will facilitate patient- and family-centered care in the ED.

IDENTIFIED STRATEGIES FOR ToCs

ToCs in the ED ought to adhere to Grice's maxims of quality, quantity, relevance, and clarity.[32] Little evidence supports the superiority of any 1 model of ToC. In general, strategies will define the following components in each setting:

- who (participants [single, multidisciplinary]),
- where (location [central, bedside]),
- what (method of information exchange [written, oral]), and
- how (use of adjuncts [templates, mnemonics, computers]).

Recognizing barriers to effective communication at the time of a ToC, such as environmental distractions or interruptions, is crucial to enhancing the process. Mitigating these

barriers may include transitioning care in a separate or protected area, performing the ToC in the presence of patients and families, or assigning shift overlap periods to be devoted to ToCs.[18] Allowing multiple concurrent conversations between individuals also is a barrier to effective ToC communication.[33] Other recommendations to improve the ToC process include training sessions, senior supervision, and the use of electronic aids.[34] The following 5 principles reflect effective ToCs[23]:

- assigned accountability for tasks and outcomes;
- clear and direct communication of treatment plans, follow-up expectations, and contingency plans;
- timely feedback and feed-forward with read-back of information;
- involvement of the patient and family members, unless inappropriate; and
- respect of the hub of coordination of care, which is patient centered and could be the medical home or admitting service, specifically when transitioning care out of the emergency setting.

Assigning accountability is important to avoid duplication or omission of care. A structured ToC process will define the point at which 1 provider stops providing care and the next provider begins providing care. One example of a shift-to-shift ToC strategy that has been tested in the pediatric setting is the I-PASS (Illness severity, Patient summary, Action list, Situation awareness and contingency plans, Synthesis by receiver) handoff model. A prospective intervention study on inpatient units at 9 pediatric residency training programs in the United States showed reductions in medical errors, reductions in preventable adverse events, and improvements in communication.[35]

Increasing the adoption of electronic health records (EHRs) has led to further innovation in ToC procedures, and increased ToC accuracy has been shown.[36] Pediatric trainees who were introduced to a ToC bundle, including training, a mnemonic, and a new team structure, were noted to decrease medication errors and preventable adverse events in pediatric patients admitted to the hospital, whereas a computerized ToC tool linked to the EHR was noted to further reduce omissions of key ToC information.[37] Consensus groups suggest that the short-term target of efforts to establish electronic transfers of information will focus on defining some universally, nationally defined set of core transfer information.[23]

One area in which the EHR may be expected to be used effectively is during the transition from the ED to an inpatient unit. An examination of ToC practices at 1 institution revealed the emerging practice of "chart biopsy."[38] This phenomenon, which occurs after receiving notification of an admission, entails reviewing information by the receiving provider about the patient from the EHR before the live ToC process begins. Chart biopsy was noted to serve 3 functions:

1. provide an overview of the patient;
2. prepare for ToC process and subsequent care; and
3. defend against potential cognitive biases by allowing independent perspectives to emerge; for instance, reviewing the chart allows the admitting provider to develop his or her own understanding of the patient and may reveal laboratory test data that just became available, which may change the appropriateness of admitting the patient or placing the patient on a particular service.

It is postulated that "chart biopsy" may enrich the quality of the ToC by allowing receiving providers to enter the ToC as active participants rather than as passive recipients of information.

An alternate view is to decrease the number of ToCs altogether, which could be accomplished by allowing a buffer of time between shift changes, either by scheduling overlapping shifts or by protecting the departing provider from acquiring new patients at the end of the shift.[3] Methods to encourage quality ToCs, such as compensation for the time spent signing out or development of incentivized performance-based quality metrics, can be considered.

Although standardizing ToC practices is important for quality transitioning of care, individual institutions may need to tailor the recommended techniques to fit their unique settings. Institutions are encouraged to choose a structured and consistent ToC model that can be adopted across the entire enterprise, with location-specific modifications, to further emphasize the benefits of standardization. ED provider groups are encouraged to establish a consensus on near-end-of-shift practices, and outgoing providers would pattern their patient involvement during the pretransition period in a like manner.[39]

The Supplemental Information contains lists of standardized ToC models. Models that have been developed or studied in the emergency or acute care setting include Safer Sign Out (from the Emergency Medicine Patient Safety Foundation),[40] ASHICE, CUBAN, DeMIST, MIST, ISBARQ, SHARED, and SOAP.

MANAGING SPECIFIC ToC SITUATIONS

Prehospital to ED

Emergency medical services (EMS) providers usually have only 1 opportunity to convey information about a patient to ED personnel. If this ToC detailing initial vital signs and the events leading up to the ED

visit is not received in real time, ED clinicians track down run sheets or wait for patient care records to be printed or downloaded.[41] ED staff receiving patients from ambulance crews will naturally be focused on their own initial assessment of the patient, which often distracts them from listening carefully to the ambulance crew's ToC. Any information that was not handed over verbally, not recorded on the patient report form, or not retained by ED staff may be lost forever after the ambulance crew leaves.[33] A review of a quality-improvement database in which ToC from EMS to ED was observed revealed that a significant amount of basic and key clinical information was not passed from EMS to ED staff.[42]

Information that is strongly encouraged to be included in a ToC from EMS to ED includes the following:

- vital signs;
- attempts at procedures;
- medications administered;
- clinical status and examination findings, including changes in patient condition during transport;
- health history and preexisting conditions;
- allergies; and
- estimated weight (by length-based tape or parental report).

Focus groups of EMS providers have identified 4 potential ways to improve the structure and process of ToCs[43]:

- communicate directly with the ED provider responsible for the patient's care;
- increase interdisciplinary feedback, transparency, and shared understanding of scope of practice;
- standardize some (but not all) aspects of the handoff; and
- harness technology to close gaps in information exchange.

When transporting a patient from a nonhome setting, such as a school, child care, or medical office, EMS providers may bring consent or health history documents maintained at that location. In the setting of trauma, the mechanism of injury reported to EMS personnel is an important data point. Especially important are pieces of information or visual clues to potential nonaccidental trauma or neglect that may be noted at the scene by prehospital providers. To aid in family reunification, it is important for the ToC from EMS providers to include information about the condition and destination of family members. EMS providers also can serve a valuable role in triage and disaster resource utilization during mass casualty incidents by relaying information regarding scene information and number of potential victims.

Provider to Provider Within the ED

Health care providers working in EDs can be expected to transition the care of all patients under their care frequently, during or at the end of shifts. Maintaining low rates of error and harm in this high-risk environment necessitates that any ToC be accomplished in an effective, orderly, and predictable manner. It is important for a ToC to reflect the multidisciplinary needs of ED patients, and the most favorable environment may include the presence of physician and nursing providers as well as other relevant ancillary staff to discuss ToC information as a team.[44] Recognized models for effective team communication include SHARED (Situation, History, Assessment, Requirements, Evaluation, Documentation), TeamSTEPPS (Team Strategies and Tools to Enhance Performance and Patient Safety), iSoBAR (Identify, Situation, Observations, Background, Agreed Plan & Accountability, Read Back), and SBAR (Situation, Background, Assessment, Recommendation) models.[45,46] An important consideration is that systematic studies have noted that, until further evidence is gathered, no model can be recommended over another, and ToC processes at shift change or change-of-duty will follow the overarching principles discussed throughout this statement.

Bedside handoffs respond directly to several of The Joint Commission's National Patient Safety Goals, which address patient identification, communication among health care providers, and patients' involvement in their own care.[47,48] Embedding bedside handoffs into institutional culture and into individual practice has been challenging.[49] A 2007 survey reported that bedside rounds during shift changes took place in only 24% of EDs participating in the Pediatric Emergency Care Applied Research Network.[50]

An algorithm presented by the Council of Emergency Medicine Residency Directors' Transitions of Care Task Force describes the execution of the ToC process, based on survey responses from emergency medicine faculty and residents and ED nurses.[51] Steps include the following:

- setting an uninterrupted time and space with access to medical records;
- presence of as many health care team members as possible;
- prioritizing discussion of high-risk patients first;
- structured sign-out to identified receiving provider for each patient; and
- closing the loop (invitation for questions, documentation of ToC).

The Australasian College of Emergency Medicine Guideline also notes that scheduling should allow protected time for ToC rounds to occur during working hours.[45]

ED to Consultant

The lack of proper and timely communication between the ED and consultants also can place patients at risk. Although there is transfer of information between 2 services regarding patient information as well as shared responsibility for a patient, consultations are distinctly different from patient ToC, in which the responsibility of care is completely transferred. Furthermore, there is no accepted standard of ED provider to consultant communication. This situation has prompted researchers to consider a "taxonomy" of ED consultations and conceptual flow for engaging outside expertise.[52] Because of the implied sharing of responsibility for the patient, structured and consistent ToC processes will delineate the responsibility of each provider for patient care, whether that includes collaborative care, comanagement, or solely recommendations to the ED provider. If patients are transported out of the ED for specialist consultation, evaluation, or testing, another ToC will occur at the time that the patient returns to the ED setting. Communication between ED providers and consultants is an area for future investigation.

Transfer From ED to Receiving Facility

Transferring patients from the ED to outside facilities will nearly always preclude face-to-face communication; however, it need not preclude 2-way communication and the opportunity to answer questions. There are aspects of interfacility transfer of patients that are governed by the Emergency Medical Treatment and Labor Act,[53] and hospitals are encouraged to be familiar with these obligations.[54] Safe interfacility transfer of patients out of the ED will be aided by having interfacility transfer guidelines in place. Sample transfer checklists, which could be used to script a transfer ToC that is inclusive of information necessary for the EMS transport service, as well as the accepting facility's service, are available from the EMS for Children National Resource Center.[55]

ED to Inpatient Setting

There is a paucity of pediatric specific literature regarding ED to inpatient transitions; however, many of the same challenges existing in general emergency care apply to pediatric patients. In addition, the inability of young pediatric patients to verbalize their condition invites further opportunity for adverse events. The general concepts of transfer of information, responsibility, and authority[56] apply to ToCs from ED to inpatient units as well as intradepartmental ToCs or transfers to outside facilities.

An ineffective ToC from the ED is a well-identified source of adverse events and near misses for inpatients[57] and is implicated in nearly one-quarter of ED malpractice claims.[58] Communication defects between the ED and inpatient team are the primary source of faulty ToCs, with up to 50% to 60% of handoffs omitting vital information,[59,60] regardless of provider experience. Poor communication may occur because of lack of communication and ToC training,[59–61] uncertain diagnoses, lack of complete results of testing, discrepancies of expectations, and potentially contradictory goals of the ED and inpatient providers[44,62,63] as well as cognitive errors caused by inheriting the thoughts of others about the patient's condition.[64] Workplace and human factors engineering within the ED and pediatric ED, such as frequency of interruptions,[65] background noise,[66,67] and the wide variety of patient conditions and unique patient needs, further complicate the ToC from ED to inpatient units.

When admitting a patient from the ED to the inpatient setting, information may be shared between clinicians, but the patient's physical location may make it difficult for the clinician who has assumed responsibility for patient care to assume control at the same time. For instance, when admitted patients are boarded in the ED or when the inpatient provider is not free to attend to the patient promptly, confusion may exist as to the actual transfer of responsibility for care. Furthermore, a ToC may occur separately for each provider type (physician, nurse, etc). The lack of a coordinated transition between health care providers may result in communication of different depth and content of information, which could cause delays in care. Laboratory and imaging results may not be available until after the ToC, and patients may have a continued need for "as needed" medications.[2] Structured and consistent ToC processes that include an unambiguous transfer of authority and responsibility for pending and future care would delineate how to proceed in such cases, thereby avoiding confusion.

The American College of Emergency Physicians offers several suggestions to improve ToCs from EDs to inpatient units. These include reducing interruptions and distractions during ToCs, incorporating 2-way communication with read-back to confirm understanding, promoting formal education for trainees and attending physicians, practicing and evaluating department-specific ToCs, and considering standardized ToC procedures specific to the needs of each facility,[12] recognizing that no single ToC method will meet the needs of all departments.[7,68] A subsequent 2014 survey of 8 teaching hospitals revealed the use of standardized tools in 18% of ToCs from EDs to inpatient units and formal education of less than one-third of physicians.[69]

Specific to pediatric patients, Bigham et al[70] used several of these processes when studying pediatric transfers from EDs to inpatient units within a broader handoff project involving 23 children's hospitals. The study focused on interventions addressing defined ToC intent, content, and process, the latter including the use of standard format, tools, and clear and timely transition of responsibility. Results revealed a significant decrease in ToC-related care failures, from 37.2% to 13.4%, with an accompanying increase in staff satisfaction.

ED to Medical Home

Although literature exists on ToCs from the inpatient to the outpatient setting, effective means of transferring care back to the medical home after an acute care visit has not been well studied. Examples of communication from the ED to the medical home include phone calls and automated faxes or e-mails with details of the patient visit.

Two-way ToC processes may not be feasible for every patient seen in the ED; however, patients discharged with pending studies or consults may warrant such communication, and this ToC is especially important for medically complex patients. Direct provider-to-provider communications may be the expectation based on the complexity or severity of the patient's condition. If the patient's status is critical (ie, requiring admission to an ICU or a grave new diagnosis made) or if the patient dies, a phone call between the ED and primary care provider may enable the primary care provider to support the patient or family.

It is important for the acute care setting to perform medication reconciliation at the time of discharge and to communicate newly prescribed medications to the medical home. EDs may consider adding the resources necessary to accomplish this. EHRs may be able to generate ED visit summaries that provide adequate 1-way ToC information, including date of service, treatments received, study results, diagnosis, and follow-up plan. Institutions are encouraged to inquire about how the use of the EHR for communication with the medical home may qualify as "meaningful use" in the Medicare and Medicaid EHR Incentive Programs.

Transferring care back to the medical home is a shared responsibility between the acute care setting and outpatient setting. The American Medical Association published a consensus report on the responsibilities of ambulatory practices in ToCs.[71] This report focused mainly on inpatient teams to ambulatory teams but emphasized the importance of both teams being responsible and accountable for communication that would ensure a safe care transition. The report states that, in most instances, the ambulatory practice is best situated to take lead responsibility for these tasks, because the ambulatory practice will be responsible for providing ongoing care to the patient.

TEACHING ToCs

A standardized procedure needs to be developed for trainees within emergency medicine residency and fellowship programs[72] as well as nursing and allied health training programs. With the initiation of resident duty hour limits, more frequent ToCs in academic medicine raise the potential for more safety concerns.[73] A survey of emergency residency programs revealed that 75% had no formal didactic training and 90% had no written policy about ToCs.[9]

Numerous organizations, including The Joint Commission[74] and the Institute of Medicine,[75] call for formal attention to ToCs involving trainees. The Emergency Medicine Milestones Project, supported by the Society for Academic Emergency Medicine and the American Board of Emergency Medicine, along with the Accreditation Council for Graduate Medical Education (ACGME), identifies effective ToCs as a competency of all graduating emergency medicine residents.[76] The ACGME, a professional organization responsible for the accreditation of numerous residency education programs, requires specific attention to ToC procedures in both residency and fellowship training programs, creating common standards for all training programs.[77] The American Association of Colleges of Nursing also includes knowledge of and ability to perform appropriate ToC practices as a competency for graduate nursing.[78] Despite the recognized need for standardized tools and procedures at each site, the ACGME recognizes that each site may have different needs and will not use the same templates or tools.[68]

ToC concepts apply to practitioners beyond the training period. With the use of learner-identified ToC milestones, a longitudinal education and evaluation curriculum that uses tool- and simulation-based education modules has been developed for all levels of learners, from medical student through faculty.[79] The American Board of Pediatrics offers a handoff improvement project for pediatric emergency physicians within its Maintenance of Certification category 4 program.[80] Future professional development programs may offer further opportunity to train providers.

ADDRESSING AUTHORITY GRADIENTS WITHIN SIMULATIONS

The concept of authority gradients was introduced to the health care community in "To Err Is Human: Building a Safer Health System,"[11] yet the role of authority gradients in communication breakdowns and in resulting medical error has

only recently received attention in the health care literature.[21] In acknowledgment of this concept, research has been conducted that incorporates the authority gradient into simulation exercises. Two such studies showed that when a health care team was presented with an acute situation in which patient safety was at risk, neither nurses nor resident physicians usually were successful in challenging erroneous orders given by the attending physician, even when they recognized the orders as potentially harmful.[81,82] The results of these studies were consistent with the current literature on the effects of authority gradients and suggest that incorporating the concept into multidisciplinary simulations may be beneficial to building team communication skills and strengthening handoff processes.

RECOMMENDATIONS

1. All EDs that care for children are strongly encouraged to implement a structured and consistent approach to ToC communications, spanning the entire continuum of patient acute care, including prehospital care, ED shift changes, consultations with specialists, admitting patients to the hospital, and transferring care back to the medical home.
2. ToC communication should attempt to be patient- and family-centered, involving patients and/or caregivers at every transition along the continuum of acute care.
3. ED staff members who provide care for children should receive training and education on structured ToC processes as part of the institution's implementation process.
4. Trainees in programs including pediatrics, pediatric emergency medicine, emergency medicine, family medicine, physician assistant, advanced practice nursing, paramedicine, respiratory therapy, and nursing should receive formal training and education on structured and consistent ToC practices. ToC training in pediatric emergency medicine education programs should be structured; the use of simulation training should be considered. Nontrainees should be offered training in ToC advancements via maintenance of certification or other continuing education activities.
5. EDs that provide care for children are encouraged to work with local EMS agencies to develop a structured and consistent ToC process or script that encompasses vital signs, clinical status, patient care, pertinent history and examination findings, mechanism of injury, and scene safety information.
6. EDs that provide care for children should have interfacility transfer guidelines in place.
7. Studies comparing ToC models in the ED setting are encouraged. Standardized, validated process and outcome metrics are recommended to evaluate the effectiveness of ToC processes of care.
8. Institutions should keep their information technology department included in the planning and implementation of structured and consistent ToC processes and abreast of developments in EHR technologies.

LEAD AUTHORS

Toni K. Gross, MD, MPH, FAAP
Lee S. Benjamin, MD, FAAP, FACEP
Elizabeth Stone, MSN

AMERICAN ACADEMY OF PEDIATRICS, COMMITTEE ON PEDIATRIC EMERGENCY MEDICINE, 2014–2015

Joan E. Shook, MD, MBA, FAAP, Chairperson
Thomas H. Chun, MD, MPH, FAAP
Gregory P. Conners, MD, MPH, MBA, FAAP
Edward E. Conway Jr, MD, MS, FAAP
Nanette C. Dudley, MD, FAAP
Susan M. Fuchs, MD, FAAP
Natalie E. Lane, MD, FAAP
Charles G. Macias, MD, MPH, FAAP
Brian R. Moore, MD, FAAP
Joseph L. Wright, MD, MPH, FAAP

LIAISONS

Kim Bullock, MD – *American Academy of Family Physicians*
Elizabeth Edgerton, MD, MPH, FAAP – *Maternal and Child Health Bureau*
Toni K. Gross, MD, MPH, FAAP – *National Association of EMS Physicians*
Tamar Magarik Haro – *American Academy of Pediatrics Department of Federal Affairs*
Lee Benjamin, MD, FAAP – *American College of Emergency Physicians*
Angela Mickalide, PhD, MCHES – *EMS for Children National Resource Center*
Paul Sirbaugh, DO, MBA, FAAP – *National Association of Emergency Medical Technicians*
Sally K. Snow, RN, BSN, CPEN, FAEN – *Emergency Nurses Association*
David W. Tuggle, MD, FAAP – *American College of Surgeons*
Cynthia Wright, MSN, RNC – *National Association of State EMS Officials*

STAFF

Sue Tellez

AMERICAN COLLEGE OF EMERGENCY PHYSICIANS, PEDIATRIC EMERGENCY MEDICINE COMMITTEE, 2013–2014

Lee S. Benjamin, MD, FACEP, Chairperson
Isabel A. Barata, MD, FACEP, FAAP
Kiyetta Alade, MD
Joseph Arms, MD
Jahn T. Avarello, MD, FACEP
Steven Baldwin, MD
Kathleen Brown, MD, FACEP
Richard M. Cantor, MD, FACEP
Ariel Cohen, MD
Ann Marie Dietrich, MD, FACEP
Paul J. Eakin, MD
Marianne Gausche-Hill, MD, FACEP, FAAP
Michael Gerardi, MD, FACEP, FAAP
Charles J. Graham, MD, FACEP
Doug K. Holtzman, MD, FACEP
Jeffrey Hom, MD, FACEP
Paul Ishimine, MD, FACEP
Hasmig Jinivizian, MD
Madeline Joseph, MD, FACEP
Sanjay Mehta, MD, Med, FACEP
Aderonke Ojo, MD, MBBS
Audrey Z. Paul, MD, PhD
Denis R. Pauze, MD, FACEP
Nadia M. Pearson, DO
Brett Rosen, MD
W. Scott Russell, MD, FACEP
Mohsen Saidinejad, MD
Harold A. Sloas, DO

Gerald R. Schwartz, MD, FACEP
Orel Swenson, MD
Jonathan H. Valente, MD, FACEP
Muhammad Waseem, MD, MS
Paula J. Whiteman, MD, FACEP
Dale Woolridge, MD, PhD, FACEP

FORMER COMMITTEE MEMBERS

Carrie DeMoor, MD
James M. Dy, MD
Sean Fox, MD
Robert J. Hoffman, MD, FACEP
Mark Hostetler, MD, FACEP
David Markenson, MD, MBA, FACEP
Annalise Sorrentino, MD, FACEP
Michael Witt, MD, MPH, FACEP

STAFF

Dan Sullivan
Stephanie Wauson

EMERGENCY NURSES ASSOCIATION, PEDIATRIC COMMITTEE, 2014–2015

Robin L. Goodman, MSN, RN, CPEN – 2014 Chair
Rose M. Johnson, RN – 2015 Chair
Warren D. Frankenberger, MSN, RN, CCNS
Mindi L. Johnson, MSN, RN
Jerri Lynn Zinkan, MPH, BSN, RN, CPEN
Heather Martin, DNP, MS, RN, PNP-BC
Justin Milici, MSN, RN, CEN, CPEN, CFRN, CCRN
Tiffany Young, BSN, RN, CPNP

BOARD LIAISONS

Sally K. Snow, BSN, RN, CPEN, FAEN – 2014
Ellen Encapera, RN, CEN – 2015

STAFF LIAISONS

Marlene Bokholdt, MS, RN, CPEN
Leslie Gates

ABBREVIATIONS

ACGME: Accreditation Council for Graduate Medical Education
ED: emergency department
EHR: electronic health record
EMS: emergency medical services
ToC: transition of care

REFERENCES

1. Pruitt CM, Liebelt EL. Enhancing patient safety in the pediatric emergency department: teams, communication, and lessons from crew resource management. *Pediatr Emerg Care*. 2010;26(12):942–948; quiz 949–951
2. Cohen MD, Hilligoss PB. The published literature on handoffs in hospitals: deficiencies identified in an extensive review. *Qual Saf Health Care*. 2010;19(6):493–497
3. Cheung DS, Kelly JJ, Beach C, et al; Section of Quality Improvement and Patient Safety, American College of Emergency Physicians. Improving handoffs in the emergency department. *Ann Emerg Med*. 2010;55(2):171–180
4. Dhingra KR, Elms A, Hobgood C. Reducing error in the emergency department: a call for standardization of the sign-out process. *Ann Emerg Med*. 2010;56(6):637–642
5. Bomba DT, Prakash R. A description of handover processes in an Australian public hospital. *Aust Health Rev*. 2005;29(1):68–79
6. Horwitz LI, Moin T, Krumholz HM, Wang L, Bradley EH. Consequences of inadequate sign-out for patient care. *Arch Intern Med*. 2008;168(16):1755–1760
7. Foster S, Manser T. The effects of patient handoff characteristics on subsequent care: a systematic review and areas for future research. *Acad Med*. 2012;87(8):1105–1124
8. Halm MA. Nursing handoffs: ensuring safe passage for patients. *Am J Crit Care*. 2013;22(2):158–162
9. Sinha M, Shriki J, Salness R, Blackburn PA. Need for standardized sign-out in the emergency department: a survey of emergency medicine residency and pediatric emergency medicine fellowship program directors. *Acad Emerg Med*. 2007;14(2):192–196
10. Arora V, Johnson J, Lovinger D, Humphrey HJ, Meltzer DO. Communication failures in patient sign-out and suggestions for improvement: a critical incident analysis. *Qual Saf Health Care*. 2005;14(6):401–407
11. Institute of Medicine, Committee on Quality of Health Care in America. In: Kohn LT, Corrigan J, Donaldson MS, eds. *To Err Is Human: Building a Safer Health System*. Washington, DC: National Academies Press; 2000
12. American College of Emergency Physicians. Available at: www.acep.org/workarea/DownloadAsset.aspx?id=91206. Accessed September 28, 2015
13. Croskerry P. From mindless to mindful practice–cognitive bias and clinical decision making. *N Engl J Med*. 2013;368(26):2445–2448
14. Croskerry P, Singhal G, Mamede S. Cognitive debiasing 1: origins of bias and theory of debiasing. *BMJ Qual Saf*. 2013;22(suppl 2):ii58–ii64
15. Croskerry P, Singhal G, Mamede S. Cognitive debiasing 2: impediments to and strategies for change. *BMJ Qual Saf*. 2013;22(suppl 2):ii65–ii72
16. Beach C, Croskerry P, Shapiro M; Center for Safety in Emergency Care. Profiles in patient safety: emergency care transitions. *Acad Emerg Med*. 2003;10(4):364–367
17. Reason JT. *Human Error*. New York, NY: Cambridge University Press; 1990
18. Krug SE, Frush K; Committee on Pediatric Emergency Medicine. Patient safety in the pediatric emergency care setting. *Pediatrics*. 2007;120(6):1367–1375
19. Croskerry P, Sinclair D. Emergency medicine: a practice prone to error? *CJEM*. 2001;3(4):271–276
20. Carroll JS, Williams M, Gallivan TM. The ins and outs of change of shift handoffs between nurses: a communication challenge. *BMJ Qual Saf*. 2012;21(7):586–593
21. Cosby KS, Croskerry P. Profiles in patient safety: authority gradients in medical error. *Acad Emerg Med*. 2004;11(12):1341–1345
22. Manser T, Foster S, Gisin S, Jaeckel D, Ummenhofer W. Assessing the quality of patient handoffs at care transitions. *Qual Saf Health Care*. 2010;19(6):e44
23. Snow V, Beck D, Budnitz T, et al; American College of Physicians; Society of General Internal Medicine; Society of Hospital Medicine; American Geriatrics Society; American College of Emergency Physicians; Society of Academic Emergency Medicine. Transitions of care consensus policy statement: American College of Physicians-Society of General Internal Medicine-Society of Hospital Medicine-American Geriatrics Society-American College of Emergency Physicians-Society of Academic

Emergency Medicine. *J Gen Intern Med*. 2009;24(8):971–976

24. Tidwell T, Edwards J, Snider E, et al. A nursing pilot study on bedside reporting to promote best practice and patient/family-centered care. *J Neurosci Nurs*. 2011;43(4):E1–E5
25. Maxson PM, Derby KM, Wrobleski DM, Foss DM. Bedside nurse-to-nurse handoff promotes patient safety. *Medsurg Nurs*. 2012;21(3):140–144; quiz 145
26. Chaboyer W, McMurray A, Johnson J, Hardy L, Wallis M, Sylvia Chu FY. Bedside handover: quality improvement strategy to "transform care at the bedside". *J Nurs Care Qual*. 2009;24(2):136–142
27. Lehmann LS, Brancati FL, Chen MC, Roter D, Dobs AS. The effect of bedside case presentations on patients' perceptions of their medical care. *N Engl J Med*. 1997;336(16):1150–1155
28. Revere A, Eldridge N; VA National Center for Patient Safety. Joint Commission National Patient Safety Goals for 2008. *Topics in Patient Safety*. 2008: 12(1):1-4. Available at: www.patientsafety.va.gov/docs/TIPS/TIPS_JanFeb08.pdf. Accessed September 16, 2015
29. Cosby KS, Roberts R, Palivos L, et al. Characteristics of patient care management problems identified in emergency department morbidity and mortality investigations during 15 years. *Ann Emerg Med*. 2008;51(3):251–261, 261.e1
30. Angela Munasque. Thinking about thinking: heuristics and the emergency physician. *Emergency Medicine News*. October 2009. Available at: http://journals.lww.com/em-news/Documents/Cognitiveautopsy.pdf. Accessed September 16, 2015
31. O'Malley PJ, Brown K, Krug SE; Committee on Pediatric Emergency Medicine. Patient- and family-centered care of children in the emergency department. *Pediatrics*. 2008;122(2). Available at: www.pediatrics.org/cgi/content/full/122/2/e511
32. Cole P, Morgan J, eds. Logic and conversation: syntax and semantics. Vol. 3. In: *Speech Acts*. New York, NY: Academic Press; 1975:41–58
33. Talbot R, Bleetman A. Retention of information by emergency department staff at ambulance handover: do standardised approaches work? *Emerg Med J*. 2007;24(8):539–542
34. Thompson JE, Collett LW, Langbart MJ, et al. Using the ISBAR handover tool in junior medical officer handover: a study in an Australian tertiary hospital. *Postgrad Med J*. 2011;87(1027):340–344
35. Starmer AJ, Spector ND, Srivastava R, et al; I-PASS Study Group. Changes in medical errors after implementation of a handoff program. *N Engl J Med*. 2014;371(19):1803–1812
36. Palma JP, Sharek PJ, Longhurst CA. Impact of electronic medical record integration of a handoff tool on sign-out in a newborn intensive care unit. *J Perinatol*. 2011;31(5):311–317
37. Starmer AJ, Sectish TC, Simon DW, et al. Rates of medical errors and preventable adverse events among hospitalized children following implementation of a resident handoff bundle. *JAMA*. 2013;310(21):2262–2270
38. Hilligoss B, Zheng K. Chart biopsy: an emerging medical practice enabled by electronic health records and its impacts on emergency department-inpatient admission handoffs. *J Am Med Inform Assoc*. 2013;20(2):260–267
39. Singer JI, Dean J. Emergency physician intershift handovers: an analysis of our transitional care. *Pediatr Emerg Care*. 2006;22(10):751–754
40. Emergency Medicine Patient Safety Foundation. Safer sign out. Available at: http://safersignout.com/. Accessed September 16, 2015
41. Landman ABLC, Lee CH, Sasson C, Van Gelder CM, Curry LA. Prehospital electronic patient care report systems: early experiences from emergency medical services agency leaders. *PLoS One*. 2012;7(3):e32692
42. Panchal AR, Gaither JB, Svirsky I, Prosser B, Stolz U, Spaite DW. The impact of professionalism on transfer of care to the emergency department. *J Emerg Med*. 2015;49(1):18–25
43. Meisel ZF, Shea JA, Peacock NJ, et al. Optimizing the patient handoff between emergency medical services and the emergency department. *Ann Emerg Med*. 2015;65(3):310–317.e1
44. Patterson ES, Roth EM, Woods DD, Chow R, Gomes JO. Handoff strategies in settings with high consequences for failure: lessons for health care operations. *Int J Qual Health Care*. 2004;16(2):125–132
45. Australasian College for Emergency Medicine. *Guideline on Clinical Handover in the Emergency Department*. Melbourne, Australia: Australasian College for Emergency Medicine; 2010
46. Emergency Nurses Association. *Position Statement: Patient Handoff/Transfer*. Des Plaines, IL: Emergency Nurses Association; 2013
47. The Joint Commission. 2015 National Patient Safety Goals. Available at: www.jointcommission.org/standards_information/npsgs.aspx. Accessed September 16, 2015
48. Baker SJ. Bedside shift report improves patient safety and nurse accountability. *J Emerg Nurs*. 2010;36(4):355–358
49. Gregory S, Tan D, Tilrico M, Edwardson N, Gamm L. Bedside shift reports: what does the evidence say? *J Nurs Adm*. 2014;44(10):541–545
50. Shaw KN, Ruddy RM, Olsen CS, et al; Pediatric Emergency Care Applied Research Network. Pediatric patient safety in emergency departments: unit characteristics and staff perceptions. *Pediatrics*. 2009;124(2):485–493
51. Kessler C, Shakeel F, Hern HG, et al. An algorithm for transition of care in the emergency department. *Acad Emerg Med*. 2013;20(6):605–610
52. Kessler CS, Asrow A, Beach C, et al. The taxonomy of emergency department consultations—results of an expert consensus panel. *Ann Emerg Med*. 2013;61(2):161–166
53. Centers for Medicare and Medicaid Services. Emergency Medical Treatment and Labor Act (EMTALA). Available at: https://www.cms.gov/Regulations-and-Guidance/Legislation/EMTALA/index.html. Accessed August 21, 2015
54. Centers for Medicare and Medicaid Services. Emergency Medical Treatment and Labor Act (EMTALA).

Available at: www.acep.org/Clinical—Practice-Management/Focus-On—The-Emergency-Medical-Treatment-and-Labor-Act/. Accessed September 16, 2015

55. Emergency Medical Services for Children National Resource Center. Healthcare provider resources. Available at: www.emscnrc.org/EMSC_Resources/Interfacility_Transfer_Toolbox.aspx#resources. Accessed September 16, 2015

56. Behara R, Wears RL, Perry SJ, et al. A conceptual framework for studying the safety of transitions in emergency care. In: Henriksen K, Battles JB, Marks ES, Lewin DI, eds. *Advances in Patient Safety: From Research to Implementation. Volume 2: Concepts and Methodology*. Rockville, MD: Agency for Healthcare Research and Quality; 2005

57. Horwitz LI, Meredith T, Schuur JD, Shah NR, Kulkarni RG, Jenq GY. Dropping the baton: a qualitative analysis of failures during the transition from emergency department to inpatient care. *Ann Emerg Med*. 2009;53(6):701.e4–710.e4

58. Kachalia A, Gandhi TK, Puopolo AL, et al. Missed and delayed diagnoses in the emergency department: a study of closed malpractice claims from 4 liability insurers. *Ann Emerg Med*. 2007;49(2):196–205

59. Maughan BC, Lei L, Cydulka RK. ED handoffs: observed practices and communication errors. *Am J Emerg Med*. 2011;29(5):502–511

60. Chang VY, Arora VM, Lev-Ari S, D'Arcy M, Keysar B. Interns overestimate the effectiveness of their hand-off communication. *Pediatrics*. 2010;125(3):491–496

61. Farhan M, Brown R, Woloshynowych M, Vincent C. The ABC of handover: a qualitative study to develop a new tool for handover in the emergency department. *Emerg Med J*. 2012;29(12):941–946

62. Beach C, Cheung DS, Apker J, et al. Improving interunit transitions of care between emergency physicians and hospital medicine physicians: a conceptual approach. *Acad Emerg Med*. 2012;19(10):1188–1195

63. Apker J, Mallak LA, Applegate EB III, et al. Exploring emergency physician-hospitalist handoff interactions: development of the Handoff Communication Assessment. *Ann Emerg Med*. 2010;55(2):161–170

64. Campbell SG, Croskerry P, Bond WF. Profiles in patient safety: a "perfect storm" in the emergency department. *Acad Emerg Med*. 2007;14(8):743–749

65. Chisholm CD, Dornfeld AM, Nelson DR, Cordell WH. Work interrupted: a comparison of workplace interruptions in emergency departments and primary care offices. *Ann Emerg Med*. 2001;38(2):146–151

66. Buelow M. Noise level measurements in four Phoenix emergency departments. *J Emerg Nurs*. 2001;27(1):23–26

67. Ratnapalan S, Cieslak P, Mizzi T, McEvoy J, Mounstephen W. Physicians' perceptions of background noise in a pediatric emergency department. *Pediatr Emerg Care*. 2011;27(9):826–833

68. Riesenberg LA, Leitzsch J, Little BW. Systematic review of handoff mnemonics literature. *Am J Med Qual*. 2009;24(3):196–204

69. Kessler C, Scott NL, Siedsma M, Jordan J, Beach C, Coletti CM. Interunit handoffs of patients and transfers of information: a survey of current practices. *Ann Emerg Med*. 2014;64(4):343.e5–349.e5

70. Bigham MT, Logsdon TR, Manicone PE, et al. Decreasing handoff-related care failures in children's hospitals. *Pediatrics*. 2014;134(2). Available at: www.pediatrics.org/cgi/content/full/134/2/e572

71. Sokol PE, Wynia MK; American Medical Association, Expert Panel on Care Transitions. *There and Home Again, Safely: Five Responsibilities of Ambulatory Practices in High Quality Care Transitions*. Chicago, IL: American Medical Association; 2013. Available at: https://cdn.ymaws.com/npsf.site-ym.com/resource/resmgr/PDF/There-and-Home-Again_AMArepo.pdf. Accessed September 16, 2015

72. Volpp KG, Grande D. Residents' suggestions for reducing errors in teaching hospitals. *N Engl J Med*. 2003;348(9):851–855

73. Philibert I, Chang B, Flynn T, et al. The 2003 common duty hour limits: process, outcome, and lessons learned. *J Grad Med Educ*. 2009;1(2):334–337

74. Arora V, Johnson J. A model for building a standardized hand-off protocol. *Jt Comm J Qual Patient Saf*. 2006;32(11):646–655

75. Institute of Medicine, Committee on Optimizing Graduate Medical Trainee. (Resident) Hours and work schedules to improve patient safety. In: Ulmer C, Wolman D, Johns M, eds. *Resident Duty Hours: Enhancing Sleep, Supervision, and Safety*. Washington, DC: National Academies Press; 2008

76. Accreditation Council on Graduate Medical Education, American Board of Emergency Medicine. Emergency medicine milestones. 2011. Available at: https://www.abem.org/public/publications/emergency-medicine-milestones. Accessed September 28, 2015

77. Riebschleger M, Philibert I. New standards for transitions of care: discussion and justification. In: Philibert I, Amis S, eds. *The ACGME 2011 Duty Hour Standards: Enhancing Quality of Care, Supervision, and Resident Professional Development*. Chicago, IL: Accreditation Council for Graduate Medical Education; 2011

78. American Association of Colleges of Nursing Education Consortium. Graduate-level QSEN competencies: knowledge, skills and attitudes. 2012. Available at: www.aacn.nche.edu/faculty/qsen/competencies.pdf. Accessed September 16, 2015

79. Farnan JM, Arora VM. A longitudinal approach to handoff training. *Virtual Mentor*. 2012;14(5):383–388

80. American Academy of Pediatrics. Improving shift transitions with briefing checklists in the Emergency Department. Available at: https://qidata.aap.org/briefingchecklists/welcome?sso=true&nfstatus=401&nftoken=00000000-0000-0000-0000-000000000000&nfstatusdescription=ERROR%3a+No+local+token. Accessed September 19, 2016

81. Calhoun AW, Boone MC, Porter MB, Miller KH. Using simulation to address hierarchy-related errors in medical practice. *Perm J*. 2014;18(2):14–20

82. St Pierre M, Scholler A, Strembski D, Breuer G. Do residents and nurses communicate safety relevant concerns? Simulation study on the influence of the authority gradient [in German]. *Anaesthesist*. 2012;61(10):857–866

83. Dekosky AS, Gangopadhyaya A, Chan B, Arora VM. Improving written sign-outs through education and structured audit: the UPDATED approach. *J Grad Med Educ*. 2013;5(2):335–336

84. Connor MP, Bush AC, Brennan J. IMOUTA: a proposal for patient care handoffs. *Laryngoscope*. 2013;123(11):2649–2653

85. Turner P. Implementation of TeamSTEPPS in the emergency department. *Crit Care Nurs Q*. 2012;35(3):208–212

Handoffs: Transitions of Care for Children in the Emergency Department

AMERICAN ACADEMY OF PEDIATRICS Committee on Pediatric Emergency Medicine, AMERICAN COLLEGE OF EMERGENCY PHYSICIANS Pediatric Emergency Medicine Committee and EMERGENCY NURSES ASSOCIATION Pediatric Committee

Pediatrics 2016;138;
DOI: 10.1542/peds.2016-2680 originally published online October 31, 2016;

PEDIATRICS
OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Handoffs: Transitions of Care for Children in the Emergency Department

AMERICAN ACADEMY OF PEDIATRICS Committee on Pediatric Emergency Medicine, AMERICAN COLLEGE OF EMERGENCY PHYSICIANS Pediatric Emergency Medicine Committee and EMERGENCY NURSES ASSOCIATION Pediatric Committee

Pediatrics 2016;138;
DOI: 10.1542/peds.2016-2680 originally published online October 31, 2016;

American College of Emergency Physicians®

ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: Ann Dietrich, MD, FACEP
Chair, Pediatric Emergency Medicine Committee

Jeffrey M. Goodloe, MD, FACEP
Board Liaison, Pediatric Emergency Medicine Committee

Date: October 18, 2020

Subj: Patient- and Family-Centered Care and the Role of the Emergency Physician Providing Care to a Child in the Emergency Department

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

Recommendation

That the Board of Directors reaffirm the policy statement "Patient- and Family-Centered Care and the Role of the Emergency Physician Providing Care to a Child in the Emergency Department" (Attachment A) and the joint "Technical Report on Patient- and Family-Centered Care and the Role of the Emergency Physician Providing Care to a Child in the Emergency Department"(Attachment B).

Background

The policy statement "Patient- and Family-Centered Care and the Role of the Emergency Physician Providing Care to a Child in the Emergency Department" was originally a joint policy statement developed by the American Academy of Pediatrics (AAP) Committee on Pediatric Emergency Medicine (COPEM) and ACEP's Pediatric Emergency Medicine (PEM) Committee along with the technical report.

In 2018, the policy statement was scheduled for sunset review by ACEP. The ACEP PEM Committee reviewed and updated the policy statement and the Board approved the revisions in September 2018. AAP decided to develop their own revised policy statement applicable to all specialties instead of specific to emergency medicine. The AAP COPEM and ACEP PEM Committee are recommending that the technical report be reaffirmed. The Board is requested to reaffirm the policy statement at this time so that it will have the same approval date as the technical report.

The policy statement is Attachment A and the joint technical report is Attachment B.

Prior Board Action

September 2018, approved the revised policy statement "Patient- and Family-Centered Care and the Role of the Emergency Physician Providing Care to a Child in the Emergency Department;" reaffirmed April 2012; originally approved June 2006.

Fiscal Impact

Budgeted committee and staff resources for the development and distribution of policy statements.

Attachment A

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

POLICY STATEMENT

Patient- and Family-Centered Care and the Role of the Emergency Physician Providing Care to a Child in the Emergency Department

Approved September 2018

Revised September 2018

Reaffirmed April 2012

Originally approved June 2006

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 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.[2] 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.[3-5] 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 [6] 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,[2] which was endorsed by the American Academy of Pediatrics (AAP) in November 2004. [7,8] 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. [9-11]

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. [12]

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.[13,14] 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

1. Emergency Nurses Association. Position Statement: Family Presence at the Bedside During Invasive Procedures and Cardiopulmonary Resuscitation. Des Plaines, IL: Emergency Nurses Association; 2005. Available at: www.ena.org. Accessed March 22, 2006.
2. Henderson DP, Knapp JF. Report of the National Consensus Conference on Family Presence During Pediatric Cardiopulmonary Resuscitation and Procedures. *Pediatr Emerg Care*. 2005;21:787-791.
3. Knazik S, Dietrich A, Gold C, et al. Death of a child in the emergency department. *Ann Emerg Med.* 2003 Oct;42(4):519-529.
4. Knapp J, Mulligan-Smith D, American Academy of Pediatrics, Committee on Pediatric Emergency Medicine. Death of a child in the emergency department. *Pediatrics.* 2005;115:1432-1437.
5. Emergency Nurses Association. Position Statement: End-of-Life Care in the Emergency Department. Des Plaines, IL: Emergency Nurses Association; 2005. Available at: www.ena.org. Accessed March 22, 2006.
6. American Academy of Pediatrics. Medical Home Initiatives for Children with Special Needs Project Advisory Committee. The medical home. *Pediatrics*. 2002 Jul;110(1 Pt 1):184-186.
7. McAlvin SS, Carew-Lyons A. Family presence during resuscitation and invasive procedures in pediatric critical care: a systematic review. *Am J Crit Care*. 2014 Nov;23(6):477-84.
8. Ferreira CA, Balbino FS, Balieiro MM, et al. Family presence during cardiopulmonary resuscitation and invasive procedures in children. *Revista Paulista de Pediatria*. 2014 Mar;32(1):107-113.
9. Dingeman RS, Mitchell EA, Meyer EC, et al. Parent presence during complex invasive procedures and cardiopulmonary resuscitation: a systematic review of the literature. *Pediatrics*. 2007 Oct;120(4):842-54.
10. Sacchetti A, Paston C, Carraccio C. Family members do not disrupt care when present during invasive procedures. *Acad Emerg Med*. 2005 May;12(5):477–479.
11. Young KD. Observational study of family member presence for pediatric emergency department procedures. *Pediatr Emerg Care*. 2014 Jul;30(7):449-52.
12. Dokken D, Parent K, Ahmann E. Family presence and participation: pediatrics leading the way... and still evolving. *Pediatr Nurs*. 2015 Jul-Aug;41(4):204-6.
13. Committee on Hospital Care. Family-centered care and the pediatrician's role. *Pediatrics.* 2003 Sep;112(3 Pt 1):691-697.
14. American College of Emergency Physicians. Cultural Awareness and Emergency Care. Policy Statement. *Ann Emerg Med*. November 2002.
15. American College of Emergency Physicians. Patient- and Family-Centered Care and the Role of the Emergency Physician Providing Care to a Child in the Emergency Department. *Ann Emerg Med.* 2006 Nov;48(5):643-5.

TECHNICAL REPORT

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™

Patient- and Family-Centered Care of Children in the Emergency Department

Nanette Dudley, MD, Alice Ackerman, MD, MBA, Kathleen M. Brown, MD, Sally K. Snow, BSN, RN,
American Academy of Pediatrics Committee on Pediatric Emergency Medicine,
American College of Emergency Physicians Pediatric Emergency Medicine Committee,
Emergency Nurses Association Pediatric Committee

abstract

Patient- and family-centered care is an approach to the planning, delivery, and evaluation of health care that is grounded in a mutually beneficial partnership among patients, families, and health care professionals. Providing patient- and family-centered care to children in the emergency department setting presents many opportunities and challenges. This revised technical report draws on previously published policy statements and reports, reviews the current literature, and describes the present state of practice and research regarding patient- and family-centered care for children in the emergency department setting as well as some of the complexities of providing such care.

FREE

www.pediatrics.org/cgi/doi/10.1542/peds.2014-3424

DOI: 10.1542/peds.2014-3424

Accepted for publication Oct 24, 2014

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

INTRODUCTION

Patient- and family-centered care (PFCC) is an approach to the planning, delivery, and evaluation of health care that is grounded in a mutually beneficial partnership among patients, families, and health care professionals.[1] PFCC applies to patients of all ages, and it may be practiced in any health care setting.[1,2] Providing PFCC to children in the emergency department (ED) setting presents many opportunities and challenges. Unique aspects of the ED encounter include the fact that it often represents an acute visit to an unfamiliar setting without an ongoing provider-patient relationship. This technical report is intended to supplement the joint policy statement of the American Academy of Pediatrics (AAP) and American College of Emergency Physicians,[3] which was reaffirmed in October 2011 (http://pediatrics.aappublications.org/content/129/2/e561.full) and is consistent with its recommendations. It builds on the original technical report,[4] reviews current literature, and draws on previously published policy statements and reports.[2,5–23] The current state of practice and research regarding PFCC for children in the ED setting is described, as are some of the complexities of providing such care. The 3 appendices include several resources for PFCC, including

potential solutions for common challenges to providing PFCC faced in the ED, an outline for a protocol for family-member presence (FMP) during invasive procedures, and resources for promoting institutional change.

BACKGROUND

PFCC seeks to improve the health and well-being of pediatric patients and their families through a respectful patient/family-professional partnership. It honors the strengths, cultures, traditions, and expertise that all members of this partnership bring to the relationship.[2,3] PFCC embraces the following concepts: (1) care is provided for a person, not a condition; (2) the patient is best understood in the context of his or her family, culture, values, and goals; and (3) honoring this context will result in better health care, safety, and patient satisfaction.[24] PFCC in the ED reminds providers that the family often has an ongoing, long-term relationship with the child, and except in extreme instances, the child returns home to be cared for by the family and the child's medical home. ED health care professionals, the family, and the child together work to optimize the child's care.

The development of PFCC is well described elsewhere.[1–3,25] The essence of PFCC is an understanding of the relationship between the patient/family and health care professionals as a partnership. In the past, the duties of a physician toward a patient were interpreted to give the physician an implied authority and ability to determine unilaterally what is in the patient's best interests. As this relationship changed and became more collaborative, patients and families have become more active participants in children's health care.[2] PFCC represents an evolution in understanding the health care provider-patient relationship, one that will undoubtedly continue to evolve. The Institute of Medicine (IOM) identified PFCC as 1 of the 6 attributes of high-quality health care in its 2001 report *Crossing the Quality Chasm: A New Health System for the 21st Century*.[26] Furthermore, the Joint Commission provides information for hospitals to implement PFCC as well as to improve cultural competence and communication.[27] In its 2006 report *Emergency Care for Children: Growing Pains*,[28] the IOM concluded that failure to incorporate PFCC and culturally effective care into emergency care practice "can result in multiple adverse consequences, including difficulties with informed consent, miscommunication, inadequate understanding of diagnoses and treatment by families, dissatisfaction with care, preventable morbidity and mortality, unnecessary child abuse evaluations, lower quality care, clinician bias, and ethnic disparities in prescriptions, analgesia, test ordering, and diagnostic evaluation." PFCC represents an evolution, and in the pediatric emergency setting a PFCC approach is the best practice for patient care.

PFCC relies on a model of partnership with common goals and mutual respect for the contributions of each partner. This alliance is most successful when information is shared in an unbiased and nonjudgmental manner and when the patient and family are supported in their use of that information to make their own health care decisions.[2] PFCC appreciates that adolescent development creates a changing dynamic, which ED clinicians are obligated to recognize. Effective communication is an essential component of a patient- and family-centered approach to care.[2,18,27] Traditionally, physicians have held a position of respect and authority in society, and it may be difficult for some families to enter into an open conversation with physicians. Additionally, ED health care professionals must understand that patients and families may not always know what questions to ask or may feel an inherent inequality in the partnership because of the vulnerability brought about by their medical circumstances, which may be particularly true in emergency situations. The possibility also exists that the patient and family may value potential risks or benefits differently from how the treating provider does. Thus, the provider's ability to discuss information openly by inviting families to share their concerns is vital to good patient care.[2,18] Recognizing the role of the patient and family as team members in shared decision-making[16] and validating their concerns while providing information about potential risks and benefits are critical for the entire team to feel comfortable with the plan and to ensure good patient care.[2,18]

PFCC FOR THE CHILD IN THE ED

There are significant challenges to providing PFCC for children in the ED. Overcrowding and acuity in the ED may contribute to delay or disruption of care, making it difficult for health care professionals to provide respectful and sensitive care. The lack of a previous relationship between the patient/family and ED health care professionals, as well as the acute nature of many events prompting an ED visit, can limit the ability to create an effective partnership. Cultural and societal influences on varied family structures compound the difficulty in identifying with certainty who, in fact, is a child's legal guardian. Similarly, families may be unfamiliar with the various providers caring for them. Patients and families also may be unaware of their role as partners in care, and a brief ED visit poses challenges to family education. Adolescent development and care needs may lead to an ED visit without family. Additionally, situations particular to the ED (such as the arrival of a child by ambulance without family; visits related to abuse

or violence; time-sensitive invasive procedures, including attempted resuscitation; unanticipated critical illness, injury, or death of a child) require the most thoughtful advanced planning. Finally, reluctance on the part of health care professionals to allow family member presence (FMP) during invasive procedures or attempted resuscitation can limit family access that may be beneficial to the patient, family, and health care professional alike.[29–32] Appendix 1 discusses difficult situations that can occur in ED care, keeping in mind a PFCC approach.

Despite these challenges, achieving excellence in the provision of PFCC is possible in the ED. Embracing the philosophy of PFCC across disciplines (such as nursing, interpreter services, child life and social services, chaplaincy, or mental health services) can promote patient safety,[17] comfort, and satisfaction[24] despite the challenges of the ED environment. Communication between health care professionals in the ED and in the child's medical home[5,7] will enhance support of PFCC in the ED and improve coordination of care and continuity during transitions.[23] PFCC recognizes the integral role of the family and the importance of their involvement, input, and suggestions in the ED environment.[3]

All aspects of emergency care can reflect the practice of PFCC, including clinical operations and patient flow, policies and practice, physical plant, and education of staff and trainees. Although the following examples may apply in other patient care settings, they are presented here in the context of the ED.

Patient Flow

Patient flow that exemplifies PFCC does not limit the child's access to family members or vice versa unless the demands of evolving patient independence, need for private interview or examination, or safety of the patient, family, or staff dictate otherwise. The intent here is to avoid separating parents and children. For example, an operational patient flow that requires the parent to leave the child for registration while the child is receiving care can be made more patient- and family-centered with a bedside registration system. Assistance, such as valet parking, can also be provided for the single parent who arrives with an ill child in the ED driveway so that he or she can remain with the child. The provision of child life services or volunteers can ease family anxiety during the visit, allowing parents time to focus on their child's needs and information given.[10] One challenge to the desire to keep families and children together arises in the provision of adolescent care and the necessity of incorporating privacy and confidentiality into the ED visit. Maintaining patient flow while keeping in mind patients' desire for confidentiality and state-specific regulations for adolescent care requires sensitive advanced planning in the ED.

Experiences from disasters have emphasized the importance of keeping families together. An important element of disaster planning in the ED is the efficient triage and evaluation of multiple patients. Published guidelines from a national task force provide suggestions for incorporating PFCC into the ED during mass-casualty events and encourage advanced planning with family input.[33] Although the goal remains to keep families together, prehospital or ED providers may be faced with the necessity of separating parents and children. When this happens, communication is a challenge. Recommendations in the task force report include providing a dedicated professional for communication and using digital photography and identifying information to facilitate timely reunification.[33] Disaster planning continues to be addressed at a national level.[34]

Security and Identification of Family

Determining who constitutes a patient's family can be difficult, especially in emergencies. Patients and their families may best make that determination. Appendix 1 lists some challenging situations for the identification of family. For security reasons, many EDs have a policy of identifying family members with a "visitor" badge. Changing that label to read "family" is a small step that may help to reinforce the commitment to moving beyond thinking of family as visitors and truly welcoming them as partners in the care of the child.

Family Presence

A practice that requires parents to leave a child during certain procedures, such as fracture reduction, because the ED health care professional judges that it would be too disturbing for parents to watch is another opportunity for change. The ED can be made more patient- and family-centered by allowing the patient and family members to choose whether to be present after receiving complete and unbiased information from an ED health professional or team about what will happen. The ED team then should support this decision, whether or not the family chooses to be present. Guidelines for establishing a program of FMP in the ED have been published.[20,21,35] A sample FMP protocol is presented in Appendix 2. Development of an ED policy for PFCC that includes family presence emphasizes its importance in pediatric emergency care.

Interpretation Services and Cultural Communication

Because communication is a cornerstone of PFCC, timely access to professional interpreter services is essential for providing PFCC when a language or communication barrier exists. Interpreter services in the ED are underutilized.[36,37] Moreover, children of families who understand

or speak languages other than English are more likely to be admitted to the hospital, have more tests ordered, and have more severe disease and are less likely to get good follow-up care.[38] A commitment to hiring and funding professional interpreter services, including telephone- or virtual/video-based services for difficult-to-find language interpreters, is a best practice, demonstrating an institution's dedication to principles of PFCC. The common practice of using family members or accompanying friends as interpreters, particularly in the setting of unfamiliar medical terms or sensitive information, runs the risk of allowing faulty communication and may compromise patient privacy and safety.[17] Title VI of the Civil Rights Act of 1968 (42 USC §2000) requires that all health care organizations receiving federal financial assistance ensure timely and effective interpreter services for patients.[39] Although the acute nature of emergency care will sometimes create circumstances in which translators are not immediately available, advance planning can minimize these occasions. Racial and ethnic disparities in the delivery of PFCC also may exist aside from language differences and have been demonstrated for healthy children[40] as well as children and youth with special health care needs.[41] In 1 study, Latino families in primary care settings experienced fewer elements of family-centered care, regardless of the language used for the visit.[42] Disparities in PFCC for Latino and African American families of children and youth with special health care needs were found for time spent with the provider as well as sensitivity to the family's values and customs.[41] The disparities were greater when the family's primary language was not English.[41] Elements of quality PFCC include listening carefully, explaining things in an understandable way, showing respect, and spending enough time with the patient.[42] These characteristics are universally appreciated by all families.

Assessing Patient and Family Needs

The routine measurement of patient pain, anxiety, and comfort as part of initial and continuing patient assessment is central to PFCC, as is the commitment to respond to identified needs for comfort with interventions such as pharmacologic and nonpharmacologic treatment, child life services,[10] and psychosocial and spiritual support. This comfort assessment includes the skills necessary for the complexity of evaluating and treating children with chronic conditions that have associated pain, such as sickle cell disease.[43] Family satisfaction is often assessed after an ED encounter, and surveys of families reveal that they prefer shared decision-making[44] and are more satisfied with a PFCC approach.[44,45] The challenge for providers lies in the provision of evidence-based care while involving the patient and family in the process of shared decision-making, including their values and preferences in the overall plan.[46] Responding to family needs and issues that occur during an ED visit is another aspect of PFCC, and moreover, institution-wide commitment to these practices is urged by the IOM report on quality of care[26] and sought by the Joint Commission.[47]

Coordination With the Medical Home

In the emergency setting, it is important to include the patient's usual health care professionals as members of the ED care team, which also includes the family and ED providers. Not only will health care professionals from the patient's medical home be able to provide valuable information at the time of the initial evaluation but their input may also be helpful in shaping an appropriate disposition and follow-up care plan. The patient and family also likely will feel more comfortable with ED care when they know that their medical home health care professionals are involved and that the ED has access to essential parts of the child's medical history. The medical home may also have provided the family with a care plan for the patient's condition, outlining what to do when the patient is sick, including common problems and comfort measures.[48] ED providers can use these care plans during the ED visit and when communicating with the medical home. Furthermore, discussion with the medical home provider can help identify community resources or needs of the family caregivers themselves and respond to new issues (medical or psychosocial) that may arise as a result of the current ED visit. This ED–medical home communication can be supported further through electronic health records and automated health information exchange.[49]

The partnership between the ED and a patient's medical home is of utmost importance when treating children and youth with special health care needs, who often have complex needs, require coordination of care between multiple subspecialists, and may have technological needs to allow proper care once they return home.[50] Children with chronic conditions are significantly more likely to have repeat visits to the ED and to be admitted to an inpatient hospital unit or PICU.[51] Although there have been no systematic studies in children and youth with special health care needs and PFCC in the ED, there is evidence to support the association of high-quality PFCC in the primary care setting (medical home) and reduced number of nonurgent ED visits[52] as well as hospitalizations.[53] The literature also suggests that failure of communication between the child's medical home and the ED provider at the outset of the child's ED visit might lead to potentially unnecessary testing and/or hospital admission.[45] An emergency information form is a helpful means of conveying important health information quickly, and ED providers can ask the family if they have a completed form for their child with

special health care needs or encourage them to complete one in partnership with their medical home team for any future emergency care needs.[54] At the end of the ED visit, ED providers may be aware of resources within the institution or community for children with complex chronic conditions, such as pediatric palliative care teams, that provide support for challenges such as complex decision-making and chronic symptom management. Communication with the medical home allows for coordination of care after discharge.

Discharge Planning and Instructions

Standard discharge instructions can be a vehicle for PFCC when they can be customized to reflect solicited family preferences and include appropriate input from and follow-up with the patient's medical home.[17] Tools are available online to enhance communication between patients and providers, encouraging patient health literacy with the Ask Me 3 method and provider communication with the Teach Back practice.[55,56] The recognition that health care disparities exist,[40] particularly for racial or ethnic minority groups, allows for ED planning through case management, coordination with the medical home, and a more personalized discharge process to avoid gaps in medical care and to minimize miscommunication.

Discharge planning for children and youth with special health care needs may be more complex than for typical children, especially if the ED visit resulted in a change in chronic medications or alteration of other ongoing care in the home. Discharge planning for these children may necessitate communication with home nursing agencies, medical device companies, and/or community care coordinators. Follow-up with the primary care medical home needs to be tailored to the complexity and severity of the treated condition and the needs of the family. Enhanced use of electronic medical record–provided patient portals between the family and the primary care medical home may be explored as potential facilitators of improved communication and more condition-appropriate and compliant follow-up.

The ED Physical Plant

A physical plant that embodies PFCC will accommodate family members,[2] including well siblings, and provide restrooms, diaper-changing space, safe and dedicated pediatric waiting areas, and simple refreshments. ED planning can provide larger rooms for procedures and resuscitations as well as enough chairs for providers and family to incorporate family presence. It should also provide children protection from the sights, sounds, and smells of emergency care of other ED patients.[57] ED design can also provide for patient safety by reducing the transmission of infection[57] and avoiding exposure to potentially violent patients. Adequate privacy on-site can be provided with a family room for sensitive interviews and for families who are experiencing grief or loss. Availability of age-appropriate toys, books, and/or electronic media can keep both patients and family occupied during the ED visit and may decrease patient anxiety.[10] In pediatric EDs, a PFCC design of in-process rooms with a playroom-like environment can allow for better neurologic and extremity evaluation by promoting a normal repertoire of behaviors in a more comfortable setting. Media sources may also present an opportunity for patient safety education including injury and disease prevention education. ED signage and education materials that are culturally and linguistically appropriate also promote a PFCC environment.[39]

Patient and Family Input in Policies and Procedures

When new policies, practices, or physical plant changes are considered, they are more likely to reflect a PFCC philosophy if family representatives are included in the planning stages.[2] For example, patients or family representatives have provided their input on drafts of printed materials and participated in the design of new ED facilities.[1] They may be members of a family or teen advisory board or participate as part of an interdisciplinary team to develop and implement a policy to support families and staff when family members choose to be present during resuscitation.[1] Family input may be invaluable when addressing recognized problems, including disparities in the provision of care associated with the patient's or family's membership in certain ethnic or racial minority groups and in the coordination of care for children and youth with special health care needs. Families of different backgrounds can instill a better understanding of cultural differences to an institution and its staff as well as an awareness of how differences in care can result from judgments or assumptions about a patient's background or ability. Parents of children and youth with special health care needs can bring particularly helpful input to advisory boards, because their children have typically experienced more ED visits and more hospital admissions than average.[58] Additionally, the experience of these families can provide excellent education and feedback to trainees/staff teaching them a more patient- and family-centered approach. Many EDs use comment cards or postvisit satisfaction surveys to solicit feedback from families regarding the ED visit.

Modeling PFCC in the ED

For EDs in an academic center, providing supervision and teaching to trainees at the bedside, with the active participation of the patient and family, is an opportunity to model PFCC. The use of photographs identifying the care team and their

roles may improve recognition, acceptance of trainees, and satisfaction with care.[59] Modeling a PFCC approach can also be accomplished through family-centered rounds[2,60] at change of shift or by having all team members meet the patient and family together for the initial patient assessment. (Pasmann, Nelson; unpublished abstract, April 2013) In the inpatient setting, the care team approach and family-centered rounds were associated with improved family satisfaction, and families felt more involved in developing the care plan.[60] This opportunity for ED providers and staff to model PFCC extends not only to trainees within the ED but also to consulting services and their trainees from outside the ED. Role modeling has been described as a useful educational strategy for influencing professional behavior.[61] Simulation scenarios that include family input provide an opportunity for trainee practice in a less threatening setting.[18] Curricula that include precepts of PFCC[62,63] or use families and patients as teachers[64] reflect another enhancement. Family participation in the identification of the dimensions of PFCC[65] and communication issues[18,66] provides a framework for teaching these skills to trainees. Emergency care professionals who engage in research examining the relationship of specific PFCC practices and short- and long-term outcomes for both patients and health care professionals can ensure that progress made toward the goals of PFCC will continue. Moreover, there is a need for this research to include community and critical access hospitals as well as academic and tertiary medical centers.

IMPLEMENTING AN EVIDENCE-BASED PFCC PROGRAM

In many institutions, changing long-standing health care professional–centered practice to be congruent with PFCC requires an interdisciplinary paradigm shift. Ample tools (Appendix 3) and a growing body of evidence are available to assist in the process.[1,67–69] An Emergency Nurses Association assessment tool[70] provides guidelines for implementing change and focuses on 8 domains: (1) PFCC approach in the stated mission of the department, (2) evidence of family participation in care, (3) resources for family support, (4) practice regarding information sharing and decision-making, (5) coordination of services and continuity of care, (6) personnel practices, (7) evaluation practices, and (8) community partnerships. The assessment tool has been piloted in 9 EDs.[71] The implementation of a family presence program in a pediatric ED has been described using an evidence-based approach and evaluation process.[72] This program demonstrated the feasibility of family presence without interrupting patient care.[72]

A first step in implementation is the assessment of current practice by using the self-assessment tool and soliciting information through satisfaction surveys, follow-up telephone calls, focus groups, and/or a family advisory group. Gathering evidence from supportive organizations and sharing PFCC guidelines from established programs[35] (Appendix 2) create a basis for an institution's own program development. Incorporating PFCC principles into the departmental mission statement can encourage influential individuals to strive for consensus and to provide leadership for change. Evaluating existing policies and procedures in light of a PFCC model can further promote change, and involvement of family on hospital committees lends insight into those policies that do not reflect a PFCC ideal. Hospital community forums through which staff can voice their concerns and share personal experiences as patients can be effective in recruiting staff commitment to PFCC.

Increasing awareness of PFCC and understanding of patient/family perspectives and needs through staff education is important in the transition to PFCC. Engaging family members to assist with this task can be a powerful strategy. Staff involvement in measuring outcomes (such as satisfaction with care) and FMP can help overcome reluctance to support those activities. The reinforcement of PFCC values by incorporating them into job descriptions, competency assessments, and performance evaluations for all emergency care providers may help to achieve a change in culture, which can lead to more positive feelings among ED staff.[2] Trainees will learn the importance of PFCC early in their career when established providers model this approach in their practice. Finally, working to provide a physical environment that supports and reflects PFCC provides visible confirmation of PFCC. Some toolkits and additional resources for change are provided in Appendix 3.

BENEFITS TO HEALTH CARE PROFESSIONALS

PFCC has benefited health care professionals through greater job satisfaction[2] and less burnout on the job.[73] Collaboration with the patient and family can lead to a more comprehensive medical record, a better sense of the patient as a person, and a better understanding of how the patient will function at home. When parents are present for the care of their child, they can help the staff provide support to the patient, understand the patient's attempts to communicate, position the patient, reduce a need for sedatives or restraints, and provide essential medical information. Parental presence may be especially important for children with special health care needs.[74,75]

Implementing a PFCC approach in adult patient care settings has led to

improvements in patient safety, fewer medical errors, and lower cost of care.[76] Inpatient family-centered pediatric multidisciplinary rounds have been shown to foster team collaboration and empower staff,[77] and similar team approaches have been adopted in pediatric emergency care.

FUTURE DIRECTIONS

The IOM report on emergency care for children[28] highlights the importance of PFCC and recommends that emergency medical services agencies and hospitals integrate principles of PFCC into emergency care practice. This same report calls for increased evaluation and research regarding PFCC in emergency practice.[28] More recently, it has been recommended to include patient-centered care not only during the ED visit but as part of an integrated approach to care that includes prehospital care and transitions, multidisciplinary communication, specialty consultations, and coordination with the medical home.[24,78] Implementation of an integrated approach will require collaboration at a local and regional level, as well as the national level, to create standards for communication and coordination. The increasing role of technology creates new ways to communicate and to provide education that extend beyond the physical walls of the ED. Strategies for family involvement at all levels of medical care need to be continually explored in this evolving process. Priorities for needed research include the following:

- Regarding PFCC:
  - Long- and short-term outcomes associated with implementing PFCC in the ED, including patient satisfaction, safety and quality of care, cost of patient care, staff satisfaction and retention, reduced disparities, and improved outcomes
  - A gap analysis on the implementation of PFCC with involvement of families and teenagers on advisory boards and committees and their impact on ED policies and procedures
  - Analysis of the awareness and education of families, trainees, and staff on PFCC
  - Development of a compendium of best practices for PFCC
  - Evaluation of costs/savings, including changes to ED design, staffing, ED utilization, return visits, and readmissions
  - Assessment of outcomes related to improved communication with the medical home
- Regarding FMP:
  - Long-term effects of FMP on patient outcomes, families, and staff
  - Development of ED policies and procedures regarding FMP and best methods for educating health care professionals, including staff training in the role of family support facilitator
  - Potential legal ramifications of implementing or not implementing policy on FMP

CONCLUSIONS

Commitment to PFCC ensures that the experiences and perspectives of patients and families guide the practice of coordinated and culturally sensitive care that promotes patient dignity, comfort, and autonomy. Role modeling PFCC is central to changing ED culture. In the ED setting, particular issues deserve specific attention. The patient and family are key decision-makers regarding the patient's medical care.[16] The option of FMP should be encouraged for all aspects of ED care,[3] with information and support provided to the family during interventions and as part of discharge and follow-up care planning regardless of the family's decision to be present or not. Because communication is a cornerstone of PFCC, timely and culturally effective professional interpreter services should be available to the ED,[18] and efforts should be made to address health literacy during the visit and at discharge.[55,56] PFCC respects the interdependence of child and parent, patient and family wishes for privacy, and the evolving independence of the pediatric patient. PFCC encourages collaboration along the continuum of care (prehospital, ED, hospital, and rehabilitation) and commitment to the importance of and communication with the patient's medical home.[24] With the collaboration of patients and families, institutional policies can be developed for the provision of PFCC through environmental design, practice, and staffing. The education of ED health care professionals should include the teaching of principles of PFCC with active participation by patients and families in formal medical education. Continued research and evaluation of the implications of PFCC in pediatric emergency practice will continue to direct the evolution of this approach to medical care and to guide our future directions.

LEAD AUTHORS

Nanette C. Dudley, MD
Alice Ackerman, MD, MBA
Kathleen M. Brown, MD
Sally K. Snow, BSN, RN

AAP COMMITTEE ON PEDIATRIC EMERGENCY MEDICINE, 2013–2014

Joan E. Shook, MD, MBA, FAAP Chairperson
Alice D. Ackerman, MD, MBA, FAAP
Thomas H. Chun, MD, MPH, FAAP
Gregory P. Conners, MD, MPH, MBA, FAAP
Nanette C. Dudley, MD, FAAP
Susan M. Fuchs, MD, FAAP
Marc H. Gorelick, MD, MSCE, FAAP
Natalie E. Lane, MD, FAAP
Brian R. Moore, MD, FAAP
Joseph L. Wright, MD, MPH, FAAP

LIAISONS

Lee Benjamin, MD – *American College of Emergency Physicians*
Kim Bullock, MD – *American Academy of Family Physicians*
Elizabeth L. Robbins, MD, FAAP – *AAP Section on Hospital Medicine*
Beth Edgerton, MD, MPH – *Maternal and Child Health Bureau*

Toni Gross, MD, MPH, FAAP – *National Association of EMS Physicians*
Tamar Margarik Haro – *AAP Department of Federal Affairs*
Angela Mickalide, PhD, MCHES – *EMSC National Resource Center*
Lou Romig, MD, FAAP – *National Association of Emergency Medical Technicians*
Sally K. Snow, RN, BSN, RN – *Emergency Nurses Association*
David W. Tuggle, MD, FAAP – *American College of Surgeons*
Cynthia Wright, MSN, RNC – *National Association of State EMS Officials*

STAFF

Sue Tellez

AMERICAN COLLEGE OF EMERGENCY PHYSICIANS ON PEDIATRIC EMERGENCY MEDICINE COMMITTEE, 2013–2014

Lee S. Benjamin, MD, FACEP, Chairperson
Isabel A. Barata, MD, FACEP, FAAP
Kiyetta Alade, MD
Joseph Arms, MD
Jahn T. Avarello, MD, FACEP
Steven Baldwin, MD
Kathleen Brown, MD, FACEP
Richard M. Cantor, MD, FACEP
Ariel Cohen, MD
Ann Marie Dietrich, MD, FACEP
Paul J. Eakin, MD
Marianne Gausche-Hill, MD, FACEP, FAAP
Michael Gerardi, MD, FACEP, FAAP
Charles J. Graham, MD, FACEP
Doug K. Holtzman, MD, FACEP
Jeffrey Hom, MD, FACEP
Paul Ishimine, MD, FACEP
Hasmig Jinivizian, MD
Madeline Joseph, MD, FACEP
Sanjay Mehta, MD, Med, FACEP
Aderonke Ojo, MD, MBBS
Audrey Z. Paul, MD, PhD
Denis R. Pauze, MD, FACEP
Nadia M. Pearson, DO
Brett Rosen, MD
W. Scott Russell, MD, FACEP
Mohsen Saidinejad, MD
Harold A. Sloas, DO
Gerald R. Schwartz, MD, FACEP
Orel Swenson, MD
Jonathan H. Valente, MD, FACEP
Muhammad Waseem, MD, MS
Paula J. Whiteman, MD, FACEP
Dale Woolridge, MD, PhD, FACEP

FORMER COMMITTEE MEMBERS

Carrie DeMoor, MD
James M. Dy, MD
Sean Fox, MD
Robert J. Hoffman, MD, FACEP
Mark Hostetler, MD, FACEP
David Markenson, MD, MBA, FACEP
Annalise Sorrentino, MD, FACEP
Michael Witt, MD, MPH, FACEP

STAFF

Dan Sullivan
Stephanie Wauson

EMERGENCY NURSES ASSOCIATION PEDIATRIC COMMITTEE, 2012–2013

Sally K. Snow, BSN, RN, CPEN, FAEN, 2011 Chair
Michael Vicioso, MSN, RN, CPEN, CCRN, 2012 Chair
Shari A. Herrin, MSN, MBA, RN, CEN, 2013 Chair
Jason T. Nagle, ADN, RN, CEN, CPEN, NREMT-P
Sue M. Cadwell, MSN, BSN, RN, NE-BC
Robin L. Goodman, MSN, RN, CPEN
Mindi L. Johnson, MSN, RN
Warren D. Frankenberger, MSN, RN, CCNS
Anne M. Renaker, DNP, RN, CNS, CPEN
Flora S. Tomoyasu, MSN, BSN, RN, CNS, PHRN

BOARD LIAISONS

2012 – Deena Brecher, MSN, RN, APRN, CEN, CPEN, ACNS-BC
2013 – Sally K. Snow, BSN, RN, CPEN, FAEN

STAFF LIAISONS

Kathy Szumanski, MSN, RN, NE-BC
Dale Wallerich, MBA, BSN, RN, CEN
Marlene Bokholdt, MS, RN, CPEN
Paula Karnick, PhD, CPNP, ANP-BC
Leslie Gates
Christine Siwik

APPENDIX 1: CHALLENGING SITUATIONS COMMON TO THE CARE OF CHILDREN IN THE ED

Identifying "Family"

The Institute for Patient- and Family-Centered Care defines family as: "two or more persons who are related in any way— biologically, legally, or emotionally. Patients and families define their families."[1] In the acute care setting of the ED, it is necessary to identify both a legal guardian and the primary family members who can offer support to a child and the child's parent or guardian, recognizing that those entities may not be one and the same, particularly in situations of child protective services custody, parental custody disputes, domestic violence, sexual assault, families with nontraditional composition, or families of different language or culture. In some situations, the person consenting to medical care for the patient will be the patient himself/herself. State exceptions allow a minor to consent to medical care if he/she is emancipated, a mature minor, or has a select medical condition.[12] Most states grant emancipated status to those who are married, economically self-supporting, or on active duty in the military.[12] Some states also recognize a mature minor status allowing certain adolescents with the ability to understand and participate in medical decision-making to consent for medical care.[12] Mature minor status is determined individually by a judge.[79] Although some courts have supported a health care provider's decision to acknowledge mature minor status, it cannot be assumed by the ED provider.[79] State-specific statutes also may allow adolescents presenting with selected conditions (such as sexually transmitted infections, physical or sexual assault, or potential pregnancy) to consent for their own treatment.[12] It is important for the ED provider to have an understanding of his/her own state's regulations regarding a minor's ability to consent for medical care. Honoring the patient's implicit or explicit identification of primary family members who can provide support is essential, even recognizing that they may be different from legal guardians. When compounded by lack of a preexisting relationship, these factors make the practice of PFCC in the ED complex. Additionally, space and privacy issues may limit how many family members can physically be present at a child's bedside.

Once family has been identified, providers need to be aware of Health Insurance Portability and Accountability Act (HIPAA) rules protecting release of protected health information (PHI). When the patient is a child, in general, the parent or legal guardian has access to the PHI, and providers cannot release information to others without authorization.[80] However, when a minor is able to consent to his/her own medical care, either by state law or court determination, then the minor controls access to the PHI under HIPAA.[80] There are other

exceptions to the disclosure of PHI, and providers must be aware of the HIPAA rules and state-specific laws regarding confidentiality and when they apply.[80,81] ED health care professionals need to develop policies and implement procedures for identifying family members and legal guardians that reflect a PFCC philosophy, keeping in mind issues of privacy and confidentiality. To do this, EDs may need access to resources such as social services, interpreters, chaplaincy, security personnel, and legal counsel.

Arrival of a Child Who Is Unattended by Family

The unaccompanied child may arrive by ambulance or in the company of a school official, child care provider, home nurse, or bystander. Providing a surrogate, such as a volunteer, child advocate, or a child life specialist, to the child arriving without family, engaging ED and outside resources to locate family members, and enabling timely reunification of family and child are important for the safety and comfort of the pediatric patient of any age. As was demonstrated during Hurricane Katrina, the issue of unaccompanied children and need for timely reunification is an important consideration in disaster planning. A PFCC approach does not alter the ED health care professional's obligation to follow guidelines for a medical screening examination required by the Emergency Medical Treatment and Labor Act of 1986 (EMTALA [42 USC §1395dd]), and the implications and application of this regulation have been summarized previously.[12,79]

Care of the Adolescent Patient

Providing PFCC to the adolescent patient requires a careful balance between respect for the patient's privacy and evolving independence and communication with the parent or guardian. The age at which an adolescent is considered an adult for medical decisions varies by state. Health care providers must be aware of their state's regulations, remembering that it is a privacy violation to disclose any information protected by state law to family regardless of whether the patient is legally an adult. Adolescents prefer the opportunity to speak privately with the health care professional without other family members or partners being present.[82] Furthermore, AAP policy recommends confidentiality in adolescent care,[83] and an AAP position statement declares that access to confidential health care is essential for adolescents.[84] Requesting a private interview with the adolescent patient should be framed as the need to protect the young person's dignity and privacy while ensuring that information that may be critical to his or her health will not be withheld because of concern that it may worry, anger, or alienate the parent. The health care professional should be able to assure the patient that any information so obtained will be confidential to the extent that state law permits[85,86] unless doing so poses a direct threat to the patient's or others' safety. Health care professionals must recognize that the services that are protected and accessible for confidential access vary from state to state.

Many states allow for treatment without parental consent if the condition prompting care in the ED likely falls into the categories of sexually transmitted infections, mental illness, substance abuse, or reproductive concerns.[12,87] ED health care professionals should be aware that confidentiality concerns can occur when there is billing notification of an ED visit and therefore should make provisions to safeguard patient confidentiality, including identifying with the adolescent patient the financially responsible party to be billed. ED health care professionals should be familiar with the limitations to and obligations of providing care to the unaccompanied older pediatric patient who is seeking care without the knowledge of his or her family[12,13,88] and should try to make those limits and obligations clear to the patient. It is prudent to identify a means of communicating follow-up information that will be secure and confidential if that is desired by the patient. One potential means of resolving conflicting obligations to the adolescent patient and guardian is for the health care professional to facilitate communication between the adolescent patient and parent.[89] This role may include exploring with the patient any safety concerns or fears he or she may have as well as potential consequences of nondisclosure to the parent, offering to disclose information to the parent without the patient present, or mediating a conversation between the patient and parent.

Family-Member Presence

In the procedure-intense acute care setting of the ED, PFCC is often most tested in the area of FMP. In the 1980s and 1990s, studies showed that parents were an asset in the setting of venipuncture and other simple procedures[90–92] if they had been prepared for what would happen and if they were given a role other than passive witness. This finding has been extended successfully to other more-invasive procedures, and parents have shown to be successful partners in providing sucrose to soothe an infant undergoing lumbar puncture or in calming the child who is receiving procedural sedation for laceration repair or fracture reduction with a familiar voice, story, poem, or song.[92]

The role of FMP for resuscitations, particularly trauma resuscitations, is more controversial.[93] Although some parents would not choose to be present during resuscitation, nearly all parents report that they would want the option to choose to be

present or not.[29,94,95] However, surveys of pediatricians, ED staff, and trauma care providers have noted a reluctance to allow family members to be present during resuscitation.[30,95–99] Providers often cite fears that it will be traumatic for family members, that families will be disruptive, or that it may result in increased litigation. Trainees seem to be particularly reluctant to endorse FMP.[100]

Contrary to ED staff fears, EDs reporting their experience with FMP for resuscitation have noted rare instances of disruption by family members and increased acceptance by staff members once they had experience with FMP.[30,95,99,101,102] Staff members at these institutions noted that the family members were often helpful to the staff, providing support to the patient, essential medical information, enhanced communication, and assistance with positioning of the patient.[29–32,100,102] In addition, ED staff members who experienced FMP report that present family members' appreciation that "everything possible was done" was a benefit to staff members.[102]

Family members who were present for resuscitation of their child report that they felt they served major roles: provided support to decrease their child's anxiety, served as an advocate for their child, and provided timely information for staff. (O'Connell et al; unpublished abstract, May 2012) One study reported a positive effect of FMP on the grieving process when a resuscitation attempt resulted in death.[103] Others reported no difference in anxiety and family-member well-being in family members who were present versus those who were not during a trauma resuscitation.[104] Structured programs of FMP during pediatric trauma team activations showed no instances of family interference with medical care or procedures.[72,105] Present family members also report that they are aware of the need to physically and emotionally regulate themselves during the resuscitation of their child. (O'Connell et al, unpublished abstract, May 2012) Three studies evaluated the time taken for completion of key components of the trauma evaluation and determined that it was not different for trauma team activations with the family present versus those without family presence, and there was no effect on the efficiency of the trauma resuscitation (O'Connell et al, Unpublished Data, May 2012).[105,106]

Family presence may also improve perceptions of medical decision-making, patient care, and communication among health care providers as well as with family members (O'Connell et al, Unpublished Data, May 2012).[105] Although no studies have directly addressed the effect of FMP on malpractice litigation, there is reason to believe that the presence of family may actually decrease litigation by improving patient and family satisfaction.[107]

Although there have been few rigorous studies to date, and patient numbers in most of those studies have been small, there is more clinical evidence to support the benefits of FMP to patient, family, and health care professionals than there is for the competing concerns that FMP might be disruptive during procedures or traumatic to bereaved family members.[72,108] The Emergency Nurses Association, the American Association of Critical-Care Nurses, the National Association of Emergency Medical Technicians, the American College of Emergency Physicians, and the AAP have all issued policy statements in support of offering FMP in emergency care.[3,21,109,110] Since 2000, the American Heart Association has recommended offering the option of FMP during resuscitation attempts, and the 2010 guidelines recommend using FMP whenever possible.[111] Guidelines for FMP have also been integrated into *Advanced Pediatric Life Support: The Pediatric Emergency Medicine Resource*[112] as well as the Emergency Nurses Association's Trauma Nursing Core Course and Emergency Nursing Pediatric Course.[113] A national consensus panel that convened in 2005 conducted an in-depth literature review of studies examining FMP and recommended that FMP be encouraged for all aspects of ED care.[114] The consensus report described criteria for support staff and for possible exclusion from FMP (such as threat of violence to self, staff, or patient). Benefits to patient, family, and health care professionals were detailed and included the potential to optimize medical information gathering, improve the assessment of how the patient might function at home, and enhance the understanding of the patient as a person rather than a condition. This report also noted that although many institutions' practices support FMP, fewer than 5% of surveyed institutions reported having a written protocol. However, some institutions have published their experiences with developing and implementing a structured FMP protocol. These examples can be used as a roadmap for institutions that would like to develop and implement their own policies and guidelines. Appendix 2 presents an outline for a protocol for FMP in the ED.

When the Child and Parents Disagree Regarding Treatment

Disagreements between the patient and the family present a difficult challenge to providing PFCC. When the child and parents disagree, the ED provider must weigh the child's ability to understand information about the proposed treatment and its risks and benefits with the parent or guardian's legal decision-making responsibility. A toddler cannot be deemed capable of either consent or assent and will not commonly cooperate with a laceration repair. On the other hand, a 14-year-old brought

to the ED by a parent with the request for drug screening may well be capable of understanding the decision to refuse such testing.[16] The AAP opposes involuntary drug testing on adolescents who possess decision-making capacity unless there are "strong medical indications or legal requirements to do so."[22] ED providers are encouraged to respect an adolescent's opinion, particularly when the "proposed intervention is not essential to his or her welfare, and can be deferred without substantial risk."[16] In situations in which the proposed intervention is not necessary emergently and the patient has a reasonable understanding of the medical issues at hand, his or her disagreement should be taken seriously.[16,23] When this happens, it is reasonable to attempt to explore the issues with the patient and legal guardian in hopes of negotiating a solution that is agreeable to all parties.[16] Decision-making that is family-centered provides an opportunity for a collaborative approach to communication between ED providers, patients, and their families.[2] There is, however, a delicate balance between the ethical and legal issues regarding consent. A 10-year-old who has experienced repeated relapses of cancer may be able to understand the consequences of a refusal of further invasive treatments. That child's refusal merits serious consideration by ED staff, although he or she most likely would not be granted mature minor status in court. Consultation not only with parents and the child's subspecialty care team but also potentially with the primary care physician, palliative care team, chaplaincy, or hospital ethics team may be helpful. A patient's ability to participate in decision-making varies depending on developmental stage and the ability to understand the issues involved, with the child providing assent whenever reasonable.[116] The legal aspects of when and under what circumstances minors can refuse and consent to medical treatment are complex[115,116] and vary by state. ED health care professionals may not be able to resolve them in any particular case without the assistance of resources outside the ED.

When the Family Refuses a Proposed Treatment

It is not uncommon in the acute care setting for the parent and health care professional to have different opinions about the value of a particular treatment or outcome. When that happens, the child's well-being should remain the primary focus, recognizing that parents and ED health care professionals may not always agree on what constitutes the child's best interest. Remembering the parents' and child's role as team members, ED health care professionals should explore the parents' reasoning and concerns in a manner that is sensitive to that reality, particularly regarding concerns about the risk of a procedure, the pain involved, the cost, the possible infringement of religious rules, or previous negative experiences in similar settings. Because there is rarely a preexisting relationship between the family and the ED health care professional, it can be helpful to enlist the health care professional of the patient's medical home in these discussions if time permits.

Parents are generally considered free to make choices regarding medical care for their child. If those choices place their child at risk of serious complications, ED providers are obligated to follow institutional policies and state law for reporting issues of child abuse or neglect.[12] Alternatives in care can be discussed with the family, keeping in mind patient safety and the interest of the child.[12] For instance, a parent of a febrile neonate may not allow a lumbar puncture or a bladder tap. Alternatives to the standard practice of a full sepsis workup and empiric antibiotic agents may exist in some circumstances. It is possible to consider a plan to admit and observe the well-appearing febrile infant without empiric treatment or to presumptively treat an infant with risk factors or ill appearance with the hope for an opportunity to perform a diagnostic lumbar puncture later in the course of care if the family reconsiders after consulting with others.

One of the roles of the ED health care professional is to provide parents with the risk and benefit information that will allow the family to make an informed decision, ensuring that the family understands the diagnostic advantage of a procedure (such as obtaining a sterilized cerebrospinal fluid sample) or the potential risks associated (such as with a delay in initiating antibiotics). On both sides of this negotiation, there may be resources that will support a respectful and full discussion. ED health care professionals may want to avail themselves of the resource of the medical home or a subspecialty opinion; they will also want to ensure that the family members have access to the supports on which they rely to assist them with difficult decisions. The ED health care professional should "listen carefully and respectfully to the parents' concerns, recognizing that some parents may not use the same decision criteria as the provider and may weigh medical evidence very differently."[14] Very few medical interventions are completely without any risk, although the ED health care professional can help the family to weigh any risks in the context of the untreated conditions for which they sought care. Provider liability in these circumstances is best addressed by careful documentation of discussions with the family and of the steps taken to negotiate a medically safe course. In a situation in which the ED health care professional feels that a parent's decision constitutes medical neglect, the appropriate child protective services agency should be contacted.[79]

If a family decides to leave the ED rather than pursue the treatment choices outlined by the ED health care professional, the ED health care professional must consider the potential consequences to the child. Involvement of the family, with clear communication and a willingness to negotiate an alternative that is acceptable to all,[2] while at the same time documenting the discussions and reasoning used to arrive at the negotiated agreement, is a PFCC practice. States vary regarding who has the temporary authority to hold a pediatric patient in the ED against the parents' wishes. ED providers should be aware of their state-specific laws and institutional practices regarding families who leave against medical advice. If a family leaves before or without such a discussion (a category often labeled "left without being seen" or "left without completing treatment"), it is a good practice to attempt to contact the family to inform them of the potential for adverse outcome to the child and a willingness to have the patient return to the ED or to assist with follow-up in the medical home.

All states have a process to respond to varying levels of urgency when there is refusal of care. The time frame of an ED visit often requires a timely decision, although in less time-sensitive situations, many courts have shown reluctance to require medical treatment over the objection of parents "except where immediate action is necessary or where the potential for harm is rather serious."[117] The urgency of some situations requires proactive ED planning and a well-defined process for resolving a refusal of care, including, if needed, emergency custody.

Visits Related to Abuse or Violence

In situations in which the patient presentation prompts consideration of possible inflicted injury, ED health care professionals need to keep all involved parties (patient, family members, and staff) safe. Precepts of PFCC in no way reduce the obligation to report suspected abuse or neglect.[118] However, it is important to remember that the intent of such reporting is to protect the child, a goal that most families will acknowledge, even those in whose care abuse or neglect is suspected to have occurred.[118] Understanding that a report of suspected abuse or neglect is filed on behalf of a child rather than against a suspected perpetrator ensures that the process is patient- and family-centered. ED health care professionals can facilitate family cooperation with other professionals during an investigation.[118] Family involvement in a child's care continues in the ED even if maltreatment is suspected,[44] with respectful and compassionate support offered similar to that given to all families.[119] ED policies for suspected cases of child abuse or neglect can provide for family supervision[44] while ED providers work with child protective services to ensure an appropriate safety plan during the child abuse investigation.

Unanticipated Critical Event or Death

Caring for the child with unanticipated critical injury, illness, or death in the ED is one of the most difficult tasks for any ED health care professional, one that requires careful planning, training, and previous identification of resources within and outside the ED. Several important resources exist to guide planning and preparation for such an event,[5,6,120–122] and family input may be beneficial. Having protocols and procedures in place is critical for anticipating the needs of family members, who often arrive separately from their child, with significant emotional distress. Under such circumstances, immediate response from designated, trained staff members who are not required for the medical management of the child but whose role is to support the family is vital. Protocols should address how the ED team is to relate to media, police, private physicians,[122] the medical examiner, child protective services, and organ- and tissue-procurement teams.[6] Protocols should address a plan for safe and compassionate FMP and identify additional resources available to the ED, such as social services, chaplaincy, acute psychiatric services, and child life services. Space should be designated for family privacy, with adequate seating, local and long-distance telephone capability, and an accessible restroom, tissues, water, and writing materials. Written materials can reinforce and provide additional advice on how to support grieving children both immediately and over time.[123]

If family members are not able to be present with the child in the ED, conveying the information of the child's death can be a very difficult task for an ED health care professional. Recommended bereavement guidelines[5,120,124] include informing the family in a private location; using the child's name; informing the family of all medical procedures performed; noting any family efforts to help or comfort the child (such as seeking medical care, giving a good medical history, providing comfort by touching the child); offering information about autopsy and organ/tissue donation; contacting important family supports, such as members of the family's faith community and medical home; offering private or accompanied time with the child's body; allowing for time to make meaningful mementos consonant with religious or cultural precepts; and providing a follow-up contact. State requirements for medical examiner jurisdiction vary, which can affect an ED's ability to allow family private or accompanied time with the body. If a medical examiner's evaluation is not required, many EDs have found a way to keep an attendant with the child's body

until a designated funeral home can come, in that way reassuring and comforting surviving family members. The death of a child is the beginning of a lifelong process of bereavement for parents and siblings, and ED health care professionals can have a profound effect.[5,6,121]

APPENDIX 2: SAMPLE PROTOCOL FOR FAMILY PRESENCE IN THE ED (ADAPTED FROM MASSACHUSETTS GENERAL HOSPITAL ED POLICY)

Practice Statement

FMP should be considered as an option in all phases of ED care, including invasive procedures and resuscitation efforts, unless the patient's own wishes, demands of evolving patient independence, need for private interview or examination, or safety of the patient, family, or staff dictate otherwise. The health care team will be responsible for assessing patient and family needs and supporting the family and patient during their time in the ED, whether at the bedside or not.

Definitions

- Family member: a relative or person (significant other) with an established relationship with the patient
- Invasive procedure: a procedure that involves penetration or manipulation of the body
- Resuscitation: life-sustaining or life-saving measures
- Family support facilitator: a staff member (nurse, clinical nurse specialist, physician, chaplain, social worker, child life specialist, paramedic, or other suitable staff member) assigned to support the psychosocial needs of the family; this person should not be needed for the immediate resuscitation or direct assistance with the invasive procedure

Procedure (Utilizing Interpretation When Needed)

- Designate a family support facilitator.
- Assess/screen family members:
  - Determine the preference of the patient, if possible. Assess the family's perception and understanding of the clinical situation and scope of crisis, need to be with the patient, coping abilities, comfort level with medical environment, and ability to ask for help or leave the area. Consider cultural preferences and needs and how to address them with accessible and appropriate ED resources.
  - Exclusion criteria may include combativeness, agitation, extreme emotional instability, altered mental status, intoxication, or patient preference. Families who do not wish to participate should be supported in that decision and should be supported by the family support facilitator or other ED staff while they are separated from the patient. If the family is not offered the option of FMP, the reason should be documented (eg, risk of combative or threatening behavior, extreme emotional lability, behaviors consistent with intoxication or altered mental status, disagreement among family members).
  - Inform the patient and family of next steps and what they can expect (eg, facilitator will consult with the ED health care team and determine when the family will be escorted to the patient's bedside, etc).
- Consult with health care team: As early as possible, the family support facilitator will inform the health care team of the family's presence. Discuss with the team the family's wish to be with the patient, as well as any patient preferences. Both the team and the facilitator should be in agreement and determine the appropriate time for the family to be at the patient's bedside. Departmental situations or constraints should be considered.
- Prepare family member(s) and patient: The facilitator will present the clinical situation, explaining what the family member may expect to observe during the patient's treatment. The facilitator will explain to the family that patient care and safety is the top priority and alert them to any potential limitations on time or numbers of family members who may be present, where they may sit or stand to optimize patient contact without impeding care, and any situations in which they would be escorted out of the room and will reassure them that they may leave at any time. Family members and patient agree to the structure of their time at the bedside and understand any follow-up procedures and their primary contact on the health care team.
- Escort family member(s) to the bedside: The facilitator will remain with the family at all times during the visit and explain procedures and answer questions. The family will be allowed to see, touch, and speak with the patient when possible. If the time at the bedside must be limited, the facilitator will escort family to a private room and provide clinical updates on the patient's condition. A facilitator, primary nurse, or psychiatric clinical nurse specialist will follow up with the family regardless of time spent at the patient's bedside to ensure the family understands what happened and any follow-up care necessary.

Note that this policy should undergo institutional legal review and, when verified as part of hospital policy, be part of staff education and orientation.

APPENDIX 3: RESOURCES FOR PFCC IN EMERGENCY CARE

Emergency Medical Services for Children

- National Resource Center Web site: http://www.emscnrc.org
- EMSC Toolbox on Patient and Family-Centered Care: http://www.emscnrc.org/EMSC_Resources/Family_Centered_Care_Toolbox.aspx

Emergency Nurses Association

- *Emergency Nursing Clinical Practice Guideline: Family Presence During Invasive Procedures and Resuscitation*. Des Plaines, IL: Emergency Nurses Association; 2012. Available at: http://www.ena.org/practice-research/research/CPG/Documents/FamilyPresenceCPG.pdf
- *ENA Position Statement: Family Presence at the Bedside During Invasive Procedures and Resuscitations*. Des Plaines, IL: Emergency Nurses Association; 2010. Available at: http://www.ena.org/SiteCollectionDocuments/Position%20Statements/Archived/FamilyPresence.pdf

Institute for Patient- and Family-Centered Care WebSite Links

Free downloads: www.ipfcc.org/tools/downloads.html

Assessment tools: www.ipfcc.org/resources/other/index.html (cost)

Guidance publications: www.ipfcc.org/resources/pinwheels/index.html (cost)

Health Resources and Services Administration

Culture, Language and Health Literacy. Available at: www.hrsa.gov/culturalcompetence/index.html

National Quality Forum (NQF)

A Comprehensive Framework and Preferred Practices for Measuring and Reporting Cultural Competency: A Consensus Report. Washington, DC: National Quality Forum; 2009. Available at: www.qualityforum.org

Society of Pediatric Nurses

- Lewandowski LA, Tesler MD, eds. *Family-Centered Care: Putting It Into Action: The SPN/ANA Guide to Family-Centered Care*. Oak Creek, WI: Society of Pediatric Nurses; 2008
- Society of Pediatric Nurses. Position statement: safe staffing for pediatric patients. Available at: http://www.pedsnurses.org/p/cm/ld/fid=57&tid=28&sid=51

AAP, Section on Home Care Parent Advisory Group

Available at: www2.aap.org/sections/homecare/pag.cfm

REFERENCES

1. Institute for Patient- and Family-Centered Care Web site. Available at: www.ipfcc.org. Accessed January 2, 2014
2. Committee on Hospital Care and Institute for Patient- and Family-Centered Care. Patient- and family-centered care and the pediatrician's role. *Pediatrics*. 2012;129(2):394–404
3. American Academy of Pediatrics, Committee on Pediatric Emergency Medicine; American College of Emergency Physicians, Pediatric Emergency Medicine Committee. Patient-and family-centered care and the role of the emergency physician providing care to a child in the emergency department. *Pediatrics*. 2006;118(5):2242–2244. Reaffirmed February 2012
4. O'Malley PJ, Brown K, Krug SE; Committee on Pediatric Emergency Medicine. Patient- and family-centered care of children in the emergency department. *Pediatrics*. 2008;122(2). Available at: www.pediatrics.org/cgi/content/full/122/2/e511
5. American Academy of Pediatrics, Committee on Pediatric Emergency Medicine. Death of a child in the emergency department. *Pediatrics*. 2002;110(4):839–840. Reaffirmed January 2009
6. Knapp J, Mulligan-Smith D; American Academy of Pediatrics, Committee on Pediatric Emergency Medicine. Death of a child in the emergency department. *Pediatrics*. 2005;115(5):1432–1437
7. American Academy of Pediatrics, National Center of Medical Home Initiatives for Children With Special Needs. AAP keeps children's needs front and center as medical home model evolves. *AAP News*. 2007;28(12):10–12
8. Medical Home Initiatives for Children With Special Needs Project Advisory Committee, American Academy of Pediatrics. The medical home. *Pediatrics*. 2002;110(1 pt 1):184–186
9. Britton CV; American Academy of Pediatrics, Committee on Pediatric Workforce. Ensuring culturally effective pediatric care: implications for education and health policy. *Pediatrics*. 2004;114(6):1677–1685. Reaffirmed February 2008
10. American Academy of Pediatrics, Child Life Council, Committee on Hospital Care. Child life services. *Pediatrics*. 2006;118(4):1757–1763. Reaffirmed February 2012
11. Fraser JJ Jr, McAbee GN; American Academy of Pediatrics, Committee on Medical Liability and Risk Management. Dealing with the parent whose judgment is impaired by alcohol or drugs: legal and ethical considerations. *Pediatrics*. 2004;114(3):869–873. Reaffirmed September 2010
12. Committee on Pediatric Emergency Medicine; Committee on Bioethics. Consent for emergency medical services for children and adolescents. *Pediatrics*. 2011;128(2):427–433
13. McAbee GN; Committee on Medical Liability and Risk Management American Academy of Pediatrics. Consent by proxy for nonurgent pediatric care. *Pediatrics*. 2010;126(5):1022–1031
14. Diekema DS; American Academy of Pediatrics, Committee on Bioethics. Responding to parental refusals of immunization of children. *Pediatrics*. 2005;115(5):1428–1431. Reaffirmed November 2012
15. Kaufman M; American Academy of Pediatrics, Committee on Adolescence. Care of the adolescent sexual assault victim. *Pediatrics*. 2008;122(2):462–470
16. American Academy of Pediatrics, Committee on Bioethics. Informed consent, parental permission, and assent in pediatric practice. *Pediatrics*. 1995;95(2):314–317. Reaffirmed May 2011
17. American Academy of Pediatrics, Committee on Pediatric Emergency Medicine. Patient safety in the pediatric emergency care setting. *Pediatrics*. 2007;120(6):1367–1375. Reaffirmed June 2011
18. Levetown M; American Academy of Pediatrics, Committee on Bioethics. Communication with children and families: from everyday interactions to skill in conveying distressing information. *Pediatrics*. 2008;121(5). Available at: www.pediatrics.org/cgi/

content/full/121/5/e1441. Reaffirmed May 2011

19. Lye PS; American Academy of Pediatrics, Committee on Hospital Care and Section on Hospital Medicine. Clinical report—physicians' roles in coordinating care of hospitalized children. *Pediatrics*. 2010;126(4): 829–832
20. Emergency Nurses Association. *Position Statement: Presenting the Option for Family Presence*. Des Plaines, IL: Emergency Nurses Association; 2001
21. Emergency Nurses Association. *Position Statement: Family Presence at the Bedside During Invasive Procedures and/or Resuscitation*. Des Plaines, IL: Emergency Nurses Association; 2010. Available at: www.ena.org/SiteCollectionDocuments/Position%20Statements/Archived/FamilyPresence.pdf. Accessed November 4, 2014
22. American Academy of Pediatrics, Committee on Substance Abuse. Testing for drugs of abuse in children and adolescents. *Pediatrics*. 1996;98(2): 305–307. Reaffirmed May 2006
23. Tsai AK, Schafermeyer RW, Kalifon D, et al; American College of Emergency Physicians, Pediatric Emergency Medicine and Medicolegal Committees. Evaluation and treatment of minors: reference on consent. *Ann Emerg Med*. 1993;22(7):1211–1217. Reaffirmed October 2007
24. American Academy of Pediatrics, Council on Children With Disabilities, Medical Home Implementation Project Advisory Committee. Patient- and family-centered care coordination: a framework for integrating care for children and youth across multiple systems. *Pediatrics*. 2014;133(5):e1451–60. Available at: http://pediatrics.aappublications.org/content/133/5/e1451.full.html. Accessed November 6, 2014
25. Baren JM. Rising to the challenge of family-centered care in emergency medicine. *Acad Emerg Med*. 2001;8(12): 1182–1185
26. Institute of Medicine. *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, DC: National Academies Press; 2001
27. The Joint Commission. Advancing effective communication, cultural competence and patient- and family-centered care: a road map for hospitals. Available at: www.jointcommission.org/Advancing_Effective_Communication. Accessed January 2, 2014
28. Institute of Medicine. *Emergency Care for Children: Growing Pains*. Future of Emergency Care Series. Washington, DC: National Academies Press; 2006
29. Sacchetti A, Lichenstein R, Carraccio CA, Harris RH. Family member presence during pediatric emergency department procedures. *Pediatr Emerg Care*. 1996;12(4):268–271
30. Mangurten J, Scott SH, Guzzetta CE, et al. Effects of family presence during resuscitation and invasive procedures in a pediatric emergency department. *J Emerg Nurs*. 2006;32(3):225–233
31. Meyers TA, Eichhorn DJ, Guzzetta CE, et al. Family presence during invasive procedures and resuscitation. *Am J Nurs*. 2000;100(2):32–42; quiz 43
32. Fiorentini SE. Evaluation of a new program: pediatric parental visitation in the postanesthesia care unit. *J Post Anesth Nurs*. 1993;8(4):249–256
33. Mason KE, Urbansky H, Crocker L, Connor M, Anderson MR, Kissoon N; Task Force for Pediatric Emergency Mass Critical Care. Pediatric emergency mass critical care: focus on family-centered care. *Pediatr Crit Care Med*. 2011;12(6 suppl): S157–S162
34. Blake N, Stevenson K. Reunification: keeping families together in crisis. *J Trauma*. 2009;67(2 suppl):S147–S151
35. Farah MM, Thomas CA, Shaw KN; Children's Hospital of Philadelphia. Evidence-based guidelines for family presence in the resuscitation room: a step-by-step approach. *Pediatr Emerg Care*. 2007;23(8):587–591
36. Ramirez D, Engel KG, Tang TS. Language interpreter utilization in the emergency department setting: a clinical review. *J Health Care Poor Underserved*. 2008; 19(2):352–362
37. Baker DW, Parker RM, Williams MV, Coates WC, Pitkin K. Use and effectiveness of interpreters in an emergency department. *JAMA*. 1996; 275(10):783–788
38. Hampers LC, McNulty JE. Professional interpreters and bilingual physicians in a pediatric emergency department: effect on resource utilization. *Arch Pediatr Adolesc Med*. 2002;156(11): 1108–1113
39. US Department of Health and Human Services, Office of Minority Health. National standards on Culturally and Linguistically Appropriate Services (CLAS) in health care. Available at: http://minorityhealth.hhs.gov/templates/browse.aspx?lvl=2&lvlid=15. Accessed January 2, 2014
40. Flores G; Committee on Pediatric Research. Technical report—racial and ethnic disparities in the health and health care of children. *Pediatrics*. 2010;125(4):e979–e1020
41. Coker TR, Rodriguez MA, Flores G. Family-centered care for US children with special health care needs: who gets it and why? *Pediatrics*. 2010;125(6): 1159–1167
42. Guerrero AD, Chen J, Inkelas M, Rodriguez HP, Ortega AN. Racial and ethnic disparities in pediatric experiences of family-centered care. *Med Care*. 2010;48(4):388–393
43. Zempsky WT. Evaluation and treatment of sickle cell pain in the emergency department: paths to a better future. *Clin Pediatr Emerg Med*. 2010;11(4): 265–273
44. Brown K, Mace SE, Dietrich AM, Knazik S, Schamban NE. Patient and family-centered care for pediatric patients in the emergency department. *CJEM*. 2008; 10(1):38–43
45. Turchi RM, Berhane Z, Bethell C, Pomponio A, Antonelli R, Minkovitz CS. Care coordination for CSHCN: associations with family-provider relations and family/child outcomes. *Pediatrics*. 2009;124(suppl 4): S428–S434
46. Barratt A. Evidence based medicine and shared decision making: the challenge of getting both evidence and preferences into health care. *Patient Educ Couns*. 2008;73(3):407–412
47. The Joint Commission. Facts about pain management. Oakbrook Terrace, IL: The Joint Commission; 2013. Available at: www.jointcommission.org/pain_management/. Accessed January 2, 2014
48. American Academy of Pediatrics. Care plans: essential components and

sample care plans to be used in practice. Available at: www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/fetal-alcohol-spectrum-disorders-toolkit/Pages/Care-Plans.aspx. Accessed January 2, 2014

49. Spooner SA; American Academy of Pediatrics, Council on Clinical Information Technology. Special requirements of electronic health record systems in pediatrics. *Pediatrics*. 2007;119(3):631–637. Reaffirmed May 2012
50. Elias ER, Murphy NA; Council on Children with Disabilities. Home care of children and youth with complex health care needs and technology dependencies. *Pediatrics*. 2012;129(5):996–1005
51. O'Mahony L, O'Mahony DS, Simon TD, Neff J, Klein EJ, Quan L. Medical complexity and pediatric emergency department and inpatient utilization. *Pediatrics*. 2013;131(2). Available at: www.pediatrics.org/cgi/content/full/131/2/e559
52. Kuo DZ, Bird TM, Tilford JM. Associations of family-centered care with health care outcomes for children with special health care needs. *Matern Child Health J*. 2011;15(6):794–805
53. Raphael JL, Mei M, Brousseau DC, Giordano TP. Associations between quality of primary care and health care use among children with special health care needs. *Arch Pediatr Adolesc Med*. 2011;165(5):399–404
54. American Academy of Pediatrics, Committee on Pediatric Emergency Medicine, Council on Clinical Information Technology; American College of Emergency Physicians, Pediatric Emergency Medicine Committee. Policy statement: emergency information forms and emergency preparedness for children with special health care needs. *Pediatrics*. 2010;125(4):829–837. Available at: http://pediatrics.aappublications.org/content/125/4/829.full.pdf+html Accessed November 6, 2014
55. US Department of Health and Human Services, Indian Health Service. Health literacy tools. Available at: www.ihs.gov/healthcommunications/index.cfm?module=dsp_hc_health_literacy. Accessed January 2, 2014
56. North Carolina Program on Health Literacy. List of tools. Available at: http://nchealthliteracy.org/toolkit/toollist.pdf. Accessed January 2, 2014
57. Davidson JE, Powers K, Hedayat KM, et al; American College of Critical Care Medicine Task Force 2004–2005; Society of Critical Care Medicine. Clinical practice guidelines for support of the family in the patient-centered intensive care unit. *Crit Care Med*. 2007;35(2):605–622
58. Newacheck PW, Inkelas M, Kim SE. Health services use and health care expenditures for children with disabilities. *Pediatrics*. 2004;114(1):79–85
59. Dudas RA, Lemerman H, Barone M, Serwint JR Jr. PHACES (Photographs of Academic Clinicians and Their Educational Status): a tool to improve delivery of family-centered care. *Acad Pediatr*. 2010;10(2):138–145
60. Kuo DZ, Sisterhen LL, Sigrest TE, Biazo JM, Aitken ME, Smith CE. Family experiences and pediatric health services use associated with family-centered rounds. *Pediatrics*. 2012;130(2):299–305
61. Kenny NP, Mann KV, MacLeod H. Role modeling in physicians' professional formation: reconsidering an essential but untapped educational strategy. *Acad Med*. 2003;78(12):1203–1210
62. Initiative for Pediatric Palliative Care. IPPC curriculum. Available at: www.ippcweb.org/curriculum.asp. Accessed January 2, 2014
63. American Academy of Pediatrics, National Center for Medical Home Implementation. Children and youth with special health care needs. Available at: www.medicalhomeinfo.org/how/care_delivery/cyshcn.aspx. Accessed January 2, 2014
64. Vermont Family Network. Family faculty programs. Available at: www.vermontfamilynetwork.org/i-need-help-with/health/family-faculty/. Accessed January 2, 2014
65. Picker Principles of Patient- and Family-Centered Care. Available at: http://www.PickerInstitute.org/about/picker-principles/ Accessed: November 7, 2014
66. Hammond M, McLean E. What parents and carers think medical students should be learning about communication with children and families. *Patient Educ Couns*. 2009;76(3):368–375
67. Frost M, Green A, Gance-Cleveland B, Kersten R, Irby C. Improving family-centered care through research. *J Pediatr Nurs*. 2010;25(2):144–147
68. Westergaard F. Promoting a patient and family-centered environment of care in the emergency department. In: Krug SE, ed. *Pediatric Patient Safety in the Emergency Department*. Oakbrook Terrace, IL: The Joint Commission; 2010
69. International Federation of Emergency Medicine. International standards of care for children in emergency departments. West Melbourne, Australia: International Federation of Emergency Medicine; 2012. Available at: www.ifem.cc/Resources/News/International_Paediatric_Standards_.aspx. Accessed January 2, 2014
70. Emergency Nurses Association. Family-centered care in the emergency department: a self-assessment inventory. Available at: www.ena.org/practice-research/Practice/Documents/FamilyCenteredCareTool.pdf. Accessed January 24, 2014
71. Eckle N, MacLean SL. Assessment of family-centered care policies and practices for pediatric patients in nine US emergency departments. *J Emerg Nurs*. 2001;27(3):238–245
72. Kingsnorth J, O'Connell K, Guzzetta CE, et al. Family presence during trauma activations and medical resuscitations in a pediatric emergency department: an evidence-based practice project. *J Emerg Nurs*. 2010;36(2):115–121
73. Hostler SL. Family-centered care. *Pediatr Clin North Am*. 1991;38(6):1545–1560
74. McKlindon D, Barnsteiner JH. Therapeutic relationships: evolution of the Children's Hospital of Philadelphia model. *MCN Am J Matern Child Nurs*. 1999;24(5):237–243
75. Van Riper M. Family-provider relationships and well-being in families with preterm infants in the NICU. *Heart Lung*. 2001;30(1):74–84
76. Institute of Medicine. *To Err Is Human: Building a Safer Health System*.

Washington, DC: National Academies Press; 1999

77. Rosen P, Stenger E, Bochkoris M, Hannon MJ, Kwoh CK. Family-centered multidisciplinary rounds enhance the team approach in pediatrics. *Pediatrics*. 2009;123(4). Available at: www.pediatrics.org/cgi/content/full/123/4/e603
78. Govindarajan P, Larkin GL, Rhodes KV, et al. Patient-centered integrated networks of emergency care: consensus-based recommendations and future research priorities. *Acad Emerg Med*. 2010;17(12):1322–1329
79. McDonnell WM. Pediatric emergency medicine. In: Donn SM, McAbee GN, eds. *Medicolegal Issues in Pediatrics*. 7th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2011:141–152
80. McGuire AL, Bruce CR. Keeping children's secrets: confidentiality in the physician-patient relationship. *Houst J Health Law Policy*. 2008;82:315–333. Available at www.law.uh.edu/hjhlp/Issues/vol_82/McGuire.pdf. Accessed January 2, 2014
81. Committee on Child Abuse and Neglect. Policy statement—child abuse, confidentiality, and the Health Insurance Portability and Accountability Act. *Pediatrics*. 2010;125(1):197–201
82. Britto MT, Tivorsak TL, Slap GB. Adolescents' needs for health care privacy. *Pediatrics*. 2010;126(6):e1469–e1476
83. American Academy of Pediatrics, Committee on Adolescence. Achieving quality health services for adolescents. *Pediatrics*. 2008;121(6):1263–1270
84. American Academy of Family Physicians; American Academy of Pediatrics; American College of Obstetricians and Gynecologists; Society of Adolescent Medicine. Protecting adolescents: ensuring access to care and reporting sexual activity and abuse. Position paper of the American Academy of Family Physicians, the American Academy of Pediatrics, the American College of Obstetricians and Gynecologists, and the Society of Adolescent Medicine. *J Adolesc Health*. 2004;35(5):420–423
85. English A, Kenney KE. *State Minor Consent Laws: A Summary*. 3rd ed. Chapel Hill, NC: Center for Adolescent Health and the Law; 2010
86. Vukadinovich DM. Minors' rights to consent to treatment: navigating the complexity of state laws. *J Health Law*. 2004;37(4):667–691
87. Suziedelis AK. Is it ethical to legislate an age of consent for health care decision making? *Health Care Ethics USA*. 2002;10(2):E2
88. Derish MT, Heuvel KV. Mature minors should have the right to refuse life-sustaining medical treatment. *J Law Med Ethics*. 2000;28(2):109–124
89. Vaught W, Kassutto Z. Ethical challenges in the emergency care of adolescent patients. *Clin Pediatr Emerg Med*. 2003;4(1):69–77
90. Bauchner H, Vinci R, Bak S, Pearson C, Corwin MJ. Parents and procedures: a randomized controlled trial. *Pediatrics*. 1996;98(5):861–867
91. Bauchner H, Waring C, Vinci R. Parental presence during procedures in an emergency room: results from 50 observations. *Pediatrics*. 1991;87(4):544–548
92. Wolfram RW, Turner ED, Philput C. Effects of parental presence during young children's venipuncture. *Pediatr Emerg Care*. 1997;13(5):325–328
93. Jones BL, Parker-Raley J, Maxson T, Brown C. Understanding health care professionals' views of family presence during pediatric resuscitation. *Am J Crit Care*. 2011;20(3):199–207; quiz 208
94. Boie ET, Moore GP, Brummett C, Nelson DR. Do parents want to be present during invasive procedures performed on their children in the emergency department? A survey of 400 parents. *Ann Emerg Med*. 1999;34(1):70–74
95. Doyle CJ, Post H, Burney RE, Maino J, Keefe M, Rhee KJ. Family participation during resuscitation: an option. *Ann Emerg Med*. 1987;16(6):673–675
96. Beckman AW, Sloan BK, Moore GP, et al; P50 (Parental Presence during Painful Pediatric Procedures) Research Group. Should parents be present during emergency department procedures on children, and who should make that decision? A survey of emergency physician and nurse attitudes. *Acad Emerg Med*. 2002;9(2):154–158
97. Helmer SD, Smith RS, Dort JM, Shapiro WM, Katan BS; American Association for the Surgery of Trauma; Emergency Nurses Association. Family presence during trauma resuscitation: a survey of AAST and ENA members. *J Trauma*. 2000;48(6):1015–1022; discussion 1023–1024
98. O'Brien MM, Creamer KM, Hill EE, Welham J. Tolerance of family presence during pediatric cardiopulmonary resuscitation: a snapshot of military and civilian pediatricians, nurses, and residents. *Pediatr Emerg Care*. 2002;18(6):409–413
99. Sacchetti A, Paston C, Carraccio C. Family members do not disrupt care when present during invasive procedures. *Acad Emerg Med*. 2005;12(5):477–479
100. Fein JA, Ganesh J, Alpern ER. Medical staff attitudes toward family presence during pediatric procedures. *Pediatr Emerg Care*. 2004;20(4):224–227
101. Sacchetti A, Carraccio C, Leva E, Harris RH, Lichenstein R. Acceptance of family member presence during pediatric resuscitations in the emergency department: effects of personal experience. *Pediatr Emerg Care*. 2000;16(2):85–87
102. Lowry E. "It's just what we do": a qualitative study of emergency nurses working with well-established family presence protocol. *J Emerg Nurs*. 2012;38(4):329–334
103. Robinson SM, Mackenzie-Ross S, Campbell Hewson GL, Egleston CV, Prevost AT. Psychological effect of witnessed resuscitation on bereaved relatives. *Lancet*. 1998;352(9128):614–617
104. Pasquale MA, Pasquale MD, Baga L, Eid S, Leske J. Family presence during trauma resuscitation: ready for primetime? *J Trauma*. 2010;69(5):1092–1099; discussion 1099–1100
105. O'Connell KJ, Farah MM, Spandorfer P, Zorc JJ. Family presence during pediatric trauma team activation: an assessment of a structured program. *Pediatrics*. 2007;120(3). Available at: www.pediatrics.org/cgi/content/full/120/3/e565
106. Dudley NC, Hansen KW, Furnival RA, Donaldson AE, Van Wagenen KL, Scaife

ER. The effect of family presence on the efficiency of pediatric trauma resuscitations. *Ann Emerg Med*. 2009; 53(6):777–784, e3

107. Forster HP, Schwartz J, DeRenzo E. Reducing legal risk by practicing patient-centered medicine. *Arch Intern Med*. 2002;162(11):1217–1219
108. Sacchetti AD, Guzzetta CE, Harris RH. Family presence during resuscitation attempts and invasive procedures: is there a science behind the emotion? *Clin Pediatr Emerg Med*. 2003;4(4): 292–296
109. American Association of Critical-Care Nurses. Practice alert: family presence during CPR and invasive procedures. Available at: www.aacn.org/wd/practice/content/family-presence-practice-alert.pcms?menu=practice. Accessed January 2, 2014
110. Guzzetta CE, Clark AP, Wright JL. Family presence in emergency medical services for children. *Clin Pediatr Emerg Med*. 2006;7(1):15–24
111. Kleinman ME, Chameides L, Schexnayder SM, et al. Part 14: pediatric advanced life support: 2010 American Heart Association guidelines for cardiopulmonary resuscitation and emergency cardiovascular care science. *Circulation*. 2010;122(18 suppl 3):S876–S908
112. American Academy of Pediatrics; American College of Emergency Physicians. *Advanced Pediatric Life Support: The Pediatric Emergency Medicine Resource*. 5th ed. Sudbury, MA: Jones & Bartlett; 2012
113. Emergency Nurses Association. The Emergency Nursing Pediatric Course, the Trauma Nursing Core Course. Available at: www.ena.org/education/enpc-tncc/Pages/Default.aspx. Accessed January 24, 2014
114. Henderson DP, Knapp JF. Report of the national consensus conference on family presence during pediatric cardiopulmonary resuscitation and procedures. *J Emerg Nurs*. 2006;32(1):23–29
115. Kuther TL. Medical decision-making and minors: issues of consent and assent. *Adolescence*. 2003;38(150):343–358
116. Kassutto Z, Vaught W. Informed decision making and refusal of treatment. *Clin Pediatr Emerg Med*. 2003;4(4):285–291
117. Wing KR. *The Law and the Public's Health*. 6th ed. Chicago, IL: Health Administration Press; 2004
118. Barton SJ. Family-centered care when abuse or neglect is suspected. *J Soc Pediatr Nurs*. 2000;5(2):96–99
119. American Academy of Pediatrics, Committee on Child Abuse and Neglect, Committee on Bioethics. Forgoing life-sustaining medical treatment in abused children. *Pediatrics*. 2000;106(5): 1151–1153. Reaffirmed April 2009
120. Lipton H, Coleman M. *Bereavement Practice Guidelines for Health Care Professionals in the Emergency Department: Best Practices in Supporting the Family and Staff When a Child Dies Suddenly*. Washington, DC: Health Resources and Services Administration, National Association of Social Workers; 2000, Available at: www.luhs.org/depts/emsc/bereavement_guidelines.pdf Accessed November 6, 2014
121. Institute of Medicine. *When Children Die: Improving Palliative and End-of-Life Care for Children and Their Families*. Washington, DC: National Academies Press; 2002
122. Wender E; Committee on Psychosocial Aspects of Child and Family Health. Supporting the family after the death of a child. *Pediatrics*. 2012;130(6): 1164–1169
123. Schonfeld D, Quackenbush M. *After a Loved One Dies—How Children Grieve and How Parents and Other Adults Can Support Them*. New York, NY: New York Life Foundation; 2009
124. Leash R. *Death Notification: A Practical Guide to the Process*. Hinesburg, VT: Upper Access; 1994

Patient- and Family-Centered Care of Children in the Emergency Department

Nanette Dudley, Alice Ackerman, Kathleen M. Brown, Sally K. Snow, American Academy of Pediatrics Committee on Pediatric Emergency Medicine, American College of Emergency Physicians Pediatric Emergency Medicine Committee and Emergency Nurses Association Pediatric Committee

Pediatrics 2015;135;e255
DOI: 10.1542/peds.2014-3424 originally published online December 29, 2014;

PEDIATRICS
OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Patient- and Family-Centered Care of Children in the Emergency Department

Nanette Dudley, Alice Ackerman, Kathleen M. Brown, Sally K. Snow, American Academy of Pediatrics Committee on Pediatric Emergency Medicine, American College of Emergency Physicians Pediatric Emergency Medicine Committee and Emergency Nurses Association Pediatric Committee

Pediatrics 2015;135;e255
DOI: 10.1542/peds.2014-3424 originally published online December 29, 2014;

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: Alan Heins, MD, FACEP
Chair, Public Health & Injury Prevention Committee

Stephen Anderson, MD, FACEP
Board Liaison, Public Health & Injury Prevention Committee

Date: October 15, 2020

Subj: Adult Psychiatric Emergencies

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

Recommendation

That the Board of Directors approve the policy statement "Adult Psychiatric Emergencies" (Attachment A).

Background

The Public Health & Injury Prevention Committee (PHIPC) was assigned an objective for the 2019-20 committee year to "develop a policy statement on Adult Mental Health Emergencies."

Members of the Coalition on Psychiatric Emergencies worked with members of the PHIPC on drafting this policy statement.

The ACEP Board reviewed the draft policy statement at its June meeting and referred it back to the PHIPC to change the term "behavioral health" to "psychiatric emergencies," as well as to change the term "abuse" to "use." The changes to the draft were reviewed by the PHIPC and are submitted for Board review.

Attachment A is the draft policy statement.

Prior Board Action

June 2020, reviewed the draft policy statement "Adult Behavioral Health Emergencies" and referred it back to the Public Health & Injury Prevention Committee for revisions.

Fiscal Impact

Budgeted committee and staff resources for development and distribution of policy statements.

Adult Psychiatric Emergencies
Draft, October 2020

The American College of Emergency Physicians (ACEP) supports a comprehensive approach to psychiatric emergencies. Psychiatric emergencies can include suicidal and homicidal behavior, psychosis, agitation, anxiety, substance use disorders, depression, mania, and a host of related and overlapping medical problems, such as delirium and dementia. All patients deserve access to emergency care for psychiatric crises. Emergency departments (EDs) are a critical component of a comprehensive safety net for psychiatric emergencies, and emergency physicians have an obligation to advocate for high-quality psychiatric emergency care.

In support of these principles, ACEP believes:

- Open access to high quality care for psychiatric emergencies is an essential component of a comprehensive medical safety net.

- Local communities, state and federal governments, private insurers, hospitals, and healthcare systems should be held accountable to invest adequate resources to assure psychiatric services meet the acute needs of patients in crisis.

- Hospitals and community psychiatric facilities should provide emergency psychiatric care comparable to the care provided for other medical emergencies.

- All EDs should be prepared to accept and stabilize the full range of psychiatric emergencies by providing evidence-based training for physicians and nurses, harm-mitigated facility space, adequate supplies and equipment, and coordination with those providing specialty and continuity of care, including psychiatry, social services, and community psychiatric facilities.

- Screening of patients presenting to the ED to detect acute and life-threatening signs and symptoms of suicide is supported by evidence and should be accompanied by treatment for high-risk individuals. All routine screening should be evidence-based, properly resourced, and not detract from the primary mission of the ED.

- Routine medical screening or “clearance” of all patients with psychiatric emergencies in EDs before they can be seen at community psychiatric facilities is not supported by the evidence. Focused screening may be appropriate in selected cases, and the approach should be coordinated across the community. Any medical testing should be guided by the history and physical examination.

- Boarding of patients with psychiatric emergencies in the ED is unacceptable, does not provide for a therapeutic alliance, and is a rapidly growing symptom of a systemic problem. Physicians, hospitals, community agencies,

patient advocacy groups, and local, state and federal governments must work together to find timely solutions to this pressing problem.

- Medically appropriate and humane interventions are necessary to treat acutely agitated patients who are a threat to themselves, staff, the public, or who threaten to disrupt the care of other patients in the ED. All EDs should be adequately prepared for this care.

- The initiation of medically appropriate acute psychiatric and behavioral therapies in the ED is important to ensure timely care and should be coordinated with physicians and psychiatric clinicians to preserve continuity of care.

- Emergent psychiatric care should be age and gender-appropriate and tailored to the specific psychosocial conditions of each patient.

- As an integral component of disaster planning, hospitals and EDs should prepare for the emergent psychiatric consequences that disasters and public health crises can bring.

- Emergency physicians, medical associations, and other stakeholders should collaborate to create national consensus guidelines for the care of psychiatric emergencies.

- Research in psychiatric emergencies should be supported at all organizational levels, and emergency departments should be considered as potential sites for the conduct of appropriate studies.

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: Sandra Schneider, MD, FACEP
Associate Executive Director, Clinical Affairs

Jon Mark Hirshon, MD, MPH, PhD, FACEP
Chair, Board of Directors

Date: October 17, 2020

Subj: "Influenza and SARS-CoV-2 Testing and Treatment" All Member Survey

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

Recommendation

That the Board of Directors approve sending the survey "Influenza and SARS-CoV-2 Testing and Treatment" to all members (Attachment A).

Background

Emergency physicians face a significant challenge this fall with a potential second wave of COVID-19 and seasonal wave of influenza. To better understand how emergency physicians are prepared for this challenge, Dr. Hirshon has worked with leading epidemiologists at the Centers for Disease Control and Prevention (CDC) to construct this survey. It is hoped that the results will help guide education and treatment recommendations across the country.

A similar survey is being distributed through ACEP's Emergency Medicine Practice Research Network (EMPRN). EMPRN is composed of approximately 1,000 members, so an all member survey will add to these results.

Board approval is required for distribution of an all member survey.

Attachment A contains the proposed survey.

Prior Board Action

None

Fiscal Impact

Budgeted staff resources.

Influenza & SARS-CoV-2 Testing & Treatment Survey of Emergency Physicians, 2020-21

The purpose of the survey is to better understand current ED practice and help with future planning and care of patients with suspected or lab-confirmed influenza or COVID-19 who are evaluated in an ED. It will take no more than 10 minutes to complete.

We will not collect any identifying information. By completing this de-identified survey, you are agreeing to have your responses summarized and shared. Your identify and the identity of your site will remain anonymous. Please check the applicable boxes for each question. Thank you for your participation.

PLEASE INDICATE GENERAL CHARACTERISTICS OF YOUR ED

ED region of US: _____ ☐NE; ☐MidAtlantic; ☐SE; ☐Midwest; ☐NW; ☐SW

ED type: ☐Academic ☐Community

ED size (estimated # of annual visit /year) ☐<10K☐10K-50K☐50-100K☐>100K

The following questions pertain to clinical management of influenza and COVID-19 in your ED:

FALL/WINTER SEASON ED SURGE

(1a) Does your ED have a protocol to respond to a *surge* in patients with acute respiratory illness?

☐Yes/☐No/☐UNK ***[If No or Unknown, skip to question (2)]***

(1b) If Yes, is the surge protocol for COVID-19 ☐; Influenza ☐; or any respiratory illness ☐

(1c) If Yes, does this include *triage that takes place outside the ED*, (e.g. parking lot, tent, or in another area)?

☐Yes/☐No/☐UNK

Where? Free text _____

INFLUENZA AND COVID-19 DIAGNOSIS AND TESTING

(2a) Does your ED have a written *protocol for guiding diagnostic testing for patients with possible influenza or COVID-19?*

☐Yes (Nurse Triage initiated) – ***go to 2b if Yes***

☐ Yes (Physician guided protocol) – ***go to 2b if Yes***

☐No / ☐Unknown

2b. If Yes to 2a, is the protocol or guideline embedded in the EMR?

☐Yes/☐No/☐Unknown

(3a) Do you ever order influenza testing or COVID-19 testing for ED patients with acute respiratory illness?

☐Yes/☐No/☐Unknown ***[if No or Unknown, go to question (6a)]***

(3b) If Yes to 3a, what tests do you order that are performed on-site? *[Check all that apply]*

☐ Rapid **influenza diagnostic test** (antigen detection; results in <15 minutes)
☐ Rapid **influenza molecular assay** (nucleic acid amplification test; results in 15-30 minutes)

☐ Other **influenza molecular assay** (nucleic acid amplification test; results in 45-60 minutes)
☐ I don't know the type of influenza test we use in our ED

☐ Rapid **SARS-CoV-2 antigen test** (antigen detection; results in <15 minutes)
☐ Rapid **SARS-CoV-2 molecular assay** (nucleic acid amplification test; results in 15-30 minutes)
☐ I don't know the type of SARS-CoV-2 test we use in our ED

☐ Multiplex rapid assay that detects at least 2 of the following: **SARS-CoV-2, influenza A, B viruses and RSV** (nucleic acid amplification test; results in 20-60 minutes)
☐ Expanded multiplex assay that detects many viruses (including but not limited to SAR-CoV-2, influenza A, B, RSV)

(4a) For your ED patients with a *low likelihood of* hospital admission, how often do you order influenza testing for patients with suspected influenza? *[check one]*

☐ All suspected influenza patients; ☐ >50% of suspected influenza patients;
☐ <50% of suspected influenza patients; ☐ Occasionally; ☐ Never

(

4b) For your ED patients with a *low likelihood of* hospital admission, how often do you order SARS-CoV-2 testing for patients with suspected COVID-19? *[check one]*

☐ All suspected COVID-19 patients; ☐ >50% of suspected COVID-19 patients;
☐ <50% of suspected COVID-19 patients; ☐ Occasionally; ☐ Never

(5a) For your ED patients *being admitted* to the hospital, how often do you order influenza testing for patients with suspected influenza BEFORE transfer out of the ED? *[check one]*

☐ All suspected influenza patients; ☐ >50% of suspected influenza patients;
☐ <50% of suspected influenza patients; ☐ Occasionally; ☐ Never

5b) For your ED patients *being admitted* to the hospital, how often do you order SARS-CoV-2 testing for patients with suspected COVID-19 BEFORE transfer out of the ED? *[check one]*

☐ All suspected COVID-19 patients; ☐ >50% of suspected COVID-19 patients;
☐ <50% of suspected COVID-19 patients; ☐ Occasionally; ☐ Never

5c) For your ED patients *being admitted* to the hospital, how often do you perform bedside ultrasound (POCUS) if pneumonia is suspected BEFORE transfer out of the ED? *[check one]*

☐ All suspected pneumonia patients; ☐ >50% of suspected pneumonia patients;
☐ <50% of suspected pneumonia patients; ☐ Occasionally; ☐ Never

5c) For your ED patients *being admitted* to the hospital, how often do you order chest ultrasound if pneumonia is suspected BEFORE transfer out of the ED? *[check one]*

☐ All suspected pneumonia patients; ☐ >50% of suspected pneumonia patients;
☐ <50% of suspected pneumonia patients; ☐ Occasionally; ☐ Never

INFLUENZA ANTIVIRAL TREATMENT (PATIENTS BEING DISCHARGED HOME)

(6a) For your ED patients being discharged who did not have influenza testing done, do you prescribe *empiric antiviral treatment* to patients with clinically suspected influenza?

☐Yes/☐No/☐Unknown ***[If No or Unknown, go to question (6c)]***

(6b) If Yes, which patients with suspected influenza being discharged do you consider prescribing *empiric antiviral treatment*? *[check all that apply, and go to question (7a)]*

☐ All suspected influenza patients; ☐ Only patients at high-risk for influenza complications;
☐ Only patients who have been sick for less than 2 days

[High risk persons are children aged <5 years and especially aged <2 years; persons aged ≥65 years; pregnant women; persons with chronic medical conditions; extreme obesity; residents of a long-term care facility; American Indian or Native Alaska resident]

(6c) If No, why not? [check all that apply]

☐ Only prescribe antiviral treatment to an outpatient with a positive influenza test result
☐ Antiviral treatment for influenza is not needed for outpatients
☐ Antiviral treatment for influenza doesn't have clinical benefit for outpatients
☐ Concerned about potential adverse effects outweighing clinical benefit of antiviral treatment

[IF YOU <u>DO NOT ORDER INFLUENZA TESTING IN YOUR ED</u>, SKIP Q 7-10 AND GO TO QUESTION (11)]

(7a) For your ED patients <u>with a positive influenza test result</u> being discharged, do you prescribe *antiviral treatment*?

☐Yes/☐No/☐Unknown ***[If No or Unknown, go to question (7c)]***

(7b) If Yes, which patients who test positive for influenza being discharged home do you prescribe antiviral treatment to? *[check all that apply, go to question (8)]*

☐ All influenza patients; ☐ Only patients at high-risk for influenza complications;
☐ Only patients who have been sick for less than 2 days

[High risk persons are children aged <5 years and especially aged <2 years; persons aged ≥65 years; pregnant women; persons with chronic medical conditions; extreme obesity; residents of a long-term care facility; American Indian or Native Alaska resident]

(7c) If No, why not? [check all that apply]

☐ Antiviral treatment for influenza is not needed for outpatients
☐ Antiviral treatment for influenza doesn't have clinical benefit for outpatients
☐ Concerned about potential adverse effects outweighing clinical benefit of antiviral treatment
☐ Concerned that the costs of the antivirals make prescribing them not worth it

(8) For your ED patients <u>with a positive influenza test result</u> being discharged, are you less likely to prescribe antibiotics (versus a negative influenza test result)?

☐Yes/☐No/☐Unknown

(9) For your ED patients <u>with a positive influenza test result</u> being discharged, are you less likely to order a CXR or portable chest ultrasound (versus a negative influenza test result)?

☐Yes/☐No/☐Unknown

(10) For your ED patients <u>with a positive influenza test result</u> being discharged, are you less likely to order other laboratory studies (versus a negative influenza test result)?

☐Yes/☐No/☐Unknown

(11) Which of the following antiviral medications have you prescribed or plan to prescribe to patients <u>being discharged</u> that you diagnosed with influenza in your ED? [check all that you have prescribed in the past or plan to prescribe this season]

☐ Amantadine (oral) ☐ Rimantadine (oral)
☐ Zanamivir (inhaled) ☐ Peramivir (intravenous)
☐ Oseltamivir (oral) ☐ Baloxavir (oral)
☐ None ☐ Unknown

INFLUENZA ANTIVIRAL TREATMENT (ADMITTED TO HOSPITAL)

(12a) For your ED patients *being admitted to the hospital*, do you prescribe empiric antiviral treatment of influenza for patients with suspected influenza but without influenza testing results available before transfer out of the ED?

☐Yes/☐No/☐Unknown ***[If No or Unknown, go to question (12c)]***

(12b) If Yes, which patients with suspected influenza being admitted do you consider prescribing empiric antiviral treatment before ED transfer? *[check all that apply, go to question (13)]*

☐ All suspected influenza patients; ☐ Only patients at high-risk for influenza complications;
☐ Only patients who have been sick for less than 2 days

[High risk persons are children aged <5 years and especially aged <2 years; persons aged ≥65 years; pregnant women; persons with chronic medical conditions; extreme obesity; residents of a long-term care facility; American Indian or Native Alaska resident]

(12c) If No, why not? [check all that apply]

☐ Only prescribe antiviral treatment for patients with a positive influenza test result
☐ Antiviral treatment for influenza doesn't have clinical benefit for hospitalized patients
☐ Concerned about potential adverse effects outweighing clinical benefit of antiviral treatment
☐ Antiviral treatment can be prescribed by the in-patient physician team

[IF YOU DO NOT ORDER ANY INFLUENZA TESTING IN YOUR ED, SKIP QUESTIONS (13a-c)]

(13a) For your ED patients with a positive influenza test result *being admitted to the hospital*, do you prescribe antiviral treatment for influenza before transfer out of the ED?

☐Yes/☐No/☐Unknown *[If No or Unknown, go to question (13c)]*

(13b) If Yes, which patients who test positive for influenza being admitted do you prescribe antiviral treatment to? *[check all that apply, and skip question (13c)]*

☐ All influenza patients; ☐ Only patients at high-risk for influenza complications;
☐ Only patients who have been sick for less than 2 days

[High risk persons are children aged <5 years and especially aged <2 years; persons aged ≥65 years; pregnant women; persons with chronic medical conditions; extreme obesity; residents of a long-term care facility; American Indian or Native Alaska resident]

(13c) If you answered "No" why not? [check one box]

☐ Antiviral treatment for influenza doesn't have clinical benefit for hospitalized patients
☐ Antiviral treatment for influenza is the responsibility of the inpatient clinical team
☐ Concerned about potential adverse effects outweighing clinical benefit of antiviral treatment

(14) Which of the following antiviral medications have you prescribed or plan to prescribe to patients being admitted to the hospital that you diagnosed with influenza in your ED? [check all that you have prescribed or plan to prescribe this season]

☐ Amantadine (oral) ☐ Rimantadine (oral)
☐ Zanamivir (inhaled) ☐ Peramivir (intravenous)
☐ Oseltamivir (oral) ☐ Baloxavir (oral)
☐ None ☐ Unknown

(15a) For your ED patients with suspected or lab-confirmed influenza *being admitted to the hospital*, do you generally prescribe any antibiotics before transfer out of the ED?

☐Yes/☐No/☐Unknown

(15b) For your ED patients with suspected COVID-19 or who have a positive SARS-CoV-2 test result *being admitted to the hospital*, do you generally prescribe any antibiotics before transfer out of the ED?

☐Yes/☐No/☐Unknown

Thank you very much for completing this survey!

American College of Emergency Physicians®

ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: Jeanne L. Slade
Director, National Emergency Medicine Political Action Committee

Date: October 12, 2020

Subj: NEMPAC Articles of Association

Recommendation

That the ACEP Board of Directors approve the revised NEMPAC Articles of Association (Attachment A).

Background

As ACEP membership has grown in the past 10 years, so has support by ACEP members for the NEMPAC. Fundraising for NEMPAC requires a greater reliance on individual members of the Board of Trustees to assist in solicitation strategy and act as fundraisers for the PAC. The important role of determining who receives NEMPAC contributions and at what levels continues to be an equally important responsibility for the Trustees as NEMPAC increases revenue and visibility with ACEP members and federal candidates and committees seeking support.

The proposed revisions to the Articles of Association add two (2) individuals to the NEMPAC Board of Trustee and one (1) ACEP resident member and sets forth the means by which appointments to the Board are made, the length of the classes of membership, and the appointment of the Chair of the Board. The proposed revisions to the Articles of Association are in Article VIII – Trustees.

Prior Board Action

April 2008, approved the revised NEMPAC Articles of Association.

Fiscal Impact

None. NEMPAC is a voluntary ACEP committee and expenses are not reimbursed for NEMPAC Board of Trustees members to participate in virtual or in-person meetings.

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

ARTICLES OF ASSOCIATION
OF THE
NATIONAL EMERGENCY MEDICINE POLITICAL ACTION COMMITTEE
OF THE
AMERICAN COLLEGE OF EMERGENCY PHYSICIANS

As initially approved by vote of the ACEP Board of Directors on November 5, 1987.
As amended by vote of the ACEP Board of Directors on April 4, 2008.
Draft for ACEP Board of Directors consideration on October 23, 2020.

ARTICLE I – NAME

The name of this association shall be the National Emergency Medicine Political Action Committee of the American College of Emergency Physicians, also known and hereinafter referred to as "NEMPAC."

ARTICLE II – ORGANIZATION

NEMPAC shall be a voluntary, nonprofit, unincorporated association operating as a separate, segregated fund of the American College of Emergency Physicians, a national professional society incorporated in the state of Texas ("National ACEP"). NEMPAC's sole connected organization shall be National ACEP. Neither NEMPAC nor National ACEP has other affiliated committees.

National ACEP shall, within guidelines set forth by the National ACEP Board of Directors, pay all organizational and administrative costs of NEMPAC.

NEMPAC shall be a non-partisan "political committee" and qualify as a "multicandidate committee" under applicable Federal election law, the Federal Election Campaign Act as amended from time to time (the "Act") and implementing regulations ("Regulations") promulgated by the Federal Election Commission (the "Commission"). The NEMPAC is a political organization under federal tax exemption law.

ARTICLE III – PRINCIPAL OFFICE AND ADDRESS

The principal office of NEMPAC shall be located in the headquarters of the National ACEP or in any other location designated by National ACEP.

ARTICLE IV – PURPOSES AND POWERS

Section 1. The purpose of NEMPAC is to provide the opportunity for individuals interested in the future of emergency medicine to contribute to the support of worthy candidates for federal offices who believe, and have demonstrated their beliefs, in the principles to which emergency medicine is dedicated. To further these purposes, NEMPAC is empowered to solicit, directly or indirectly, and accept voluntary personal contributions, and to make expenditures in connection with the attempt to influence the selection, nomination, or election of any individual to any elective federal office.

Section 2. NEMPAC and its officers and subcommittees shall possess all powers and privileges necessary to the conduct, promotion, or attainment of the purposes set forth in this Article.

ARTICLE V – PARTICIPATION

All U.S. citizens are eligible to contribute to NEMPAC and NEMPAC is authorized to solicit contributions from the executive and administrative personnel and members (and their families) of National ACEP and its affiliated organizations. NEMPAC may only solicit contributions from its individuals within its "restricted class," as that term is defined by federal law. It may also accept contributions from all U.S. citizens and any other persons who legally may contribute ~~as long as~~**if** it does not solicit such contributions or inform individuals that such contributions are acceptable.

ARTICLE VI – CONTRIBUTIONS

All contributions to NEMPAC shall be voluntary, and no contribution shall be solicited or secured by physical force, job discrimination, or financial reprisal, or threat thereof, or as to a condition of employment by or of membership in National ACEP. The Executive Committee shall control the disbursement of funds to implement the policies established by the Board of Trustees, subject to the ultimate authority of the National ACEP Board of Directors. No contribution shall be accepted, and no expenditure made by or on behalf of NEMPAC when the offices of the Treasurer and Assistant Treasurer are both vacant.

ARTICLE VII – SEPARATE SEGREGATED ACCOUNT

All legal contributions to NEMPAC, other than those from incorporated member practices, shall be maintained as a separate segregated account in one or more designated depositories, and all contributions to any candidate or political committee shall be made from that fund. Contributions from member corporate accounts received by NEMPAC shall be promptly transferred to the appropriate National ACEP general treasury account and used solely to offset NEMPAC administrative and solicitation costs. Any prohibited contributions received by National ACEP or NEMPAC shall be returned to the donor within the time limits established under federal law.

NEMPAC shall keep correct and complete books and records of account and shall also keep minutes of the proceedings of its Board of Trustees and Executive Committee. All books and records are subject to the inspection of any member of the National ACEP Board of Directors, or his or her agent or attorney for any purpose at any reasonable time. NEMPAC books and records shall be maintained by the Treasurer. All records shall be kept, and the preparation and filing of all required reports of receipts and expenditures conducted in compliance with the Act(s) and Regulations(s) of the Federal Election Commission, and other applicable laws and regulations.

ARTICLE VIII – TRUSTEES

Section 1. Subject to the ultimate authority of the National ACEP Board of Directors, the governing body of NEMPAC shall be a Board of Trustees, composed of **the ACEP** ~~and~~ Immediate Past President**, ACEP President-Elect,** ~~and twelve~~**fourteen** (~~12~~**14**) ~~additional~~ individuals**, and one ACEP Resident** who shall serve ~~staggered~~ terms of three (3) years each. ~~The initial twelve (12) individuals will be appointed by the ACEP President as follows:~~

~~Four (4) individuals to serve a one year term.~~
~~Four (4) individuals to serve a two year term.~~
~~Four (4) individuals to serve a three year term.~~

~~Other than the initial trustees, who will serve initial one-year or two-year terms and may serve an additional three-year term, t~~The **fourteen**~~twelve~~ (~~12~~**14**) individuals appointed to the NEMPAC Board of Trustees may serve up to two (2) complete three (3)-year terms **with the exception of the ACEP Resident individual who may serve only one (1) complete term**. The National ACEP President-Elect and Immediate Past President shall serve as~~a~~ NEMPAC Trustee**s** for the duration of ~~his/her~~**their** term**s** in such National ACEP office. All Trustees must be members of National ACEP. The ACEP President shall appoint an individual to fill any vacancy in the NEMPAC Board of Trustees.

Section 2. Subject to review and approval of the National ACEP Board of Directors, the Board of Trustees shall set basic policies with respect to the collection and disbursement of NEMPAC funds, including but not limited to protecting the property and affairs, and carrying out the purposes of the NEMPAC. In particular, the Board of Trustees shall determine, with assistance and advice of the Treasurer, the procedures for solicitation and collection of contributions and subsequent distribution of funds to candidates in accordance with the Act(s) and Regulations(s) of the Federal Election Commission, and other applicable laws and regulations.

Section 3. The Chair of the Board of Trustees shall be appointed by the ACEP President from the ~~twelve~~ **fourteen** (~~12~~**14**) Trustees who are not serving as National ACEP officers**. The ACEP Resident serving on the NEMPAC Board of Trustees shall not be appointed as Chair during his/her term as a Resident member.** ~~and who have one or more years remaining in his/her term as Trustee.~~ The Chair shall be appointed for a one (1) year term and may be reappointed to subsequent terms by the National ACEP President ~~if the Chair has one (1) or more years remaining in the Chair's term as Trustee.~~ **at his/her discretion or replaced by another current member of the Board of Trustees in their first or second terms.**

ARTICLE IX – MEETINGS OF THE BOARD OF TRUSTEES

Section 1. Regular meetings of the Board of Trustees may be held without notice at such time and at such places as shall from time to time be determined by the Board of Trustees, provided that at least one regular meeting of the Board of Trustees shall be held each calendar year.

Section 2. Special meetings of the Board of Trustees may be called by the Chair or may be called by the Secretary upon the written request of a majority of the members of the Board of Trustees. Written notice of special meetings of the Board of Trustees shall be given to each Trustee at least seventy-two (72) hours before the time of the meeting. Neither the business to be transacted at, nor the purpose of, any regular or special meeting of the Board of Trustees need be specified in the notice or waiver of such meeting.

Section 3. A majority of the Trustees shall constitute a quorum for the transaction of business and the actions of the majority of the Trustees present at a meeting at which a quorum is present shall be the actions of the Board of Trustees, unless a greater number is otherwise required by law or by these Articles for a vote on a particular matter. If a quorum shall not be present at any meeting of the Board of Trustees, the Trustees present thereat may adjourn the meeting from time to time, without notice other than announcement at the meeting, until a quorum shall be present.

Section 4. Any action required or permitted to be taken at a meeting of the Board of Trustees may be taken without a meeting if a consent in writing (including but not limited via fax or e-mail or other electronic transmission or voting method), setting forth the action taken, is signed by all members of the Board of Trustees, and such consent shall have the same force and effect as a unanimous vote of the Board of Trustees at a meeting.

Section 5. Trustees may participate in and hold a meeting by means of conference telephone or similar communication equipment by means of which all persons participating in the meeting can hear each other.

Section 6. Committees. The Board of Trustees may designate one or more committees, each consisting solely of members of the Board, with the authority to conduct the affairs of NEMPAC~~,~~ including but not limited to the Executive Committee.

ARTICLE X – EXECUTIVE COMMITTEE

Section 1. The policies established by the Board of Trustees shall be implemented by an Executive Committee composed of the Chair of the Board of Trustees, the President-Elect of National ACEP, the Immediate Past President of National ACEP, and a fourth member appointed from among the Board of Trustees by its Chair.

Section 2. The Executive Committee shall control the collection and expenditure of NEMPAC funds~~,~~ subject to the ultimate authority of the National ACEP Board of Directors.

Section 3. The Chair shall preside at meetings of the Executive Committee. In the absence of the Chair, the ACEP President-Elect shall temporarily serve as Chair.

Section 4. A majority of the members of the Executive Committee shall constitute a quorum for the transaction of business, and the actions of the majority of the members of the Executive Committee present at a meeting at which a quorum is present shall be the actions of the Executive Committee. If a quorum shall not be present at any meeting of the Executive Committee, the members present thereat may adjourn the meeting from time to time, without notice other than announcement at the meeting, until a quorum shall be present.

ARTICLE XI – ADMINISTRATIVE OFFICERS

Section 1. The administrative officers of NEMPAC shall be the Treasurer, the Assistant Treasurer, the Secretary, and the Assistant Secretary, who shall be selected by the Executive Committee. The Administrative Officers, as well as Executive Director and Associate Executive Director for Public Affairs of the National ACEP, shall serve as nonvoting ex officio members of the Board of Trustees and the Executive Committee.

Section 2. The chief financial officer of National ACEP shall serve as the Treasurer of NEMPAC. The Treasurer of NEMPAC shall be its chief financial officer, shall keep the financial and other records of NEMPAC, shall comply with all applicable laws, and shall perform such other duties as may be assigned to him/her by the Chair.

Section 3. The Assistant Treasurer shall, in the absence of the Treasurer, have all the power and perform all duties of the Treasurer. In the event of a vacancy in the office of the Treasurer, the Assistant Treasurer shall immediately become the acting Treasurer.

Section 4. The Secretary shall attend all meetings of the Board of Trustees and Executive Committee and shall record all the proceedings of such meetings in a book to be kept for that purpose and shall perform like duties for any standing or specially appointed committees of the Board of Trustees when required. The Secretary shall give, or cause to be given, notice of all meetings and shall perform such other duties as may be prescribed by the Chair, under whose supervision he/she shall be.

Section 5. The Assistant Secretary shall, in the absence of the Secretary, have all the power and perform all duties of the Secretary. In the event of a vacancy in the office of the Secretary, the Assistant Secretary shall immediately become the acting Secretary.

The Chair and all administrative officers of NEMPAC may be assisted in their duties by one or more National ACEP staff members.

ARTICLE XII – NOTICES

Section 1. Notices to Trustees shall be delivered personally, mailed to the Trustees at their last known addresses, or sent by fax or electronic mail. Notice by mail shall be deemed to be given at the time when deposited in the U.S. Mail.

Section 2. Whenever any notice is required to be given, a waiver thereof in writing signed by the person or persons entitled to such notice shall be equivalent to such notice. Any such waiver may be communicated by mail, fax, or electronic mail.

Section 3. Attendance of a Trustee at a meeting shall constitute a waiver of notice of such meeting, except where a Trustee attends a meeting for the express purpose of objecting to the transaction of any business on the ground that the meeting is not lawfully called or convened.

ARTICLE XIII – ADOPTION AND AMENDMENTS

Section 1. These Amended Articles shall be adopted effective ~~April 4, 2008~~ October 23, 2020.

Section 2. These Articles may be amended from time to time by a two-thirds (2/3) majority vote of the National ACEP Board members present and voting at any duly called and constituted meeting of the National ACEP Board.

ARTICLE XIV – DISSOLUTION

NEMPAC may be dissolved at any time by the two-thirds (2/3) majority vote of the National ACEP Board members present and voting at any duly called and constituted meeting of the National ACEP Board. In the event of such dissolution, all funds contained in NEMPAC's campaign depository shall be distributed for lawful purposes determined by Board of Trustees.

ARTICLE XV – DEPOSITORY

The Board of Trustees, upon advice and recommendation of the Treasurer, shall designate from time to time a depository institution in accordance with the Act(s) and Regulation(s) of the Federal Election Commission, and all other applicable laws and regulations for checking accounts and other accounts as deemed necessary or appropriate.

American College of Emergency Physicians®

ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: Marco Coppola, DO, FACEP
Chair, Compensation Committee

Date: October 15, 2020

Subj: Board Member and Officer Stipends 2020-21

Recommendation

That the Global Stipend Pool remain at the current level of $522,960 for the Board/officer term of 2020-21.

Background

The Compensation Committee's primary objective is to establish stipends for Board members, Board officers, and the Council officers. The committee's recommendation is to continue the current level of stipends because there has not been a significant change in the Consumer Price Index (CPI) (Attachment A). A 10% increase was applied to each officer and non-officer Board member stipend for the term of 2017-18.

The 2020-21 officer and non-officer Board member stipends will remain at the following annual stipend amounts:

President	$139,933
President-Elect	$101,759
Chair	$33,713
Vice President	$33,713
Secretary-Treasurer	$33,713
Immediate Past President	$33,713
Speaker	$33,713
Vice Speaker	$17,371
Non-Officer Board Members	$10,428

In the spring of 2021, staff will survey other medical associations to monitor compensation trends (stipend and expense reimbursement) for the Board of Directors and officers to ensure ACEP members are compensated appropriately.

Should the Board disagree with the committee's recommendations; the committee will consider such feedback with the understanding that the global budget for stipends will remain constant. If the committee agrees with modifications suggested by the Board, the approval will be communicated to the Board no later than the October 29, 2020, Board meeting. However, consistent with the Bylaws, the committee reserves the right to disregard the Board's recommendation for revision. The Board would then have the right to not accept the committee recommendation and appeal directly to the Council as described in the Bylaws.

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

The basis for the Compensation Committee resides in the ACEP Bylaws, Article XI – Committees, Section 7 – Compensation Committee, which states:

"College officers and members of the Board of Directors may be compensated, the amount and manner of which shall be determined annually by the Compensation Committee. This committee shall be composed of the chair of the Finance Committee plus four members of the College who are currently neither officers nor members of the Board of Directors. The Compensation Committee chair, the Finance Committee chair, plus one other member shall be presidential appointments and two members shall be appointed by the speaker. Members of this committee shall be appointed to staggered terms of not less than two (2) years.

The recommendations of this committee shall be submitted annually for review by the Board of Directors and, if accepted, shall be reported to the Council at the next annual meeting. The recommendations may be rejected by a three-quarters vote of the entire Board of Directors, in which event the Board must determine the compensation or request that the committee reconsider. In the event the Board of Directors chooses to reject the recommendations of the Compensation Committee and determine the compensation, the proposed change shall not take effect unless ratified by a majority of councilors voting at the next annual meeting. If the Council does not ratify the Board's proposed compensation, the Compensation Committee's recommendation will then take effect."

Fiscal Impact

The FY 20-210 budget includes funds for stipends at the current amount. The total for a full twelve months of these proposed stipends is $522,960 for the current number of Board members and officers. Should the number of Board members change because of the elections at ACEP20, the total would increase/decrease by the monthly amount for a non-officer Board member.

Prior Board Action

October 2019, accepted the committee's recommendations to: 1) maintain the Global Stipend Pool at the current level for the Board/ officer term of 2019-20; 2) continue the current 2018-19 stipends for the 2019-20 year;

October 2018, accepted the committee's recommendations to: 1) maintain the Global Stipend Pool at the current level for the Board/ officer term of 2018-19; 2) continue the current 2017-18 stipends for the 2018-19 year; 3) Board address the remaining recommendations from the Governance Task Force.

October 2017, accepted the committee's recommendations to: 1) increase the Global Stipend Pool by 10% for all Board member and officer positions effective November 1, 2017 through October 31, 2018; 2) Board address the key recommendations included in the Governance Assessment report from Nelson Strategic Consulting.

See Attachment A for a history of the CPI and stipend changes since 1995.

CONSUMER PRICE INDEX HISTORY
October 1995 – Present

CPI change as of:	Cumulative % change	Stipend Change
July 2020	0.1%	recommend no change in Global Stipend Pool and maintain current stipends for 2020-21
July 2019	1.8%	recommend no change in Global Stipend Pool and maintain current stipends for 2019-20
July 2018	2.9%	recommend no change in Global Stipend Pool and maintain current stipends for 2018-19
**********	**********	**********
July 2017	1.7%	Global Stipend Pool increases 10% effective November 1, 2017 for all positions
**********	**********	**********
March 2016	2.013%	Recommend no change in Global Stipend Pool and maintain current stipends for 2016-17
March 2015	-0.174%	Recommended no change in Global Stipend Pool and maintain current stipends for 2014-15
**********	**********	**********
March 2014	1.5%	Global Stipend Pool increased by 1.5%; recommended that entire increase be applied to the Chair's stipend if NOBM is elected Chair
March 2013	1.2%	Global Stipend Pool increased by 1.2%; entire increase be applied to the Chair's stipend if NOBM is elected Chair
March 2012	1.87%	The entire increase was applied to chair's stipend only
March 2011	3.1%	All stipends increased by 3.1% for officer term 11-12
March 2010	14.6%	President stipend (only) increase by 10% for officer term 10-11
**********	**********	**********
Jan 2009	11.6%	No change recommended for officer term 09-10
April 2008	13.6%	No change recommended for officer term 08-09
Jan 2007	7.0%	No change recommended for officer term 07-08
**********	**********	**********
June 2006	7.3%	Stipends for Speaker and Vice Speaker increased 10/06 and 9/05 for Chair for officer term 06-07
May 2004 – Jan 05	.8%	Stipends for all but Speaker and Vice Speaker increased significantly for officer term 05-06 (effective 9/05)
May 2004	12.0%	Stipends increased by 12% for 10/04 – 10/05 (effective October 14, 2004

August 2002	7.0%	No change recommended for officer term 10/03-10/04
August 2001	5.2%	No change recommended for officer term 10/02 – 10/03
Jan 2000 - May 2001	5.3%	No change recommended for officer term 10/01-10/02
August 1999	10.0%	Stipends increased by 12.5% for 10/00 – 10/01 (effective January 2000)
October 1998	8.9%	No change recommended for officer term 99/00
October 1997	7.6%	No change recommended for officer term 98/99
October 1996	5.7%	No change recommended for officer term 97/98
October 1995	2.7%	No change recommended for officer term 96/97

American College of Emergency Physicians®

ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: Edward A. Shaheen, MD, FACEP
Chair, Emergency Telehealth Section

Alison J. Haddock, MD, FACEP
Board Liaison, Emergency Telehealth Section

Date: October 16, 2020

Subj: Practice Guidance for Emergency Telehealth and Acute Unscheduled Care Telehealth

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

Recommendation

That the Board of Directors approve the "Practice Guidance for Emergency Telehealth and Acute Unscheduled Care Telehealth" (Attachment A).

Background

In 2018, the Emergency Telehealth Section leadership appointed a Practice Guidelines Task Force to develop guidance for the practice of emergency telehealth. The task force developed guidance applicable to all emergency telehealth encounters to help maximize safe and effective patient care. The paper addresses telehealth care provided to patients in and out of the emergency department. Topics covered include physician qualifications, privacy concerns, informed consent, technology, and telehealth research limitations and needs.

The task force concluded its original work in the spring of 2019. Additional revisions were subsequently made and the paper was reviewed by the Board in February 2020. The Board referred the document back to the Emergency Telehealth Section to receive input from the Health Innovation Technology (HIT) Committee about possible revisions. The HIT Committee provided the Emergency Telehealth Section with official comments and suggested revisions to the document in August. The paper was then revised further based on the committee's input.

Numerous edits were made by the Telehealth Section which reflected logical updates since the original work was completed over 15 months prior and many of the recommendations made by the HIT Committee, including but not limited to:

1. Change of wording from "Guidelines" to "Guidance."
2. Removal of language specifically referring to be HIPAA-compliant as a requirement but instead leave more broad and general language, allowing it to be a more "living" document.
3. Language regarding consenting the patient or responsible party. Added language regarding power of attorney (POA) and the state where the POA was executed in relation to what state the patient is located, what should be in writing, implied, etc.
4. Added Business Associate Agreement (BAA) being in place regarding privacy.

5. Adding a forward-looking area (not just current or backwards).
6. Clarification of language as to the credentials or type of the individual(s) providing the professional services, i.e. emergency physician (EP), non-emergency physician (NEP), nurse practitioner (NP) or physician assistant (PA) and removal of the vague term "provider" if not clearly defined.

Previous Board Action

February 2020, reviewed the draft "Emergency Telehealth Practice Guidelines" and referred the paper back to the Emergency Telehealth Section to work with the Health Innovation Technology Committee to refine the document.

Fiscal Impact

Budgeted section and staff resources for development and distribution of the guidance document.

American College of Emergency Physicians Emergency Telehealth Section Policy Guidelines Task Force Vision, Definition, Goals & Practice Guidance for Emergency Telehealth and Acute Unscheduled Care Telehealth

Authors: Shaheen, Edward A.; Davidson, Paul; Mendoza, Carrie; Tannebaum, Ross.
Contributions by: Cichon, Patrick; Ernst, David; Guyette, Frank; Joshi, Aditi; Landry, Kim; Sikka, Neal.
Original completed April 10, 2019
Updated after ACEP Board Submission and HIT Committee Suggestions
August 25, 2020
Final Version Submission to ACEP Board September 29, 2020

Part One: Vision & Definition

Telehealth Section Vision:

The purpose of this document is to provide guidance from the Emergency Telehealth Section to which any/all emergency telehealth encounters should meet in order to help maximize quality, safety, effectiveness, reliability, value, satisfaction, service and consistency to the patient and/or patient guardian while allowing for appropriate safety and protection to the telehealth emergency physician, non-emergency physician, physician assistant or nurse practitioner.

Emergency Telehealth Definition (as December 11, 2019 by Telehealth Section)

https://journals.sagepub.com/doi/abs/10.1177/1357633X19891653)

Emergency telehealth is remotely caring for acute illness, injury and acute exacerbations of chronic diseases, including the initial evaluation, diagnosis, treatment, and prevention, coordination of care, disposition, and public health impact of any patient requiring expeditious care irrespective of any prior relationship. Emergency physicians are uniquely qualified to leverage acute care medical decision making via telehealth, unscheduled or scheduled, to provide medical care across the spectrum of conditions and severity.

The ACEP Telehealth Section believes the context for the definition of the emergency telehealth currently includes the following (08/25/20):

- An emergency physician or non-emergency physician's training, expertise, capabilities, capacity, certification, and credentialing dictate the quality and range of services offered through telehealth.
- Emergency telehealth may be utilized by or in consultation with a board-certified/eligible emergency physician.
- Emergency physicians (EP), non-emergency physicians (NEP), physician assistants (PA), nurse practitioners (NP) and others should use a variety of technologies safely, effectively, and within existing regulatory, quality, and confidentiality frameworks to deliver emergency medical care and address access to care, infection prevention, care efficiency, diagnostic interpretations, clinical interventions, monitoring, and transitions of care.
- Emergency telehealth may be conducted in a variety of settings that include, but are not limited to urban and rural hospital and freestanding emergency departments (EDs), acute care settings, urgent care clinics, observation medicine units, correctional care facilities, out of hospital settings, including the home, skilled nursing facilities, rehabilitation centers, during medical transport, emergency medical services at the scene of illness or injury or in the community, at disaster sites, as well as austere environments such as maritime, aviation, space, and military uses in and out of theatre, in work/employer setting or other settings that are conducive to telehealth encounters.
- Emergency physicians use evidence-based medicine and guidelines to effectively deliver emergency telehealth. Emergency telehealth emergency physicians, NEPs, PAs and NPs should participate in research and rigorous quality improvement to build and expand the base of evidence regarding emergency telehealth.
- The ACEP Emergency Telehealth Section believes that the prudent layperson standard, defined in the Balanced Budget Act (BBA) of 1997, applies to EMTALA *mandated* care regardless if care is delivered in person or through emergency telemedicine and that both in person and emergency telemedicine may be used to satisfy EMTALA screening obligations as dictated by local hospital/medical staff policies.

- Any PA or NP providing emergency telehealth care should be supervised by an emergency physician as determined appropriate by the EP responsible for and providing the supervision and/or collaboration.

*Telehealth refers to real time audio and visual telecommunications when involving patient interviews, exams, management and treatment of a patient by an EP, NEP, PA or NP. With rare exception, telehealth requires both audio and visual to qualify as telehealth.

Part Two: Location Based Emergency Telehealth Practice Guidance & Goals

There are primarily two methods of classifying Emergency Telehealth.

A) Location of the Patient

1. Within an Emergency Department
2. Outside of the Emergency Department
3. Hybrid of the two listed.
    a. Pre-ED or Pre-Hospital care of a patient that transition to an ED patient
        i. Tele-EMS telehealth patient
            a. Patients cared for in the field but transition to the ED
            b. Patients directed to a non ED care setting (clinic, psychiatric facility, Urgent care
            c. Patients that can be managed with a televisit or subsequent referral and don't require EMS transport
        ii. Direct to consumer telehealth that transitions to an ED patient
        iii. Others
    b. An ED patient that is later a non ED patient
        i. An ED patient that requires a transfer and has Tele-EMS care during transport to the next ED or facility i.e. inter-facility transfer including intra-health system transfers and inter-health system transfers
        ii. An ED patient that is discharged home but receives follow up care by telehealth
        iii. Others

B) Location of the EP, NEP, PA or NP treating the Patient

1. At the same location where the patient is located (Originating or "Patient" Site)
    a. This can include EPs, NEPs, PAs and NPs that are at the same facility but not necessarily in the ED with the patient i.e. separate rooms, or nearby, in the main ED treatment area, in a nearby office, another part of the same building etc.
    b. While some may consider the EP, NEP, PA and NP to be at the Originating Site so long as they are affiliated with the same medical or healthcare organization as the one where the patient is located, this is NOT the intention of this Guidance Paper. If the EP, NEP, PA and/or NP is located at a separate location than the patient and could not be at the patient's bedside within a reasonable amount of time, i.e. within the same building and could be at bedside within a few minutes, that EP, NEP, PA or NP would be considered to be at a Distant Site and not the Originating Site (If the EP, NEP, PA or NP is on campus a mile away or on campus of the same healthcare facility located miles away, it is not the intention that this would qualify as being at the originating site)
2. Not at the same location as the patient being treated (Distant or "Remote" Site)
    a. Anywhere that is not at the same site as the patient and not able to be physically at patient's bedside within a short time i.e. minutes. This would include but not limited to the hospital, ED, office, home, etc.
3. Hybrid of the two listed.
    a. Care is provided by a distant site EP, NEP, PA or NP and then later by an originating site EP, NEP, PA or NP
    b. Care is provided by an originating site EP, NEP, PA or NP and later by a distant site EP, NEP, PA or NP
    c. Care is alternated between onsite and offsite EPs and/or NEPs, PAs, and NPs.

The simplest way to think of emergency telehealth encounters is based on the location of the patient.

1) **Emergency Department Originating Site Emergency Telehealth**. Telehealth encounters in the emergency department, by consulting specialists (including emergency specialists i.e. emergency physicians) with

patients (Originating Site Services-OSS Telehealth or "Patient" Site.) These encounters include but are not limited to the following:

A) Tele-Triage when the emergency physician, NEP, PA or NP is located in the same facility as the patient*
   1. Tele-Screening, i.e. on-site tents, when the EP, NEP, PA or NP are at same site as the patient.
   2. Tele-ePPE when emergency physician, NEP, PA or NP are at the same facility as the patient and being used to spare PPE.

B) Tele-Residency when the resident physician and attending physician are located within the same facility.

C) Tele-Emergency (Tele-EM) when the EP, NEP, PA or NP is located in the same facility as the patient. Some do not consider this telehealth for billing purposes (CMS 2020)
   1. Tele-ePPE conservation. EP, NEP, PA or NP are at the same location as patient but care for patient without being at bedside.
   2. Tele-efficiency. Certain EPs, NEPs, PAs or NPs are designated to care for patients via Telehealth while other EPs, NEPs, PAs or NPs are designated to see patients at bedside for complex evaluations or required procedures.

2) **Non-Emergency Department Originating Site Emergency Telehealth.** Emergency Telehealth encounters in which emergency physicians treat patients located outside of the ED directly via telehealth (Distant Site Services-DSS Telehealth or "Remote" Site Telehealth). It is the purpose of this paper to provide general guidance regarding these two types of telehealth encounters. The following are some of the examples of Telehealth that includes a patient located at the "Originating Site" and the Telehealth EP, NEP, PA or NP located at a "Distant Site" but is not exclusive and it is anticipated this list will grow with time:

A) Tele-Screening, i.e. on-site tents, when EP, NEP, PA or NP are at different "facilities, sites, or locations" as the patient

B) Tele-ePPE when EP, NEP, PA or NP are at a different location from the patient (not in ED, i.e. nursing home, patient's home, etc.) and being used to spare PPE.

C) Tele-EMS when the EP, NEP, PA or NP use audiovisual, electronic transmission and digital care to assess and provide pre-hospital medical direction to pre-hospital personnel for treatment of patients prior to arrival to medical facility. This includes viewing rhythm strips, EKGs, injuries and wounds, wounds, burns, disaster setting, vehicle patient was driving or a passenger in, etc. For patients who refuse EMS transport to the emergency department, Tele-EMS can be a valuable tool to allow the emergency physician, NEP, PA or NP to evaluate and perform a virtual assessment/exam of the patient. The patient can then be offered the risk and benefits of transport to allow patients to make an informed decision regarding his or her refusal. Tele-EMS could help identify a life-threatening concern and communicate this to the patient, thus providing information to the patient that could help persuade them to seek potentially life-saving treatment when the patient may have otherwise refused transport or treatment. If the patient is capable of making medical-related decisions on whether to accept or refuse treatment, the patient can refuse transport or treatment. As long as patient will allow it, the patient should still be given care instructions and follow-up instructions that include language that states: should the patient change his or her mind, they should call 911, proceed to the ER or seek immediate care.

D) Tele-Paramedic
   1. Mobile Integrated Health Care
   2. Community Paramedicine
   3. Tele-presenter / Tele-facilitator

E) Tele-Disaster
   1. Hurricane
   2. Flood
   3. Tornado
   4. Chemical Spill
   5. Fire
   6. Radioactive
   7. Infectious Outbreak
   8. Man-made disaster vs. natural vs. hybrid
   9. Other

F) Maritime Setting

G) Aeronautical setting

H) Tele-Transfer / Hospital Transfer/Command Center

I) Tele-Military / Tele-Combat

J) Tele-Immigration (Immigration holding facilities)
K) Tele-Humanitarian (Refugee camps)
L) Tele-Events {Car racing sites, tractor pulls, concerts (indoor or outdoor), etc.}
M) Wilderness Setting
N) Tele-Hospice (Hospice Setting)
O) Nursing Home Setting, Assisted Living Facilities,
P) Critical Care
Q) Shelter (Homeless, Women's, etc.)
R) Schools
S) Work Setting / Businesses
T) Correctional Facilities

This paper will attempt to provide these guidelines in the following format:

I) General practice guidance applicable to all emergency telehealth and acute unscheduled care interactions.
II) Guidance specific to specialist telehealth consultations in the emergency department (Originating Site Services Telehealth) i.e. EP at Patient Site
III) Guidance specific to emergency physicians who are treating patients via telemedicine (Distant Site Services Telehealth) i.e. EP at Remote Site (a.k.a. Distant Site)

Telehealth Section Goals:

PHASE 1: Establish Guidance for all telehealth encounters
PHASE 2: Identify settings for telehealth
PHASE 3: Identify clinical presenting conditions

PHASE I:

1) Establish guidance for all telehealth encounters to address operational issues including identification matters of both the patient and the emergency physician, NEP, PA and/or NP, recommended disclosures, privacy issues, emergency and escalation plans should equipment/connection failures occur, follow-up expectations, contingencies for emergencies, medical records access, and other matters related to creating a successful telehealth visit.

   a. Emergency physicians, NEPs, PAs and NPs must meet federal and state requirements to provide telehealth services

   b. Obtain the name of the patient (and guardians if applicable), date of birth, contact information, i.e. current physical address, phone number and e-mail address, and emergency contacts of the patient and means to contact emergency contacts, i.e. telephone numbers, e-mail address, physical address. If already obtained previously, the EP, NEP, PA or NP should confirm or verify the patient and emergency contact information.

   c. Obtain and document consent for the encounter; consent may be verbal, electronic or written but should comply with applicable laws. Consent is implied by the patient agreeing to participate or when patient is unable to give consent, i.e. when patient is unable to expressly consent for what is believed to be medical reasons and when medical care is believed to be in the patient's best interest. Obtain consent to record the telehealth encounter, receive and/or store photographs, if that is part of the protocol or practice of, or determined to be indicated by the EP, NEP, PA or NP.

   d. Consent should be in writing if reasonably possible. If not in writing, it should be clearly documented in the chart that consent was received. In situations in which a guardian or Power of Attorney (POA), ward of the state, etc. calls in on behalf of the patient, the EP, NEP, PA or NP and his/her team will make a good faith attempt to positively identify who the healthcare POA is and obtain a copy of the written POA, confirm the present location of the patient and the state in which the POA was created, if known, as long as it does not interfere with proper care or pose a risk or danger to the patient by doing so.

   e. The EP, NEP, PA and/or NP should inform the patient, guardian and/or responsible party that he/she will make every reasonable precaution to safeguard the patient's privacy and confidentiality within the laws of the

state that the patient is located (realizing that certain things, if suspected must be reported in certain states, i.e. abuse, imminent suicide risk, danger to others).

f. Establish a patient-physician relationship, (This is assumed with item c) that meets criteria with applicable federal, state or local laws/requirements.

g. The emergency physician, NEP, PA or NP must inform the patient of their right to decline care, terminate the encounter at any time and ability for patient or guardians to ask questions if they do not understand anything or want an explanation regarding treatment, care or anything related to the telehealth encounter.

h. Provide the name and location of the telehealth EP/NEP/PA/NP, or organizational point of contact, to the patient, guardian or clinical surrogate with the patient, i.e. "Hello, my name is Dr. John Doe, I am a medical doctor board certified in emergency medicine and practice from my home office in Baltimore, Maryland."

i. If the medical professional is not a physician, this must be clearly communicated and the non-physician must verify and document in the chart that patient or guardian understands that the clinician is not a physician. If the platform or service has a "list of EPs, NEPs, PAs or NPs" from which the patient can choose to have a telehealth encounter with before connecting, the "platform" or service that shows the list must clearly communicate whether the person is a physician or non-physician and what the board specialty and status of that individual is. If the person providing the care is a PhD and identifies themselves as a "doctor," they must clearly explain they are not a medical doctor. I.e. a nurse practitioner with a doctorate in nursing would clearly communicate they are not a medical doctor, MD or DO but instead have a doctorate in nursing to avoid any confusion in the telehealth medical setting.

j. The patient should have a means to contact the EP, NEP, PA or NP who provides the service during the telehealth encounter to the patient, i.e. mailing or email address, telephone number of the EP, NEP, PA, NP or entity that they are working for where the patient received care.

k. The specialty of the physician providing the care must be clearly communicated. The board status of the physician (boarded or not and by what board) should be clearly stated. If the person providing the care is a PA or NP this should be clearly stated electronically or verbally to the patient or guardian of the patient.

l. Provide instructions on how and where to receive follow up care and emergency care. Specific instructions should be given regarding what primary care or specialty physician, non-physician provider, medical practice, clinic or telehealth visit to follow up with and the time interval for follow up or subsequent visits. If the patient's condition worsens, provide criteria for immediate follow up (call 911 or immediately go to ER). While there are present attempts to create safe harbors and exclusions in the Anti Kickback and Stark physician anti-self-referral statutes, these exclusions and safe harbors have not yet been enacted; therefore, telehealth EPs, NEPs, PAs and NPs should refer the patient for the most appropriate follow up in the most appropriate time frame, and make every effort possible to avoid, or avoid even the appearance of, referring the patient to an entity in which the EP, NEP, PA or NP has a financial benefit or a referral in which the EP, NEP, PA or NP receives a benefit or financial incentive.

m. The telehealth emergency physician, NEP, PA and NP should have an escalation protocol to follow in the event of connection or equipment failure, and have a method or policy for emergency response for addressing immediate life threatening conditions i.e. collapse, suicide ideation, imminent deterioration, etc.

n. How to obtain copies of and access to medical records and/or have medical records transmitted to another physician, PA or NP.

o. Privacy of individually identifiable healthcare records must be maintained and patient should be informed of privacy policy and/or protection.

p. An appropriate medical record of the encounter needs to be created and maintained as required based on established laws, regulations and appropriateness of encounter or based on what is customary in the practice of the emergency physician, NEP, PA or NP providing the care. This should be created by the emergency physician, NEP, PA or NP on hospital or non-hospital provided medical records or charting system.

Medical Records typically should include at a minimum the following:

1. Medical Records should be generated in an appropriate format consistent with an acceptable standard of care for an office-based or emergency department patient encounter.
2. A complaint-specific History and Physical Exam (PE) should be documented as is appropriate, based upon the technology appropriate and available to the EP, NEP, PA or NP for any particular patient complaint(s).
3. Documentation of assessment, plan, impression, discharge instructions, prescriptions and follow-up care should be included.
4. Medical Records should be stored in a secure manner and be available for review or transfer to patient or secondary provider.

q. Prescriptions should be documented in the discharge plan and/or medical record.

r. Conduct an appropriate, real time examination to provide the Telehealth EP, NEP, PA and/or NP sufficient clinical information in order for them to practice at an acceptable level of skill and safety. The EP, NEP, PA or NP exam and practice of medicine during any emergency telehealth encounter should meet, or exceed, the standard of care of an emergency or acute unscheduled encounter when reasonably possible under most ordinary conditions (exceptions may occur under extraordinary circumstances such as disasters, public health emergencies, etc.). If any circumstances prevent the EP, NEP, PA or NP from meeting the standard of care during the telehealth encounter for whatever reason, the EP, NEP, PA or NP should immediately arrange for, or direct the patient or originating personnel to, transport of the patient to the ED, or other appropriate facility, so that the standard of care can be met.
   1. Establish a diagnosis through use of acceptable medical practices via appropriate history taking, physical examination, using peripherals if necessary including but not limited to a camera, voice transmission, an otoscope, a stethoscope, an ophthalmoscope, remote vital signs, oximeter, ECG and /or any combination of the above or other device or tool as necessary. If unable to reach a diagnosis or exclude significant risks with reasonable certainty with the information and equipment available, refer the patient for further evaluation and/or testing within an appropriate time frame, i.e. immediately by calling 911 or directing patient to proceed to ED or next day/week follow up with a specific physician, clinic, facility, etc.
   2. Discuss the diagnosis with the patient
   3. Discuss treatment recommendations/options with patient (guardians or clinical surrogate if applicable) along with risks and benefits.
   4. When applicable and originating site personnel capable and authorized, initiate treatment, i.e. IV fluids, medications, immobilization, burn or wound care, etc.

s. Ethics. Anyone involved in a telehealth encounter, whether emergency physician, NEP, PA, NP, company, hospital, communication provider, etc., should practice and behave in an ethical manner. Consideration and efforts should be made to apply telehealth in a manner to minimize disparities between patients regardless of a patient's insurance status, race, national origin, age, religion, political affiliation, home address (or lack of), or socioeconomic status. When in doubt, use good judgment and common sense to do what is best for the patient under the circumstances present.

PHASE II:

2) Identify various settings in which Telehealth can occur and make modifications to the above that make them more appropriate/suitable for those settings.
   a. Emergency Department
      1. Same facility
         a) Tele-Triage
         b) Tele-Residency
         c) Tele-EM for efficiency and ePPE, expertise, supervision
         d) Other
      2. Distant facility
         a) Tele-Triage
         b) Tele-Residency
         c) Tele-EM (expertise/supervision for others)
         d) Other
   b. Hospital setting

c. Acute care settings
d. Home setting, i.e. patient's home
e. Pre-hospital EMS
f. Disaster setting
    1. Hurricane
    2. Flood
    3. Tornado
    4. Chemical spill
    5. Fire
    6. Radioactive
    7. Infectious outbreak
    8. Man-made disaster vs. natural vs. hybrid
g. Maritime setting
h. Aeronautical setting
i. Medical System Transfer Command Center (Tele-Transfer)
j. Events (local and distant)
k. Wilderness
l. Hospice setting
m. Nursing Home, Assisted living
n. Critical Care
o. Shelter
p. Schools
q. Businesses
r. Correctional facilities
s. Military
t. Refugee camps
u. Immigration holding facilities
v. Other

PHASE III:

3) Identify specific clinical presenting conditions
    a. Most common complaints
        1. Cough
        2. Congestion
        3. Sore throat
        4. Other complaints that may lead to URI diagnosis
        5. Eye pain/redness
        6. Ear pain
        7. Breathing problems/short of breath/asthma flare up
        8. Dental pain
        9. Rash-, zoster, bites, impetigo, fungal, warts, cellulitis, parasites
        10. Headache
        11. Back pain
        12. Chest pain
        13. Psych-anxiety, insomnia, depression
        14. Peds- croup, bronchiolitis, UTI, URI, fever
        15. Abdominal pain, diarrhea, vomiting
        16. Infectious-fever, Lyme, Zika, influenza, dysuria, travel health, yellow fever
        17. Medication refill
        18. OB/Gyn related c/o- hyperemesis, vaginitis, urinary incontinence, UTI
        19. Tobacco cessation
        20. Musculoskeletal
        21. Diabetic hypoglycemia
        22. Medication-assisted treatment (MAT), substance abuse
        23. Other
    b. Organ system approach
        1. Neurologic

2. Cardiovascular
3. Pulmonary
4. Gastrointestinal
5. Genitourinary
6. Musculoskeletal
7. Endocrine
8. Immune/Lymphatic
9. Integumentary

c. Age based
   1. Infant
   2. Child
   3. Adolescent
   4. Young adult
   5. Adult
   6. Elderly
   7. Geriatric

d. Gender or "Condition" based
   1. Male
   2. Female
      aa. Pre-puberty
      bb. Puberty/menopausal
      cc. Pregnancy
      dd. Post-menopausal
   3. Transgender
   4. Immunocompromised
   5. Cancer
   6. Hospice

Part Three: Practice Guidance, Specialist Telehealth in the Emergency Department & Future Direction of Emergency Telehealth & Acute Unscheduled Care

I) General Practice Guidance Applicable for all Emergency Telehealth & Acute Unscheduled Care Telehealth Encounters

Background and principles: As a general principle, all rules regarding general issues in emergency telehealth such as qualifications of physicians, consent, patient privacy, access to medical records and related issues should reflect the same rules and guidelines concerning non-telehealth physician-patient interactions. Additionally, some additional considerations must apply to the unique nature of the telehealth encounter. Therefore, this task force recommends the following rules and guidance:

1) Credentialing: Physicians practicing telehealth at any particular institution must be credentialed to physically practice medicine at that institution and/or have telemedicine privileges. Telemedicine credentialing should be based upon similar criteria as that for physicians credentialing for traditional privileges. In some scenarios, credentialing by proxy may be a reasonable option.

2) Board certification/board eligibility: 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 board certified, or eligible for certification, by the American Board of Emergency Medicine (ABEM) or American Osteopathic Board of Emergency Medicine (AOBEM).

3) Licensing: At the present time in the United States, it is generally accepted that physicians providing telehealth care must be licensed in the state that the patient is physically located at the time of the encounter. ACEP's Emergency Telehealth Section supports a national licensing standard that would allow physicians to practice in all 50 states and all US territories which would ease the burden qualified and willing EPs and NEPs face in order to provide telehealth services. Such a licensing standard would increase access to specialty care and help provide emergency telehealth services from board-certified physicians to residents of

rural areas and other underserved communities that currently are unable to receive such services in a timely manner, if at all.

4) Privacy, confidentiality, portability of medical records:
   a. Telehealth interactions have the same requirements for privacy and confidentiality of the encounters themselves and of medical records generated by these encounters as do traditional medical encounters per local, state and federal regulations.
   b. Telehealth interactions raise additional confidentiality risk in terms of cybersecurity breaches of telehealth interactions and their records. All telehealth programs must include adequate point-to-point encryption of real-time data transmission and mechanisms to protect patient confidentiality of electronic medical records per local, state and federal regulations at the time of the encounter. Telehealth entities (hospitals, private companies) are responsible for maintaining anti-virus software, privacy of patient health information, the security of electronic devices used in telehealth and the employees or contractors they employ or contract with to provide services and must report a lost or stolen device or any breach of privacy or other kind as required by law or industry guidelines.
   c. Business Associate Agreements (BAAs) should be made and in place prior to providing telehealth encounters. Waivers can be made under extraordinary circumstances, i.e. public health emergencies (PHE) such as the COVID-19 declared PHE. Covered health care entities that seek additional privacy protections for telehealth while using video communication products should provide such services through technology vendors that meet federal, state and/or local privacy requirements i.e. HIPAA and will enter into BAAs in connection with the provision of their video communication products.

5) Telehealth informed consent
   It is recommended that the EP, NEP, PA and NP familiarize themselves with the informed consent standards and procedures of the facility or entity (hospital or non-hospital, company) for whom they provide telehealth services to assure that consent has been obtained prior to their involvement or to obtain consent themselves from the patient or guardian at the initiation of the telehealth encounter/visit. For example, when patients are registered at a hospital and consent to care, remote consultations are typically part of the consent form. If the physician is unclear or uncertain if the patient has provided consent or the patient is unclear about consent for the telehealth encounter, we recommend obtaining consent from the patient and/or guardian.

6) Support of research of clinical telehealth, and use of the "reasonable application" standard:
   a. At the present time, there is sparse research as to the correlation of telehealth encounters vs. traditional encounters.
   b. For this reason, the Telehealth Section strongly emphasizes the need for research and quality assurance efforts to validate the clinical accuracy, safety and efficacy of emergency telehealth encounters.
   c. Clinical practice within the telehealth format should, whenever possible, be based upon accepted practice in traditional encounters and validated in telehealth practice or trials using a telehealth format.
   d. Until such validated research results are available and best practices can be established on verifiable clinical telehealth data and studies, clinical encounters via telehealth should be based upon a "reasonable application standard", meaning that it is "reasonable" to extrapolate evidence-based practices in traditional medicine to practice in a telehealth format.
   e. Best for the patient standard. Another logical method would be for the EP, NEP, PA or NP to apply a high standard of ethics and use his or her knowledge and expertise in emergency medicine, known information, best medical judgment and common sense to do what is best for the patient.

7) When making remote medical decisions, we recommend EPs, NEPs, PAs and NPs use whatever technology or equipment that is necessary and available to them to reach an accurate diagnosis, or exclude significant risk, with a high degree of certainty and recommend an appropriate treatment plan. The technology or equipment must at least meet any minimum requirements that may exist in federal, state or local law/requirements. In DC it is required to have frame rate of 30 frames per second and latency less than 300ms. If the EP, NEP, PA or NP is unable to provide what he or she believes to be an appropriate evaluation and care due to the lack of technology, equipment or adequate testing, it is recommended that the EP, NEP, PA or NP refer or arrange for, as clinically appropriate, the transport of the patient to a higher level of care, i.e. hospital emergency department, so that the patient can receive the appropriate evaluation, testing, care and treatment that may be necessary as would be done in a traditional in-person visit.

8) There are inherent limitations to evaluation of patients using a telehealth platform. When utilizing telehealth and digital health technologies, providers should be expected to either obtain sufficient information to make a treatment plan or an actionable next step for the patient. In the absence of sufficient information, as is consistent with the standard of care of all other health delivery mechanisms, a referral for an in-person evaluation and/or further testing to obtain further information should be taken.

9) We recommend EPs, NEPs, PAs and NPs clearly document any limitations present during the telehealth encounter, how any limitations impacted the medical decision making and what was done to assure that the patient received appropriate care, i.e. 911 called to location, referred to ER immediately, scheduled to see orthopedist following day, etc.

II) Practice Guidance Specific to Specialist Telehealth Consultations in the Emergency Department:

It is anticipated that there will be additional telehealth consultation services for emergency departments in the future and additional need and demand for emergency physicians outside of the traditional bricks and mortar emergency departments. As in our general recommendations and guidance for telehealth services, the ACEP Emergency Telehealth Section acknowledges that telehealth consultations by specialists should reflect best practices by emergency physicians and specialists in the emergency department. If best practices are not yet established for any particular telehealth specialty, until there are, it is reasonable to expect that any specialist providing telehealth services will apply the standard of care that is applicable to his or her specialty at said time when telehealth care is provided as would be done in the traditional practice (non-telehealth) of that specialty. In addition, some unique aspects of the telehealth interaction are considered in our recommendations:

1) As a general rule, all patients in the emergency department should be evaluated by an emergency physician. This includes patients who have telehealth consultations by specialists. For all patients in the ED, the EP is the attending physician and has final say over the care and management of the patient unless care is explicitly transferred to the consultant, i.e. for admission or ED-based transfer.

2) There must be clear designation of responsibility for maintenance and engagement of telehealth equipment for specialty consultations. This responsibility lies with the facility or entity i.e. hospital

3) Specialists are required to document their consultations similarly to in-person encounters. It is recommended that specialists do so in real time particularly with time-sensitive matters, i.e. tele-stroke, tele-radiology, tele-trauma, tele-surgery, tele-orthopedics, etc.

4) Emergency physicians and specialists providing telehealth consultations for emergency department patients should be able to interact as much as possible as if the specialist was physically in the emergency department.

5) There should be someone qualified and designated as a telehealth exam facilitator or presenter at bedside where the patient is located to assist the emergency physician, NEP, PA or NP with the emergency telehealth encounter/visit, i.e. Telehealth Presenter.

6) Informed Consent:
   a. Specialist evaluation: As a general rule, consent to interact with a specialist consultant is the same as with a specialist consultant in the ED—for evaluation itself there is implied consent by submitting to the examination and written consent is not needed. In addition, the emergency doctrine applies, I.e. a patient having an acute CVA stroke does not need written consent to be seen by a neurologist either in person or via a telehealth encounter.

   b. Need for written consent for treatment via a telehealth encounter should make medical and legal sense and be consistent with the need for consent in a traditional interaction. For example, the need for written consent from a patient or healthcare POA for TPA for acute CVA should be the same if the neurologist were physically present, this includes obtaining written consent or not obtaining written consent based upon the emergency doctrine.

   c. For imaging studies read by tele-radiologists with medical staff radiologist over-reads, patients and families should be informed that the results are a preliminary reading by a tele-radiologist, and that a

medical staff radiologist will re-read the film within 24 hours, and that the patient will be contacted if any new findings. Any tele-radiology reading must be provided to the EP, NEP, PA or NP caring for the patient in real time and in written form (even if hand written and faxed or electronic form that cannot be altered) for safety and other reasons particularly when time is of the essence, i.e. CVA

d. Transmission of photos of patients should take place on a secure platform that complies with applicable laws and all efforts should be made to eliminate or minimize any identifying characteristics. A Business Associate Agreement (BAA) should be in place with the platform provider and the emergency physician, NEP, PA, NP or whomever will be using the platform transmitting private information. Direct to consumer platforms already have this functionality. If the photo has to be taken and sent with the EP's, NEP's, PA's or NP's personal phone, it should be done with a secure app. If not possible, images should be erased from the phone as soon as possible. Prior consent to take and transmit a photo should be obtained from the patient. If under emergency circumstances, clinical circumstances and judgment dictate deviation from a secure or compliant transmission, documentation of such and patient or guardian consent in writing is recommended.

III-Future Directions

This guidance is a first step and was based on expert consensus because the ACEP Emergency Telehealth Section was not aware of, or able to find, established, generally accepted best practices, standards, guidelines or guidance when reviewing the literature. We believe, expect and hope that this guidance will undoubtedly need to be broadened and updated in the future. This guidance will serve as a foundation on which future work can be built and further the ethical practice of quality emergency medicine and acute unscheduled care using telehealth. As emergency telehealth and acute unscheduled care expands into arenas we predict and arenas that may not yet be envisioned, as more research is done and best practices are established, guidelines and standards can be introduced and added to this work. Various areas that will need to be addressed include:

1) Guidance, guidelines and standards for emergency and acute unscheduled care telehealth for patients outside of the walls of brick and mortar emergency departments.
2) Guidance, guidelines and standards for the use, expectations and documentation of telehealth peripherals including but not limited to monitors, EKGs, pulse oximetry, electronic stethoscopes, otoscopes, ophthalmoscopes and cameras, remote ultrasound, point of care (POC) testing, etc.
3) Guidance, guidelines and standards for emergency telehealth and acute unscheduled care regarding electronic health records (EHRs) and operation space, how they must be modified and changed to properly capture the telehealth encounter.
4) Guidance, guidelines and standards for emergency and acute unscheduled care telehealth regarding proper coding, billing and reimbursement specific to telehealth. All services that are provided should be billed and reimbursed with parity to the in-person equivalent.
5) Universal, or a national, licensing mechanism needs to be developed and expedited to minimize impedance of emergency and acute unscheduled care telehealth to maximize access to, and options for, patients and the public.
   a. Currently, any EP or NEP must check with the state medical board in the state in which he or she plans on treating patients before doing so to ensure compliance with state licensing laws.
      1. States may require a full medical license, a telemedicine license, a license in a neighboring state or federal agency, or no licensing at all depending on the circumstances.
         The Federation of State Medical Boards is a resource that provides helpful information but is not the ultimate authority; the medical licensing board in the state is.
   b. There is an Interstate Medical Licensure Compact that includes twenty-seven (27) states (plus Guam) as of August 2020.
      1. 24 states serve as States of Primary License (SPL) and issuing licenses
      2. 3 are non-SPL states that issue licenses.
      3. These states include: Alabama, Arizona, Colorado, Georgia, Guam, Idaho, Illinois, Iowa, Kansas, Maine, Maryland, Michigan, Minnesota, Mississippi, Montana, Nebraska, Nevada, New Hampshire, North Dakota, Oklahoma, South Dakota, Tennessee, Utah, Vermont, Washington, West Virginia, Wisconsin, and Wyoming.
   c. For more information go to Interstate Medical Licensure Compact website at **https://www.imlcc.org/**

American College of Emergency Physicians®

ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: Stephen J. Wolf, MD, FACEP
Chair, Clinical Policies Committee

Jon Mark Hirshon, MD, MPH, PhD
Board Liaison, Clinical Policies Committee

Date: October 14, 2020

Subj: Clinical Policy on Community-Acquired Pneumonia

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

Recommendation

1. That the Board of Directors approve the *Clinical Policy: Critical Issues in the Management of Adult Patients Presenting to the Emergency Department With Community-Acquired Pneumonia* (Attachment A).

2. That the Board of Directors rescind the 2009 *Clinical Policy: Critical Issues in the Management of Adult Patients Presenting to the Emergency Department With Community-Acquired Pneumonia* (Attachment B).

Background

Community-acquired pneumonia is the most common reason for admission to the hospital with approximately 1.5 million hospital admissions per year. Since the majority of patients admitted for pneumonia come through the emergency department, clinicians must balance the need to accurately diagnose and treat pneumonia while ensuring that these efforts do not lead to the overuse of antimicrobial therapy.

This draft is an update of the 2009 clinical policy and it focuses on the benefit of clinical decision tools alone and in conjunction with serum biomarkers, laboratory testing to direct initial antimicrobial therapy, and the use of single-dose parenteral antimicrobials before discharge from the emergency department on oral therapy.

The three critical questions addressed in the draft:

1. In the adult emergency department patient diagnosed with community-acquired pneumonia, what clinical decision tools can be used to determine disposition?
2. In the adult emergency department patient with community-acquired pneumonia, what biomarkers can be used to direct initial antimicrobial therapy?
3. In the adult emergency department patient diagnosed with community-acquired pneumonia, does a single dose of parenteral antibiotics in the emergency department followed by oral treatment versus oral treatment alone improve outcomes?

Prior Board Action

June 23, 2009, approved the *Clinical Policy: Critical Issues in the Management of Adult Patients Presenting to the Emergency Department With Community-Acquired Pneumonia* and rescinded the 2001 version.

March 14, 2001, approved *Clinical Policy for the Management and Risk Stratification of Community-Acquired Pneumonia in Adults in the Emergency Department.*

Fiscal Impact

Budgeted committee and staff resources for the development and distribution of clinical policies.

Clinical Policy: Critical Issues in the Management of Adult Patients Presenting to the Emergency Department With Community-Acquired Pneumonia

This DRAFT is EMBARGOED – Not for Distribution

September 16, 2020

From the American College of Emergency Physicians Clinical Policies Subcommittee (Writing Committee) on Community-Acquired Pneumonia:

Michael D. Smith, MD, MBA (Subcommittee Chair)
Christopher Fee, MD
Sharon E. Mace, MD
Brandon Maughan, MD, MHS, MSHP
John C. Perkins Jr, MD
Amy Kaji, MD, MPH, PhD (Methodologist)
Stephen J. Wolf, MD (Committee Chair)

ABSTRACT

This clinical policy from the American College of Emergency Physicians is a revision of the 2009 "Clinical Policy: Critical Issues in the Management of Adult Patients Presenting to the Emergency Department With Community-Acquired Pneumonia." A writing subcommittee conducted a systematic review of the literature to derive evidence-based recommendations to answer the following clinical questions: (1) In the adult emergency department patient diagnosed with community-acquired pneumonia, what clinical decision aids can inform the determination of patient disposition? (2) In the adult emergency department patient with community-acquired pneumonia, what biomarkers can be used to direct initial antimicrobial therapy? (3) In the adult emergency department patient diagnosed with community-acquired pneumonia, does a single dose of parenteral antibiotics in the emergency department followed by oral treatment versus oral treatment alone improve outcomes? Evidence was graded and recommendations were made based on the strength of the available data.

INTRODUCTION

Community-acquired pneumonia remains a major health problem in the United States. As the eighth leading cause of death, it claims the lives of over 100,000 Americans per year.[1] Pneumonia is the most common reason for admission to the hospital, with 1.5 million hospital admissions per year, costing between $11,000 and $51,000 per admission.[2] Because of this profound significance, national quality measures have been developed and refined over the years in an attempt to improve quality of pneumonia care.[3]

Pneumonia is defined as an acute pulmonary parenchymal infection (new lung infiltrate with suspected infectious origin) and although the infectious agent may be nonbacterial, once receiving a diagnosis of pneumonia, the patient is usually treated empirically with antibiotics. Pneumonia can be divided into subcategories (community-acquired, hospital-acquired, and ventilator-associated), with each subcategory carrying different risk factors, morbidity and mortality, and likely pathogens, necessitating varying antimicrobial regimens. In the past, literature has referred to health care–associated pneumonia (HCAP) versus community-acquired pneumonia (CAP). The nomenclature has since been refined, with the HCAP term being retired in favor of 2 subgroups: hospital-acquired pneumonia (HAP), defined as pneumonia not incubating at the time of admission and occurring 48 hours or more after admission, and ventilator-associated pneumonia (VAP), defined as pneumonia occurring greater than 48 hours after intubation.[4] Both of these updated categorizations define pneumonia as being acquired from the hospital admission or from being intubated. This clinical policy focuses solely on CAP.

Clinicians must balance the need to accurately diagnose and treat pneumonia while ensuring that these efforts do not lead to the overuse of antimicrobial therapy. Furthermore, since the majority of admitted patients

come through the emergency department (ED), determining patient disposition becomes a major question for emergency physicians. Clinical decision aids and biomarkers may play a role in this effort. Finally, some physicians administer a single dose of intravenous antibiotics before discharge on oral therapy. Whether this practice improves patient outcomes or merely adds to the financial cost, ED length of stay, and patient discomfort remains to be determined.

The 2009 ACEP "Clinical Policy: Critical Issues in the Management of Adult Patients Presenting to the Emergency Department With Community-Acquired Pneumonia"[5] addressed questions of whether routine blood cultures were indicated for patients admitted with CAP and whether there was a morbidity and mortality benefit to administering antibiotics in a specific time course. In this updated clinical policy, we address what clinical decision aids can help the emergency physician in the disposition of patients diagnosed with pneumonia, both alone and in conjunction with the use of serum biomarkers. Then we evaluate the use of laboratory testing to direct initial antimicrobial therapy in the ED. Finally, we look at the use of single-dose parenteral antimicrobials before discharging on oral therapy to determine whether there is an outcomes benefit such as decreased length of illness compared with the potential downsides of cost, patient discomfort, and ED length of stay.

METHODOLOGY

This clinical policy is based on a systematic review with critical analysis of the medical literature meeting the inclusion criteria. Searches of MEDLINE, MEDLINE InProcess, Scopus, EMBASE, Web of Science, and the Cochrane Database of Systematic Reviews were performed. All searches were limited to studies of adult humans published in English. Specific key words/phrases, years used in the searches, dates of searches, and study selection are identified under each critical question. In addition, relevant articles from the bibliographies of included studies and more recent articles identified by committee members and reviewers were included.

This policy is a product of the ACEP Clinical Policy development process, including internal and external review, and is based on the existing literature; when literature was not available, consensus of Clinical Policies Committee members was used and noted as such in the recommendation (ie, Consensus recommendation). Internal and external review comments were received from emergency physicians, clinical pharmacists, specialists in internal medicine, the American Thoracic Society, the Infectious Diseases Society of America, ACEP's Medical-Legal Committee, and ACEP's Quality and Patient Safety Committee. Comments were received during a 60-day

open-comment period, with notices of the comment period sent in an e-mail to ACEP members, published in *EM Today*, and posted on the ACEP Web site, and sent to other pertinent physician organizations. The responses were used to further refine and enhance this Clinical Policy; however, responses do not imply endorsement. Clinical policies are scheduled for revision every 3 years; however, interim reviews are conducted when technology, methodology, or the practice environment changes significantly. ACEP was the funding source for this Clinical Policy.

Assessment of Classes of Evidence

Two methodologists independently graded and assigned a preliminary Class of Evidence for all articles used in the formulation of this clinical policy. Class of Evidence is delineated whereby an article with design 1 represents the strongest study design and subsequent design classes (ie, design 2 and design 3) represent respectively weaker study designs for therapeutic, diagnostic, or prognostic studies, or meta-analyses (Appendix A). Articles are then graded on dimensions related to the study's methodological features, such as randomization processes, blinding, allocation concealment, methods of data collection, outcome measures and their assessment, selection and misclassification biases, sample size, generalizability, data management, analyses, congruence of results and conclusions, and conflicts of interest. Using a predetermined process combining the study's design, methodological quality, and applicability to the critical question, articles received a Class of Evidence grade. An adjudication process involving discussion with the original methodologist graders and at least one additional methodologist was then used to address any discordance in original grading, resulting in a final Class of Evidence assignment (ie, Class I, Class II, Class III, or Class X) (Appendix B). Articles identified with fatal flaws or ultimately determined to not be applicable to the critical question received a Class of Evidence grade "X" and were not used in formulating recommendations for this policy. However, content in these articles may have been used to formulate the background and to inform expert consensus in the absence of robust evidence. Grading was done with respect to the specific critical questions; thus, the Class of Evidence for any one study may vary according to the question for which it is being considered. As such, it was possible for a single article to receive a different Class of Evidence rating when addressing a different critical question. Question-specific Classes of Evidence grading may be found in the Evidentiary Table included at the end of this policy.

Translation of Classes of Evidence to Recommendation Levels

Based on the strength of evidence grading for each critical question (ie, Evidentiary Table), the subcommittee drafted the recommendations and the supporting text synthesizing the evidence using the following guidelines:

Level A recommendations. Generally accepted principles for patient care that reflect a high degree of clinical certainty (eg, based on evidence from 1 or more Class of Evidence I or multiple Class of Evidence II studies demonstrating consistent effects or estimates).

Level B recommendations. Recommendations for patient care that may identify a particular strategy or range of strategies that reflect moderate scientific certainty (eg, based on evidence from 1 or more Class of Evidence II studies or multiple Class of Evidence III studies demonstrating consistent effects or estimates).

Level C recommendations. Recommendations for patient care that are based on evidence from Class of Evidence III studies or, in the absence of adequate published literature, based on expert consensus. In instances where Consensus recommendations are made, "consensus" is placed in parentheses at the end of the recommendation.

The recommendations and evidence synthesis were then reviewed and revised by the Clinical Policies Committee, which was informed by additional evidence or context gained from reviewers.

There are certain circumstances in which the recommendations stemming from a body of evidence should not be rated as highly as the individual studies on which they are based. Factors such as consistency of results, uncertainty about effect magnitude, and publication bias, among others, might lead to a downgrading of recommendations.

When possible, clinically oriented statistics (eg, likelihood ratios [LRs], number needed to treat) are presented to help the reader better understand how the results may be applied to the individual patient. This can assist the clinician in applying the recommendations to most patients but allows adjustment when applying to patients at the extremes of risk (Appendix C).

This policy is not intended to be a complete manual on the evaluation and management of adult patients with CAP but rather a focused examination of critical issues that have particular relevance to the current practice

of emergency medicine. Potential benefits and harms of implementing recommendations are briefly summarized within each critical question.

It is the goal of the Clinical Policies Committee to provide an evidence-based recommendation when the medical literature provides enough quality information to answer a critical question. When the medical literature does not contain adequate empirical data to answer a critical question, the members of the Clinical Policies Committee believe that it is equally important to alert emergency physicians to this fact.

This Clinical Policy is not intended to represent a legal standard of care for emergency physicians. Recommendations offered in this policy are not intended to represent the only diagnostic or management options available to the emergency physician. ACEP recognizes the importance of the individual physician's judgment and patient preferences. This guideline provides clinical strategies for which medical literature exists to answer the critical questions addressed in this policy.

Scope of Application. This guideline is intended for physicians working in EDs who evaluate and treat CAP.

Inclusion Criteria. This guideline is intended for adult ED patients with CAP.

Exclusion Criteria. This guideline is not intended for pediatric or pregnant patients.

CRITICAL QUESTIONS

1. In the adult ED patient diagnosed with community-acquired pneumonia, what clinical decision aids can inform the determination of patient disposition?

Patient Management Recommendations

Level A recommendations. None specified.

Level B recommendations. The Pneumonia Severity Index (PSI) and CURB-65 decision aids can support clinical judgement by identifying patients at low risk of mortality who may be appropriate for outpatient treatment. Although both decision aids are acceptable, the PSI is supported by a larger body of evidence and is preferred by other society guidelines (ATS/IDSA 2019 guidelines).

Level C recommendations. Among patients not receiving vasopressors or mechanical ventilation, use the 2007 IDSA/ATS Minor Criteria rather than mortality prediction aids such as the PSI or CURB-65 to help establish which patients are most appropriate for care based in an ICU setting (Consensus recommendation).

Do not routinely use biomarkers to augment the performance of clinical decision aids to guide the disposition of ED patients with CAP (Consensus recommendation).

Use CAP clinical decision aids in conjunction with physician clinical judgment in the context of each patient's circumstances when making disposition decisions (Consensus recommendation).

Potential Benefit of Implementing the Recommendations:

- Appropriate use of CAP decision aids may help physicians identify patients who are at low risk for mortality and may be appropriate for outpatient treatment.
- Appropriate use of risk-decision aids may allow physicians to identify patients with CAP who are at high risk for needing mechanical ventilation or vasopressors and who may benefit from ICU admission. Early identification and appropriate disposition of these patients to an ICU is associated with lower mortality compared with patients with delayed transfer to an ICU (ie, after admission to a non-ICU bed).

Potential Harm of Implementing the Recommendations:

- There may be factors pertinent to patient disposition that are not considered by risk-decision aids, such as patients who are immunocompromised or who have poor psychosocial supports. Patients identified as at low risk for mortality may still warrant hospitalization for these reasons. Inappropriate use of risk-decision aids without consideration of external factors could lead to unsafe discharge of patients who should instead be admitted.

Key words/phrases for literature searches: pneumonia, community-acquired, community-acquired pneumonia, CURB, Pneumonia Severity Index, clinical decision support system, clinical decision making, decision support aid, decision support aids, decision support system, decision support tool, decision support tools, clinical decision aid, clinical decision aids, clinical decision tool, clinical decision tools, decision support techniques, decision support systems clinical, emergency, emergency health service, hospital emergency service, emergency ward, emergency medicine, emergency care, emergency treatment, emergency department, emergency room, emergency service, emergency services, and variations and combinations of the key words/phrases. Searches included January 2007 to search dates of August 29 and 30, 2017.

Study Selection: Six hundred eight articles were identified in the searches. Sixty-six articles were selected from the search results as potentially addressing this question and were candidates for further review. After grading for methodological rigor, zero Class I studies, 2 Class II studies, and 36 Class III studies included for this critical question (Appendix D).

For the last 3 decades, aids that predict CAP-associated mortality have been used to inform decisions regarding the need for hospitalization. Patients with CAP, at low risk of mortality, and who had appropriate social support and outpatient follow-up were typically considered to be appropriate for outpatient management, whereas patients who had higher predicted mortality or insufficient outpatient resources were more often hospitalized. Patients with the highest predicted risk of mortality were often considered for ICU care, although evidence suggests that criteria specifically designed for this purpose (eg, to predict which patients will need ICU-level care

such as mechanical ventilation or vasopressors) have greater ability to predict patients who may need these interventions compared with criteria that solely predict mortality. Early identification of patients with CAP who will need ICU care is important because those with delayed ICU transfer from the hospital floor to the ICU, such as for respiratory failure or septic shock, have higher mortality than patients who were admitted directly to the ICU.[6-9]

Two categories of aids help guide these disposition decisions. Traditional clinical decision aids use a combination of patients' clinical signs, laboratory results, and imaging results to inform disposition decisions in conjunction with physician clinical judgment. In recent years, individual laboratory tests "biomarkers" have been identified to inform disposition decisions either independently or in conjunction with clinical decision aids. This review will describe evidence on how ED disposition decisions for patients with CAP may be informed by clinical decision aids, biomarkers, and combinations of them.

Clinical Decision Aids for Mortality in CAP

We identified 7 clinical decision aids that had supporting literature of sufficient methodological rigor for inclusion in this clinical policy evaluation. The first 2, the PSI and the CURB-65, were developed to predict mortality in patients with CAP (Table 1). The evidence for these aids will be presented, after which the remaining 5 clinical decision aids will be described in regard to predicting the need for ICU admission.

Pneumonia Severity Index

The PSI (also known as the Patient Outcomes Research Team, or PORT Score) is a 20-item system originally developed in a Class III study by Fine et al[10] and subsequently validated in a Class II study[11] and several Class III studies.[12-18] The PSI classifies patients into 1 of 5 risk classes with substantially different rates of predicted 30-day mortality. We calculated mortality rate ranges for PSI risk classes among 7 patient cohorts from 5 studies.[10,12-14,16] Patients in risk classes I and II have very low 30-day mortality rates (0% to 0.4% and 0.4% to 1.0%, respectively), and may be appropriate for outpatient treatment. Patients in risk class III have higher 30-day mortality (0.9% to 3.8%) and may be considered for observation or a short hospitalization. Patients in risk classes IV and V (30-day mortality of 6.0% to 11.4% and 16.8% to 38.3%, respectively) are typically admitted for

inpatient care. Two Class III multicenter randomized trials and a Class III single-center interventional trial concluded that PSI-based treatment protocols were associated with significantly lower hospitalization rates for low-risk patients and no changes in safety outcomes.[19-21]

CURB-65

Criteria identified by the British Thoracic Society and modified by Neill et al[22] produced the 4-point confusion, urea, respiratory rate, blood pressure (CURB) scale for predicting CAP mortality, and it was subsequently expanded in a Class III study by Lim et al[23] to include an additional criterion for age. The resulting CURB-65 aid was externally validated in Class III studies by Aujesky et al[13] and Capelastegui et al.[14] As with the PSI, the CURB-65 score is directly associated with mortality. Based on 5 patient cohorts from 4 studies, patients with scores of 0 and 1 were found to have very low 30-day mortality rates (0% to 0.7% and 0% to 3%, respectively) and may be considered for outpatient treatment if the physician's clinical judgment deems it appropriate. Patients with a CURB-65 score of 2 have higher 30-day mortality rates (5.9% to 9.2%), and such patients are typically considered for inpatient admission. Patients with scores of 3, 4, or 5 have substantially higher 30-day mortality (13% to 21.4%, 17% to 41.9%, and 14% to 60%, respectively) and warrant hospitalization. There are several variations on the CURB-65, but there are insufficient data to recommend these modified decision aids.[24-27]

Comparison of PSI and CURB-65 for Prediction of Mortality

Several investigations have compared the performance of PSI and CURB-65. In general, both aids should be considered appropriate for prediction of mortality in ED patients with CAP. For instance, Class III studies by Capelastegui et al[14] and Buising et al[28] concluded that the PSI and CURB-65 aids performed similarly for prediction of 30-day and inhospital mortality.

Two studies suggest the PSI may be superior at identifying low-risk patients. Aujesky et al[13] compared the performance of PSI and CURB-65 in a Class III study that defined low-risk patients by using PSI classes I through III and CURB-65 scores of 0 to 1. The negative predictive value for mortality was high for low-risk groups for both the PSI (negative predictive value 99.7%; 95% confidence interval [CI] 99% to 100%) and the

CURB-65 (negative predictive value 99.4%; 95% CI 99% to 100%), but the PSI had a statistically greater ability to predict 30-day mortality (area under the curve [AUC] 0.81; 95% CI 0.78 to 0.84) compared with the CURB-65 (AUC 0.76; 95% CI 0.73 to 0.80). Using the above definitions, the PSI identified a higher proportion of patients as low risk (68%) compared with the CURB-65 (61%), and the mortality rate among patients deemed low risk by PSI (1.4%) was lower than the corresponding mortality rates for low-risk CURB-65 patients (1.7%).[13]

Similar findings were noted by Chalmers et al[15] in a Class III systematic review that compared PSI and CURB-65 aids regarding 30-day mortality. The review identified no statistically significant difference in the aids' performance as measured by summary receiver operating characteristic (sROC) curves (PSI 0.81 versus CURB-65 0.80). However, among low-risk patients (defined as PSI risk classes of I and II or CURB-65 scores of 0 to 1), the PSI had a lower negative LR for mortality (negative LR 0.08; 95% CI 0.06 to 0.12) compared with the CURB-65 (negative LR 0.21; 95% CI 0.15 to 0.30).

As with any clinical decision aid, the PSI and CURB-65 must be used in conjunction with clinical judgment. These aids assist in identifying patients who may be appropriate for outpatient care (ie, are at low risk of short-term mortality) if the treating physician identifies no other significant barriers to treatment. For instance, a patient with a chronic lung disease could have a CURB-65 score of 0 but still require hospital admission for hypoxia. Similarly, patients with a low-risk score may still be appropriate for inpatient care if they have immunosuppression, respiratory muscle weakness, dementia, severe psychiatric illness, housing insecurity, or other contributing medical or psychosocial limitation.[29] Conversely, a patient with a high predicted mortality may still be appropriate for discharge if such a disposition is consistent with patient and family goals of care.

In conclusion, both the PSI and CURB-65 are appropriate aids for predicting CAP mortality. The PSI appears to have slightly greater predictive value for identifying low-risk patients, but this may be offset by the greater number of laboratory studies and longer time needed to complete the PSI compared with the CURB-65.

Clinical Decision Aids for ICU Admission in CAP

Based on the available peer-reviewed research articles that met our methodological quality standards, this review identified 5 clinical decision aids (Table 2) designed to predict whether ED patients with CAP would need ICU care (often referred to as severe CAP). In most cases, readers using a decision aid to help determine the need

for ICU care in patients with CAP should use the 2007 criteria from the American Thoracic Society (ATS) and the Infectious Diseases Society of America (IDSA) as described below.

American Thoracic Society (2001)

The 2001 ATS guidelines for management of CAP (2001 ATS) stated that patients should be considered for ICU admission if they met at least 1 of 2 major criteria or at least 2 of 3 minor criteria.[30] Since there is little disagreement that patients with either of the 2 major criteria (need for mechanical ventilation or septic shock requiring vasopressors) need ICU care, some critics suggested those criteria added little value when disposition was considered among patients for whom the need for ICU care was less clear. As a result, the 3 minor criteria (systolic blood pressure ≤90 mm Hg, multilobar disease, and PaO2/FiO2 ratio <250) were subsequently independently evaluated and validated as effective predictors of ICU admission among patients for whom the need for intensive care was not as immediately apparent.[31]

Infectious Diseases Society of America/American Thoracic Society (2007)

In 2007, the ATS produced a revised set of guidelines for CAP in collaboration with the IDSA (2007 IDSA/ATS).[32] These guidelines added 6 new minor criteria, with the recommendation that patients be considered for ICU care if they have at least 1 major criterion or 3 minor criteria. These minor criteria have been validated in several prospective investigations.[33-36] The updated ATS/IDSA guidelines published in 2019 affirmed the use of the minor criteria from the 2007 guidelines.[37]

Severe CAP (CURXO-80)

The severe CAP (SCAP) aid, also known as CURXO-80, was developed by España et al[38] in a Class III observational trial of 1,057 patients designed to predict a combined outcome of inhospital mortality, invasive ventilatory support, or use of vasopressors for shock among patients with CAP. It was subsequently externally validated.[39] The aid includes 2 major and 6 minor criteria, and it recommends that patients be considered for ICU care if they have at least 1 major or 2 minor criteria.

SMART-COP

Charles et al[16] developed the 8-item systolic blood pressure, multilobar chest radiography involvement, albumin level, respiratory rate, tachycardia, confusion, oxygenation, and arterial pH (SMART-COP) scale, which predicts the need for invasive ventilatory or vasopressor support. This aid uniquely uses age-adjusted thresholds for 2 items (respiratory rate and oxygenation) rather than including a variable for age, and it uses different weights (1 point versus 2 points) for different criteria. The scale recommends ICU admission for patients with a score of 3 points or greater.

Risk of Early Admission to the ICU

The Risk of Early Admission to the ICU (REA-ICU) aid was developed by Renaud et al[40] to predict ICU admission within 3 days of hospital admission from the ED. Of note, this aid specifically excludes patients with major criteria for ICU admission (eg, need for mechanical ventilation or vasopressors) at ED evaluation. The REA-ICU uses a total of 11 criteria, 8 of which are also used in other CAP risk aids. Each criterion is assigned 1 to 3 points, and patients with 7 or more points are recommended for ICU admission. The aid was externally validated in a Class III study by Labarère et al.[41]

Comparison of Clinical Decision Aids for ICU admission

Several prospective trials and systematic reviews have examined the performance of these ICU-specific aids in relation to the PSI and CURB-65. In general, these studies support the use of aids designed to predict ICU admission, such as the 2007 ATS/IDSA minor criteria to identify patients who may benefit from ICU care, rather than relying on mortality-prediction models such as the PSI or CURB-65. This recommendation is consistent with the recently published 2019 ATS/IDSA guideline.[37] However, no studies have prospectively examined the effectiveness or safety of using these ICU admission decision aids to guide patient management, and thus these recommendations are based on consensus.

Findings from a Class II systematic review and meta-analysis by Marti et al[42] support specific ICU decision aids. For the outcome of ICU admission, higher positive LRs were observed for the full set of 2001 ATS criteria (positive LR 7.3; 95% CI 4.4 to 12.2) and 2007 IDSA/ATS minor criteria (positive LR 5.9; 95% CI 3.8 to

9.3) compared with PSI risk classes IV and V (positive LR 1.5; 95% CI 1.4 to 1.6) or a CURB-65 score of 3 or greater (positive LR 2.1; 95% CI 1.6 to 2.7). The diagnostic odds ratios (ORs), which reflect the ability of these aids to correctly predict which patients were admitted to the ICU and those who were not, were substantially higher for the full 2001 ATS criteria (diagnostic OR 24.6; 95% CI 13.1 to 46.4) and 2007 IDSA/ATS minor criteria (diagnostic OR 13.1; 95% CI 7.7 to 22.3) than for PSI risk classes IV and V of 4 or greater (diagnostic OR 2.9; 95% CI 2.4 to 3) or CURB-65 score of 3 or greater (diagnostic OR 3.6; 95% CI 2.2 to 5.8). Similar conclusions were reached in a 2011 systematic review and meta-analysis by Chalmers et al.[31] The REA-ICU validation study by Labarère et al[41] was not included in either of those reviews but also found similar results, with higher positive LRs for prediction of ICU admission observed for the 2007 IDSA/ATS minor criteria (positive LR 4.1; 95% CI 2.6 to 6.5) and REA-ICU risk classes III and IV (positive LR 3.2; 95% CI 2.3 to 4.5) compared with PSI risk classes IV and V (positive LR 1.5; 95% CI 1.3 to 1.8) or CURB-65 score of 3 or greater (positive LR 1.9; 95% CI 1.2 to 3.0). Together, these results suggest that the 2001 ATS or 2007 IDSA/ATS guidelines may identify patients with CAP to admit to the ICU. Since we are aware of no research that directly compares the minor criteria from the 2001 guidelines with those from the 2007 guidelines, we favor using the 2007 minor criteria because they incorporate a broader set of clinical criteria and are affirmed by the updated 2019 ATS/IDSA guideline.[37]

In other circumstances, emergency physicians may want to identify patients who are the least likely to need ICU care. In the same 2012 study, Marti et al[42] also found that the positive LRs for the SCAP (positive LR 1.8; 95% CI 1.2 to 2.6) and SMART-COP (positive LR 2.6; 95% CI 1.3 to 5.3) aids were no greater than for the PSI and CURB aids, but they both had negative LRs far lower (SCAP negative LR 0.13 [95% CI 0.06 to 0.26]; SMART-COP negative LR 0.15 [95% CI 0.03 to 0.91]) than that of the CURB-65 (negative LR 0.64; 95% CI 0.51 to 0.79), the PSI (negative LR 0.53; 95% CI 0.46 to 0.60), or the 2007 IDSA/ATS minor criteria (negative LR 0.48; 95% CI 0.38 to 0.60). Thus, an emergency physician with several ill CAP patients could use the SCAP or SMART-COP aids to identify patients least likely to need ICU care. However, this area would benefit from additional research. Furthermore, the smaller subsequent study by Labarère et al[41] suggested the negative LRs were somewhat higher for the SCAP (negative LR 0.5; 95% CI 0.4 to 0.8) and SMART-COP aids (negative LR 0.5; 95% CI 0.4 to 0.7) and were not significantly different from the PSI risk classes IV and V (negative LR 0.5;

95% CI 0.3 to 0.8). This study suggested that patients without an REA-ICU score of 4 points or more (a different threshold than noted earlier) had a low negative LR of 0.2 (95% CI 0.1 to 0.5) but this finding has not been reproduced elsewhere.

In conclusion, we suggest the 2007 IDSA/ATS minor criteria may add to physician clinical judgment for identifying patients with CAP who are most likely to need ICU care.[32] We are aware of no prospective data on the effectiveness or safety of using these aids to inform patient disposition, and this limitation reinforces the importance of using these aids in conjunction with physician clinical judgment.

Limitations of CAP Clinical Decision Aids

Physicians must be aware of the broader medical and psychosocial factors that may influence the decision to pursue inpatient versus outpatient care, and patients with low predicted mortality may nonetheless warrant hospital admission.[43-45] For instance, these aids have not been validated and should not be used for patients who are immunocompromised or who were recently discharged from the hospital. Patients may not be appropriate for outpatient treatment if they are unable to receive oral antibiotics (eg, due to severe nausea or vomiting) or if they have significant psychosocial comorbidities such as psychiatric disease or homelessness. Physician clinical judgment may identify patients who warrant admission due to factors beyond those addressed by these aids.

Biomarkers

This review identified 12 laboratory markers that have been investigated for their prognostic value in CAP. Our review focuses primarily on the 2 biomarkers with the largest body of supportive research, midregional pro-adrenomedullin (MR-proADM) and procalcitonin (PCT). Research suggests the prognostic value for these 2 biomarkers may be as good as, but no better than, that of the PSI and CURB-65, and there are only limited data on using biomarkers and clinical decision aids together to inform disposition of patients with CAP. Since biomarkers do not presently offer an advantage over the clinical decision aids for informing CAP disposition, there is little justification for their use in clinical practice and additional costs from these tests may be substantial. In addition, we are aware of no prospective studies evaluating the effectiveness or safety of using biomarkers (either alone or together with clinical decision aids) to guide the initial site of treatment for CAP. As a result, we recommend

neither of these biomarkers be used to guide disposition for patients with CAP unless future research determines they can significantly improve patient outcomes. For the remaining 10 biomarkers, there was either insufficient literature on test performance or evidence suggesting poor prognostic value for guiding disposition in CAP.[46-58]

MR-proADM levels correlate well with PSI score, as demonstrated in Class III investigations by Christ-Crain et al,[51] Courtais et al,[52] and Huang et al.[59] Two Class III studies by Christ-Crain et al[51] and España et al[60] found that MR-proADM levels at hospital admission were higher in patients with CAP who subsequently died or developed complications compared with survivors. However, Class III studies by Courtais et al,[52] and Huang et al[59], and España et al,[60] showed that the value of MR-proADM to predict mortality or ICU admission was not statistically different from that of the PSI and CURB-65.

Procalcitonin appears to have some prognostic value for mortality in CAP, albeit not as much as MR-proADM. The previously referenced Class III studies by Christ-Crain et al,[51] Courtais et al,[52] and Huang et al[61] found initial PCT levels were higher among CAP patients who died during follow-up than among survivors and that PCT correlates with PSI risk classes but to a lesser degree than MR-proADM. Similarly, 2 Class III studies suggested PCT had less prognostic value for 30-day mortality compared with MR-proADM.[59,60] A large Class III study found a linear association between PCT concentration and need for invasive respiratory or ventilator support in patients with CAP, with a 1% to 2% increased risk of this combined outcome for each 1 ng/mL rise in PCT (up to 10 ng/mL).[62] However, the overall prognostic value of PCT appears to be statistically no different than that of PSI or CURB-65 for prediction of 30-day mortality.[61]

Performance of Clinical Decision Aids and Biomarkers Together

In general, studies that examine addition of biomarkers to mortality-decision aids (eg, PSI or CURB-65) have shown either small or negligible improvement to overall aid performance. A single-center Class III study of 302 patients at a single institution suggested that a combined aid of MR-proADM and PSI was slightly better than PSI alone (AUC 0.77 versus 0.73).[51] However, a large Class III prospective cohort study of 1,653 patients at 28 EDs concluded that a combined MR-proADM/PSI aid was no better than the PSI alone (AUC 0.84 versus 0.83).[59] Similarly, the addition of PCT to the PSI appears to have no additional benefit above the PSI alone in predicting mortality across all patient groups (AUC 0.85 versus 0.83).[61]

A small body of literature suggests that biomarkers may have more value when used selectively in high-risk patients. For instance, a Class III prospective cohort study of 109 CAP patients identified that MR-proADM levels varied little among low-risk patients (PSI risk classes I through III) but varied substantially among high-risk patients (PSI risk classes IV and V).[52] Among these high-risk patients, logistic regression demonstrated MR-proADM levels were significantly associated with 30-day mortality, whereas the absolute PSI scores (IV versus V) were not. A large multicenter Class III prospective cohort study found similar results; among patients in high-risk PSI classes (IV and V), individuals with MR-proADM levels in the lower 3 quartiles had significantly lower mortality rates compared with those with MR-proADM levels in the top quartile (9% versus 23%).[59] Other research has found similar associations for PCT. A large Class III prospective cohort study concluded that patients in high-risk PSI classes with PCT levels in the highest quartile had a substantially higher mortality rate than those with PCT levels in lower quartiles (19.0% versus 1.6%), resulting in a negative LR of 0.09 (95% CI 0.02 to 0.36) for patients with lower PCT levels.[61] Similar but slightly weaker trends were seen among patients with high-risk CURB-65 scores and low PCT levels (negative LR 0.18; 2.2% versus 13.8%).

For prediction of ICU admission, there is very limited literature on the value of combining biomarkers with clinical decision aids. In a Class III study, España et al[60] examined the value of 3 biomarkers (MR-proADM, PCT, and C-reactive protein) in conjunction with 3 risk-stratification aids (PSI, CURB-65, and SCAP) to predict ICU admission and other SCAP-associated complications. This investigation concluded that MR-proADM improved the AUC for all 3 aids: SCAP improved from 0.83 to 0.88, PSI improved from 0.83 to 0.87, and CURB-65 improved from 0.79 to 0.85. PCT added prognostic value to all 3 aids but to a lesser degree.[60]

A single-center Class III study by Chen and Li[46] added a lactate measurement to the CURB-65 score and examined the prognostic value of this revised aid. Results suggested this approach could offer additional prognostic value to the CURB-65 for this purpose, but the results were not compared with the ICU-decision aids (eg, 2001 ATS or 2007 IDSA/ATS aids) and they have not been replicated at other centers.

Summary

The PSI and CURB-65 are both well-validated aids that can predict short-term mortality in patients with CAP and can be used to identity low-risk patients for whom outpatient management may be considered. Both aids

are appropriate for this purpose in the emergency care setting; the PSI appears to be slightly better at identifying low-risk patients, but it requires data from a greater number of tests, including some not routinely conducted in the ED (ie, arterial blood gases). For decisions regarding ICU admission, aids designed for this purpose should be considered superior to the PSI and CURB-65. In particular, the 2007 IDSA/ATS minor criteria offer high positive LRs and high diagnostic ORs for prediction of ICU admission, although this recommendation is based on consensus because to our knowledge no studies have examined the effectiveness or safety of patient management based on these criteria. MR-proADM and PCT biomarkers appear to have prognostic values that approach but do not exceed that of the clinical decision aids, and there is insufficient literature on using biomarkers in conjunction with established CAP clinical decision aids. Additional research may help clarify the role of these newer clinical decision aids and biomarkers in the disposition of ED patients with CAP.

Future Research

The body of research on these decision aids would be strengthened by additional research to compare their performance with physician clinical gestalt alone. Additional validation studies on the SCAP, SMART-COP, and REA-ICU aids may help clarify the value of these aids and potentially expedite their adoption into clinical practice. Furthermore, additional validation studies are needed for the prognostic value of biomarkers in conjunction with clinical decision aids. There is a particular need to identify the subset(s) of patients for whom biomarker results can meaningfully influence decisions regarding patient disposition from the ED.

2. In the adult ED patient with community-acquired pneumonia, what biomarkers can be used to direct initial antimicrobial therapy?

Patient Management Recommendations

Level A recommendations. None specified.

Level B recommendations. None specified.

Level C recommendations. Do not rely upon any current laboratory test(s), such as procalcitonin and/or C-reactive protein, to distinguish a viral pathogen from a bacterial pathogen when deciding on administration of antimicrobials in ED patients who have CAP.

Potential Benefit of Implementing the Recommendations:

- Laboratory testing can be costly, painful to the patient, dangerous to clinicians (needlestick exposure), and can also result in delays in treatment and disposition of patients in the ED. By avoiding testing that does not conclusively decrease antibiotic use, patient evaluation and treatment may proceed in a more time-efficient manner.

Potential Harm of Implementing the Recommendations:

- None.

Key words/phrases for literature searches: pneumonia, community-acquired, community-acquired pneumonia, community-acquired infections, C reactive protein, C-reactive protein, procalcitonin, pro-calcitonin, antigens, bacteria, urine, emergency, emergency health service, hospital emergency service, emergency ward, emergency medicine, emergency care, emergency treatment, emergency department, emergency room, emergency service, emergency services, emergency medical services, and variations and combinations of the key words/phrases. Searches included January 1, 2007, to search dates of August 31, 2017, and September 1, 2017.

Study Selection: Four hundred sixty-three articles were identified in searches. Twenty-seven articles were selected from the search results as potentially addressing this question and were candidates for further review. After grading for methodological rigor, zero Class I studies, 3 Class II studies, and 2 Class III studies included for this critical question (Appendix D).

Community-acquired pneumonia has traditionally been treated empirically with antibiotics even with the suspicion that viral pathogens are responsible for a percentage of the cases. Recent studies have suggested that viral pathogens may be the predominant cause of CAP.[63] In one of the largest epidemiologic studies to date, Jain et al[63] evaluated 2,488 patients with CAP, of whom 93% had radiographic evidence of pneumonia (eg, infiltrate, effusion). Despite using a battery of available laboratory testing (eg, polymerase chain reaction (PCR), bacterial and viral culture, urinary antigens), only 38% of cases had a definitive cause identified. The predominant identified cause was viral, at 23% (human rhinovirus 9%, influenza 6%, and other 8%), whereas bacterial pathogens were identified in 11% of patients (predominant strain *Streptococcus pneumoniae,* at 5%). Interest in antibiotic stewardship has led to a surge in research to distinguish viral from bacterial pathogens in order to prescribe antibiotic therapy only to those patients who will receive benefit. This second critical question related to CAP was specifically selected to identify ED patients who are more likely to have a bacterial pathogen as the cause of their CAP.

In total, 27 articles were graded by our methodologists and the majority of these articles (22) were found to have fatal flaws and assigned a final grade of "X." Two articles[64,65] were given a final grade of Class II, but because each article reflected the same meta-analysis published in 2 separate journals, only 1 was included in our

discussion.[64] The 4 articles that are summarized later are heterogeneous in nature in both their study groups and in their primary endpoints, which made it challenging to compile a summative statement regarding this critical question. The articles involved ED patients, inpatients, and non-ICU patients. Furthermore, the primary endpoints were disparate: mortality in the Cochrane review and total length of antibiotic duration in the 2018 *New England Journal of Medicine* study.[66] Another limitation is that numerous studies investigated both individual and combinations of laboratory markers.

The majority of the research has focused on PCT and C-reactive protein (CRP). Procalcitonin is a calcitonin-related biomarker released in response to bacterial infection and tissue injury and is downregulated in viral infections.[65] Research on PCT as an aid to identify bacterial causes of lower respiratory tract infections (LRTIs) has been ongoing for more than a decade.[67-70] Procalcitonin has also been evaluated to assist in the decision to initiate antibiotic therapy,[71] to identify potential bacterial cause in the patient with undifferentiated fever in the ED,[72-78] and to determine who will benefit from antibiotic use in acute exacerbations of chronic obstructive pulmonary disease (COPD).[79-81] C-reactive protein is a non-specific inflammatory biomarker that increases as a result of numerous infectious and noninfectious pathologies that result in systemic inflammation.[82] Research involving CRP has investigated its use in differentiating bacterial from viral pneumonia,[70,78,83-87] distinguishing pneumonia from heart failure,[88] and limiting antibiotic use in patients with bronchitis.[89]

In 2017, a Class II Cochrane review was published by Schuetz et al[64] evaluating the use of PCT on initiating or discontinuing antibiotics in patients with acute respiratory infections in regard to mortality and treatment failure. The authors included 26 trials and a total of 6,708 patients. The heterogeneous patient population with acute respiratory infection included patients with CAP, hospital-acquired pneumonia, ventilator-associated pneumonia, acute bronchitis, exacerbation of COPD, and upper respiratory infections. The majority of trials (24 of 26) enrolled patients in the ED, ICU, or both settings. The 30-day mortality was significantly lower for patients who had PCT-guided care in regard to antibiotic use versus the control group (8.6% versus 10.0%; adjusted OR 0.83; 95% CI 0.70 to 0.99). There was no difference in treatment failures (adjusted OR 0.90; 95% CI 0.80 to 1.01), but the PCT-guided care group had a 2.4-day reduction in antibiotic exposure (95% CI –2.71 to –2.15) and a reduction in antibiotic-related side effects (16.3% versus 22.1%; adjusted OR 0.68; 95% CI 0.57 to 0.82).

In 2018, a large Class II randomized controlled trial by Huang et al[66] (ProACT study) examined the effect of a PCT-based algorithm on the antibiotic prescription in patients with suspected acute LRTI in the ED setting. The study involved 14 US hospitals and 1,656 adult patients (≥18 years) who were randomized to usual care (clinician discretion on antibiotic use for LRTI) or a PCT-level-based group. Clinicians in the PCT group were given PCT levels and the recently approved Food and Drug Administration guideline regarding PCT levels in LRTI indicating whether antibiotics are strongly discouraged, discouraged, recommended, or strongly recommended. Clinicians were not mandated to adhere to the guideline; however, 72.9% of emergency physicians did adhere to it. Final diagnoses for patients (some patients received more than 1 final diagnosis) included CAP (19.9%), acute exacerbation of COPD (31.9%), acute exacerbation of asthma (39.3%), and acute bronchitis (24.2%). The primary outcome was total antibiotic days in the 30-day period following enrollment. There were 826 patients in the PCT intervention group and 830 patients in the control group. At 30 days, the percentage of patients who had received antibiotics in the PCT intervention group was 471 (57.0%) versus 513 (61.8%) in the control group (99.86% CI –12.7% to 3.0%). The PCT intervention group received antibiotics for a mean of 4.2 days and the control group received them for a mean of 4.3 days (95% CI –0.6 to 0.5). The secondary outcome of adverse outcomes was evaluated for noninferiority with a prespecified noninferiority margin of 4.5 percentage points. The secondary outcome of adverse outcomes was met in 11.7% of patients in the PCT intervention group and 13.1% (95% CI –4.6% to 1.7%) of patients in the control group. When the patient cohorts were evaluated by subgroup (CAP, acute exacerbation of COPD, acute exacerbation of asthma, and acute bronchitis), there was no statistical difference between the PCT intervention group and the control group. The authors concluded that a PCT-based algorithm did not result in lower use of antibiotics in ED patients with suspected LRTI.

In a 2007 Class III study by Müller et al,[90] data from 545 patients were evaluated as part of a post hoc analysis of 2 prior studies. Of the 545 patients, 373 had a final diagnosis of CAP, whereas the other 132 had a final diagnoses of bronchitis, acute exacerbation of COPD, or asthma exacerbation. Both PCT and high-sensitivity CRP were evaluated in adult patients with suspected LRTI in their capacity to accurately identify CAP, predict bacteremia, and assess severity of CAP. The authors evaluated PCT and high-sensitivity CRP in patients with and without radiographic findings consistent with CAP. Although both PCT and high-sensitivity CRP increased the

likelihood of accurately identifying CAP, PCT performed better than high-sensitivity CRP and was also beneficial in predicting bacteremia and severity of illness (ie, higher PCT levels correlate to higher morbidity and mortality).

The final graded article (Class III) by Rainer et al[91] investigated both CRP and neopterin levels in regard to their ability to identify a bacterial source of acute respiratory tract infections (ARTIs). Neopterin is an inflammatory marker produced by macrophages and monocytes in response to inflammation, with increased levels seen in viral as opposed to bacterial pathogens. The cohort involved 561 adult patients with ARTIs who presented to the ED. They found that patients ultimately diagnosed with a bacterial source of ARTIs had a CRP/neopterin ratio 10 times higher than that of patients diagnosed with a viral source of ARTIs. Using a receiver operator curve, they determined the optimal cutoff ratio for CRP/neopterin ratio was greater than 3 to produce a 79.5% sensitivity and greater than or equal to 81.5% specificity for ruling in bacterial ARTIs.

Summary

There has been considerable research investigating adjunctive laboratory markers to assist in identifying bacterial causes of CAP in the ED. However, very few of these studies are of adequate quality to be included in this analysis. Even the graded articles included in this review have major flaws highlighted by the heterogeneous patient populations. The researchers included patients who had COPD, bronchitis, upper respiratory infections, and asthma exacerbations in the same cohort, making any conclusion about laboratory markers in CAP unreliable. Procalcitonin has received considerable attention in the past decade for its potential role in identifying a bacterial source of LRTI. However, in relation to specifically its utility in the ED, the literature is of insufficient quality to adequately conclude how an emergency physician may use PCT when evaluating patients with suspected CAP and determining which patients would benefit from antibiotics.

Future Research

Recent research has explored alternative laboratory markers such as ischemia-modified albumin,[92] delta neutrophil index,[93] and inflammatory marker triggering receptor on myeloid cells (TREM-1).[94] Perhaps most intriguing of all novel assays is the advance of multiplex polymerase chain reaction (PCR) respiratory panels

using nasal swab specimens to detect viral and bacterial pathogens.[95,96] The film array respiratory panel is still being investigated for cost, feasibility, and efficacy in the ED setting.

3. In the adult ED patient diagnosed with community-acquired pneumonia, does a single dose of parenteral antibiotics in the ED followed by oral treatment versus oral treatment alone improve outcomes?

Patient Management Recommendations

Level A recommendations. None specified.

Level B recommendations. None specified.

Level C recommendations. Given the lack of evidence, the decision to administer a single dose of parenteral antibiotics prior to oral therapy should be guided by patient risk profile and preferences (Consensus recommendation).

Potential Benefit of Implementing the Recommendations:

- Improved patient satisfaction and compliance as a result of more efficient patient care and shared decision making.

Potential Harm of Implementing the Recommendations:

- Increased cost and health care resource utilization.
- Increased ED length of stay, depending on antibiotic selection and duration of administration.
- Complications from potentially otherwise unnecessary intravenous catheter placement (superficial venous thrombosis, infiltration, pain, localized infection).

Key words/phrases for literature searches: pneumonia, community-acquired, community-acquired pneumonia, antibiotic, antibiotic agent, antibacterial agents, antibacterial drugs, oral, oral drug administration, infusion, intraarterial infusion, intraarterial drug injection, intravenous infusion, parenteral infusion, injection, intramuscular injection, intramuscular drug injection, intravenous injection, intravenous, IV, intravenous drug administration, parenteral, parenteral infusion, parenteral drug administration, and variations and combinations of the key words/phrases. Searches included January 1, 2007, to search dates of August 31, 2017, September 1, 2017, and September 7, 2017.

Study Selection: One thousand three hundred ninety-seven articles were identified in the searches. Three articles were selected for further review. After grading for methodological rigor, zero studies were included for this critical question (Appendix D).

Appropriately selected antibiotics are the standard treatment for CAP, with outpatients generally treated orally and those requiring admission generally initially treated parenterally. Multiple studies have demonstrated the safety and efficacy of initial parenteral antibiotics in adult ED patients admitted for CAP with an early

transition to oral therapy.[97-102] These studies used various criteria to define when the parenteral to oral therapy switch should occur, but most mandate the patient be clinically stable and afebrile for a minimum of 24 to 72 hours. Patients enrolled in these studies received multiple doses of parenteral antibiotics prior to switching to oral antibiotics. With appropriate application of clinical decision aids, an increasing proportion of patients may be treated as outpatients or with periods of observation (<24 hours). In those patients requiring observation or for whom a brief admission or discharge is deemed to be a reasonable option (borderline cases), it would be reasonable to consider an initial parenteral dose of antibiotics prior to conversion to oral therapy. Our systematic review of the literature, however, found lack of evidence that assessed whether a single dose of parenteral antibiotics in the ED followed by oral treatment was safe or associated with improved outcomes when compared with oral treatment alone among patients either being admitted or discharged home.

Summary

There is lack of evidence to support or refute that the use of a single dose of parenteral antibiotics in adult ED patients with a diagnosis of CAP followed by oral treatment with antibiotics improves outcomes compared with oral treatment alone. Clinicians may consider using this practice guided by patient risk profiles and preferences and should engage in shared decision making.

Future Research

Future studies should assess whether administration of a single dose of parenteral antibiotics and continued observation for stability may ultimately provide safe, efficacious, and cost-effective treatment for adult patients for whom the decision to admit or discharge is unclear (ie, those in a clinical decision unit or observation unit). If future research demonstrates a benefit of a single parenteral dose of antibiotics prior to discharge with oral antibiotics, inpatient admissions may be safely avoided.

Relevant industry relationships: There were no relevant industry relationships disclosed by the subcommittee members for this topic.

Relevant industry relationships are those relationships with companies associated with products or services that significantly impact the specific aspect of disease addressed in the critical question.

REFERENCES

1. Ramirez JA, Wiemken TL, Peyrani P, et al. Adults hospitalized with pneumonia in the United States: incidence, epidemiology, and mortality. *Clin Infect Dis*. 2017;65:1806-1812.

2. Sato R, Gomez Rey G, Nelson S, et al. Community-acquired pneumonia episode costs by age and risk in commercially insured US adults aged ≥50 years. *Appl Health Econ Health Policy*. 2013;11:251-258.

3. Joint Commission. Pneumonia national hospital inpatient quality measures. Available at: https://www.jointcommission.org/assets/1/6/Pneumonia.pdf. Accessed April 3, 2019.

4. Kalil AC, Metersky ML, Klompas M, et al. Management of adults with hospital-acquired and ventilator-associated pneumonia: 2016 clinical practice guidelines by the Infectious Diseases Society of America and the American Thoracic Society. *Clin Infect Dis*. 2016;63:e61-e111.

5. Nazarian DJ, Eddy OL, Lukens TW, et al. Clinical policy: critical issues in the management of adult patients presenting to the emergency department with community-acquired pneumonia. *Ann Emerg Med*. 2009;54:704-731.

6. Restrepo MI, Mortensen EM, Rello J, et al. Late admission to the ICU in patients with community-acquired pneumonia is associated with higher mortality. *Chest*. 2010;137:552-557.

7. Brown SM, Jones JP, Aronsky D, et al. Relationships among initial hospital triage, disease progression and mortality in community-acquired pneumonia. *Respirology*. 2012;17:1207-1213.

8. Phua J, Ngerng WJ, Lim TK. The impact of a delay in intensive care unit admission for community-acquired pneumonia. *Eur Respir J*. 2010;36:826-833.

9. Renaud B, Brun-Buisson C, Santin A, et. Al. Outcomes of early, late, and no admission to the intensive care unit for patients hospitalized with community-acquired pneumonia. *Acad Emerg Med*. 2012;19:294-303.

10. Fine MJ, Auble TE, Yealy DM, et al. A prediction rule to identify low-risk patients with community-acquired pneumonia. *N Engl J Med*. 1997;336:243-250.

11. Carratalà J, Fernández-Sabé N, Ortega L, et al. Outpatient care compared with hospitalization for community-acquired pneumonia: a randomized trial in low-risk patients. *Ann Intern Med*. 2005;142:165-172.

12. Armour BS, Pitts SR, Pitts MM, et al. Validation of the Pneumonia Severity Index among patients treated at home or in the hospital. *Dis Manag Health Out*. 2003;11:595-601.

13. Aujesky D, Auble TE, Yealy DM, et al. Prospective comparison of three validated prediction rules for prognosis in community-acquired pneumonia. *Am J Med*. 2005;118:384-392.

14. Capelastegui A, España PP, Quintana JM, et al. Validation of a predictive rule for the management of community-acquired pneumonia. *Eur Respir J*. 2006;27:151-157.

15. Chalmers JD, Singanayagam A, Akram AR, et al. Severity assessment tools for predicting mortality in hospitalised patients with community-acquired pneumonia. Systematic review and meta-analysis. *Thorax*. 2010;65:878-883.

16. Charles PG, Wolfe R, Whitby M, et al. SMART-COP: a tool for predicting the need for intensive respiratory or vasopressor support in community-acquired pneumonia. *Clin Infect Dis*. 2008;47:375-384.

17. Akram AR, Chalmers JS, Hill AT. Predicting mortality with severity assessment tools in out-patients with community-acquired pneumonia. *QJM*. 2011;104:871-879.

18. Atlas SJ, Benzer TI, Borowski LH, et al. Safely increasing the proportion of patients with community-acquired pneumonia treated as outpatients: an interventional trial. *Arch Intern Med*. 1998;158:1350-1360.

19. Marrie TJ, Lau CY, Wheeler SL, et al. A controlled trial of a critical pathway for treatment of community-acquired pneumonia. CAPITAL Study Investigators. Community-Acquired Pneumonia Intervention Trial Assessing Levofloxacin. *JAMA*. 2000;283:749-755.

20. Yealy DM, Auble TE, Stone RA, et al. Effect of increasing the intensity of implementing pneumonia guidelines: a randomized controlled trial. *Ann Intern Med*. 2005;143:881-894.

21. Julián-Jiménez A, Palomo de los Reyes MJ, Parejo Miguez R, et al. Improved management of community-acquired pneumonia in the emergency department. *Arch Bronconeumol*. 2013;49:230-240.

22. Neill AM, Martin IR, Weir R, et al. Community acquired pneumonia: aetiology and usefulness of severity criteria on admission. *Thorax*. 1996;51:1010-1016.

23. Lim WS, van der Eerden MM, Laing R, et al. Defining community acquired pneumonia severity on presentation to hospital: an international derivation and validation study. *Thorax*. 2003;58:377-382.

24. Dean NC, Jones BE, Jones JP, et al. Impact of an electronic clinical decision support tool for emergency department patients with pneumonia. *Ann Emerg Med*. 2015;66:511-520.

25. Dean NC, Griffith PP, Sorensen JS, et al. Pleural effusions at first ED encounter predict worse clinical outcomes in patients with pneumonia. *Chest*. 2016;149:1509-1515.

26. Jones BE, Jones JP, Vines CG, et al. Validating hospital admission criteria for decision support in pneumonia. *BMC Pulm Med*. 2014;14:149.

27. Pflug MA, Tiutan T, Wesemann T, et al. Short-term mortality of adult inpatients with community-acquired pneumonia: external validation of a modified CURB-65 score. *Postgrad Med J*. 2015;91:77-82.

28. Buising KL, Thursky KA, Black JF, et al. A prospective comparison of severity scores for identifying patients with severe community acquired pneumonia: reconsidering what is meant by severe pneumonia. *Thorax*. 2006;61:419-424.

29. Seymann G, Barger K, Choo S, et al. Clinical judgement versus the Pneumonia Severity Index in making the admission decision. *J Emerg Med*. 2008;34:261-268.

30. Niederman MS, Mandell LA, Anzueto A, et al. Guidelines for the management of adults with community-acquired pneumonia. Diagnosis, assessment of severity, antimicrobial therapy, and prevention. *Am J Respir Crit Care Med*. 2001;163:1730-1754.

31. Chalmers JD, Mandal P, Singanayagam A, et al. Severity assessment tools to guide ICU admission in community-acquired pneumonia: systematic review and meta-analysis. *Intensive Care Med*. 2011;37:1409-1420.

32. Mandell LA, Wunderink RG, Anzueto A, et al. Infectious Diseases Society of America/American Thoracic Society consensus guidelines on the management of community-acquired pneumonia in adults. *Clin Infect Dis*. 2007;44(suppl 2):S27-72.

33. Liapikou A, Ferrer M, Polverino E, et al. Severe community-acquired pneumonia: validation of the Infectious Diseases Society of America/American Thoracic Society guidelines to predict an intensive care unit admission. *Clin Infect Dis*. 2009;48:377-385.

34. Phua J, See KC, Chan YH, et al. Validation and clinical implications of the IDSA/ATS minor criteria for severe community-acquired pneumonia. *Thorax*. 2009;64:598-603.

35. Fukuyama H, Ishida T, Tachibana H, et al. Validation of scoring systems for predicting severe community-acquired pneumonia. *Intern Med*. 2011;50:1917-1922.

36. Chalmers JD, Taylor JK, Mandal P, et al. Validation of the Infectious Diseases Society of America/American Thoratic Society Minor Criteria for intensive care unit admission in community-acquired pneumonia patients without major criteria or contraindications to intensive care unit care. *Clin Infect Dis*. 2011;53:503-511.

37. Metlay JP, Waterer GW, Long AC, et al. Diagnosis and treatment of adults with community-acquired pneumonia: an official clinical practice guideline of the American Thoracic Society and Infectious Diseases Society of America. *Am J Respir Crit Care Med*. 2019;200:e45-e67.

38. España PP, Capelastegui A, Gorordo I, et al. Development and validation of a clinical prediction rule for severe community-acquired pneumonia. *Am J Respir Crit Care Med*. 2006;174:1249-1256.

39. España PP, Capelastegui A, Quintana JM, et al. Validation and comparison of SCAP as predictive score for identifying low-risk patients in community-acquired pneumonia. *J Infect*. 2010;60:106-113.

40. Renaud B, Labarère J, Coma E, et al. Risk stratification of early admission to the intensive care unit of patients with no major criteria of severe community-acquired pneumonia: development of an international prediction rule. *Crit Care*. 2009;13:R54.

41. Labarère J, Schuetz P, Renaud B, et al. Validation of a clinical prediction model for early admission to the intensive care unit of patients with pneumonia. *Acad Emerg Med*. 2012;19:993-1003.

42. Marti C, Garin N, Grosgurin O, et al. Prediction of severe community-acquired pneumonia: a systematic review and meta-analysis. *Crit Care*. 2012;16:R141.

43. Arnold FW, Ramirez JA, McDonald LC, et al. Hospitalization for community-acquired pneumonia: the Pneumonia Severity Index vs clinical judgment. *Chest*. 2003;124:121-124.

44. Goss CH, Rubenfeld GD, Park DR, et al. Cost and incidence of social comorbidities in low-risk patients with community-acquired pneumonia admitted to a public hospital. *Chest*. 2003;124:2148-2155.

45. Sharp AL, Jones JP, Wu I, et al. CURB-65 performance among admitted and discharged emergency department patients with community-acquired pneumonia. *Acad Emerg Med*. 2016;23:400-405.

46. Chen YX, Li CS. Lactate on emergency department arrival as a predictor of mortality and site-of-care in pneumonia patients: a cohort study. *Thorax*. 2015;70:404-410.

47. Christ-Crain M, Stolz D, Jutla S, et al. Free and total cortisol levels as predictors of severity and outcome in community-acquired pneumonia. *Am J Respir Crit Care Med*. 2007;176:913-920.

48. Christ-Crain M, Breidthardt T, Stolz D, et al. Use of B-type natriuretic peptide in the risk stratification of community-acquired pneumonia. *J Intern Med*. 2008;264:166-176.

49. Lee JH, Kim J, Kim K, et al. Albumin and C-reactive protein have prognostic significance in patients with community-acquired pneumonia. *J Crit Care*. 2011;26:287-294.

50. Golcuk Y, Golcuk B, Bilge A, et al. Combination of mean platelet volume and the CURB-65 score better predicts 28-day mortality in patients with community-acquired pneumonia. *Am J Emerg Med*. 2015;33:648-652.

51. Christ-Crain M, Morgenthaler NG, Stolz D, et al. Pro-adrenomedullin to predict severity and outcome in community-acquired pneumonia [ISRCTN04176397]. *Crit Care*. 2006;10:R96.

52. Courtais C, Kuster N, Dupuy AM, et al. Proadrenomedullin, a useful tool for risk stratification in high Pneumonia Severity Index score community acquired pneumonia. *Am J Emerg Med*. 2013;31:215-221.

53. Jeong KY, Kim K, Kim TY, et al. Prognostic value of N-terminal pro-brain natriuretic peptide in hospitalised patients with community-acquired pneumonia. *Emerg Med J*. 2011;28:122-127.

54. Kim JW, Hong DY, Lee KR, et al. Usefulness of plasma neutrophil gelatinase-associated lipocalin concentration for predicting the severity and mortality of patients with community-acquired pneumonia. *Clin Chim Acta*. 2016;462:140-145.

55. Lee JH, Chung HJ, Kim K, et al. Red cell distribution width as a prognostic marker in patients with community-acquired pneumonia. *Am J Emerg Med*. 2013;31:72-79.

56. Yin Q, Liu B, Chen Y, et al. Soluble thrombomodulin to evaluate the severity and outcome of community-acquired pneumonia. *Inflammation*. 2014;37:1271-1279.

57. Burgos J, Los-Arcos I, Álvarez de la Sierra D, et al. Determination of neutrophil CD64 expression as a prognostic biomarker in patients with community-acquired pneumonia. *Eur J Clin Microbiol Infect Dis*. 2016;35:1411-1416.

58. Chen YX, Li CS. The prognostic and risk-stratified value of heart-type fatty-acid-binding protein in community acquired pneumonia in emergency department. *Biomed Res Int*. 2014; 2014:753070.

59. Huang DT, Angus DC, Kellum JA, et al. Midregional proadrenomedullin as a prognostic tool in community-acquired pneumonia. *Chest*. 2009;136:823-831.

60. España PP, Capelastegui A, Mar C, et al. Performance of pro-adrenomedullin for identifying adverse outcomes in community-acquired pneumonia. *J Infect*. 2015;70:457-466.

61. Huang DT, Weissfeld LA, Kellum JA, et al. Risk prediction with procalcitonin and clinical rules in community-acquired pneumonia. *Ann Emerg Med*. 2008;52:48-52.

62. Self WH, Grijalva CG, Williams DJ, et al. Procalcitonin as an early marker of the need for invasive respiratory or vasopressor support in adults with community-acquired pneumonia. *Chest*. 2016;150:819-828.

63. Jain S, Self WH, Wunderink RG, et al. Community-acquired pneumonia requiring hospitalization among U.S. adults. *N Engl J Med*. 2015;373:415-427.

64. Schuetz P, Wirz Y, Sager R, et al. Procalcitonin to initiate or discontinue antibiotics in acute respiratory tract infections. *Cochrane Database Syst Rev*. 2017;10:CD007498.

65. Schuetz P, Wirz Y, Sager R, et al. Effect of procalcitonin-guided antibiotic treatment on mortality in acute respiratory infections: a patient level meta-analysis. *Lancet Infect Dis*. 2018;18:95-107.

66. Huang DT, Yealy DM, Filbin MR, et al. Procalcitonin-guided use of antibiotics for lower respiratory tract infection. *N Engl J Med*. 2018;379:236-249.

67. Schuetz P, Christ-Crain M, Thomann R, et al. Effect of procalcitonin-based guidelines vs standard guidelines on antibiotic use in lower respiratory tract infections: the ProHOSP randomized controlled trial. *JAMA*. 2009;302:1059-1066.

68. Müller F, Christ-Crain M, Bregenzer T, et al. Procalcitonin levels predict bacteremia in patients with community-acquired pneumonia: a prospective cohort trial. *Chest*. 2010;138;121-129.

69. Kutz A, Briel M, Christ-Crain M, et al. Prognostic value of procalcitonin in respiratory tract infections across clinical settings. *Crit Care*. 2015;19:74.

70. Le Bel J, Hausfater P, Chenevier-Gobeaux C, et al. Diagnostic accuracy of C-reactive protein and procalcitonin in suspected community-acquired pneumonia adults visiting emergency department and having a systematic thoracic CT scan. *Crit Care*. 2015;19:366.

71. Albrich WC, Dusemund F, Bucher B, et al. Effectiveness and safety of procalcitonin-guided antibiotic therapy in lower respiratory tract infections in "real life": an international, multicenter poststudy survey (ProREAL). *Arch Intern Med*. 2012;172:715-722.

72. de Kruif MD, Limper M, Gerritsen H, et al. Additional value of procalcitonin for diagnosis of infection in patients with fever at the emergency department. *Crit Care Med*. 2010;38:457-463.

73. van der Does Y, Limper M, Schuit SCE, et al. Higher diagnostic accuracy and cost-effectiveness using procalcitonin in the treatment of emergency medicine patients with fever (The HiTEMP study): a multicenter randomized study. *BMC Emerg Med*. 2016;16:17.

74. Hausfater P, Juillien G, Madonna-Py B, et al. Serum procalcitonin measurement as diagnostic and prognostic marker in febrile adult patients presenting to the emergency department. *Crit Care*. 2007;11:R60.

75. Hausfater P, Garric S, Ayed SB, et al. Usefulness of procalcitonin as a marker of systemic infection in emergency department patients: a prospective study. *Clin Infect Dis*. 2002:34;895-901.

76. Jaimes FA, De La Rosa GD, Valencia ML, et al. A latent class approach for sepsis diagnosis supports use of procalcitonin in the emergency room for diagnosis of severe sepsis. *BMC Anesthesiol*. 2013;13:23.

77. Lee SH, Chan RC, Wu JY, et al. Diagnostic value of procalcitonin for bacterial infection in elderly patients – a systemic review and meta-analysis. *Int J Clin Pract*. 2013;67:1350-1357.

78. ten Oever J, Tromp M, Bleeker-Rovers CP, et al. Combination of biomarkers for the discrimination between bacterial and viral lower respiratory tract infections. *J Infect*. 2012;65:490-495.

79. Kherad O, Kaiser L, Bridevaux PO, et al. Upper-respiratory viral infection, biomarkers, and COPD exacerbations. *Chest*. 2010;138:896-904.

80. Colak A, Yilmaz C, Toprak B, et al. Procalcitonin and CRP as biomarkers in discrimination of community-acquired pneumonia and exacerbation of COPD. *J Med Biochem*. 2017;36:122-126.

81. Taghizadieh A, Soleimanpour H, Rahmani R, et al. Comparison of serum levels of procalcitonin and C-reactive protein in patients with community acquired pneumonia and COPD exacerbation. *Iran Red Crescent Med J*. 2016:18:e25811.

82. Clyne B, Olshaker JS. The C-reactive protein. *J Emerg Med*. 1999;17:1019-1025.

83. Ahn S, Kim WY, Kim SH. Role of procalcitonin and C-reactive protein in differentiation of mixed bacterial infection from 2009 H1N1 viral pneumonia. *Influenza Other Respir Viruses*. 2011;5:398-403.

84. Falk G, Fahey T. C-reactive protein and community-acquired pneumonia in ambulatory care: systematic review of diagnostic accuracy studies. *Fam Pract*. 2009;26:10-21.

85. Claessens YE, Mathevon T, Kierzek G, et al. Accuracy of C-reactive protein, procalcitonin, and mid-regional pro-atrial natriuretic peptide to guide site of care of community-acquired pneumonia. *Intensive Care Med*. 2010;36:799-809.

86. Haran JP, Beaudoin FL, Suner S, et al. C-reactive protein as predictor of bacterial infection among patients with an influenza-like illness. *Am J Emerg Med*. 2013;31:137-144.

87. Tatar D, Senol G, Anar C, et al. Markers of lower respiratory tract infections in emergency departments. *Multidiscip Respir Med*. 2013;8:20.

88. Abdel Aziz MAH, Mohammed HH, Abou Zaid AAE, et al. Serum procalcitonin and high sensitivity C-reactive protein in distinguishing ADHF and CAP. *Egypt J Chest Dis Tuberc*. 2014;63:455-462.

89. Gonzales R, Aagaard EM, Camargo CA Jr, et al. C-reactive protein testing does not decrease antibiotic use for acute cough illness when compared to a clinical algorithm. *J Emerg Med*. 2011;41:1-7.

90. Müller B, Harbarth S, Stolz D, et al. Diagnostic and prognostic accuracy of clinical and laboratory parameters in community-acquired pneumonia. *BMC Infect Dis*. 2007;7:10.

91. Rainer TH, Chan CP, Leung MF, et al. Diagnostic utility of CRP to neopterin ratio in patients with acute respiratory tract infections. *J Infect*. 2009;58:123-130.

92. Bolatkale M, Duger M, Ulfer G, et al. A novel biochemical marker for community-acquired pneumonia: ischemia-modified albumin. *Am J Emerg Med*. 2017;35:1121-1125.

93. Cha YS, Lee KH, Lee JW, et al. The usefulness of the Delta Neutrophil Index for predicting superimposed pneumonia in patients with acute decompensated heart failure in the emergency department. *PLoS One*. 2016;11:e0163461.

94. How CK, Hou SK, Shih HC, et al. Usefulness of triggering receptor expressed on myeloid cells-1 in differentiating between typical and atypical community-acquired pneumonia. *Am J Emerg Med*. 2011;29:626-631.

95. Leber AL, Everhart K, Daly JA, et al. Multicenter evaluation of BioFire FilmArray Respiratory Panel 2 for detection of viruses and bacteria in nasopharyngeal swab samples. *J Clin Microbiol*. 2018;56:e01945-17.

96. Brendish NJ, Malachira AK, Armstrong L, et al. Routine molecular point-of-care testing for respiratory viruses in adults presenting to hospital with acute respiratory illness (ResPOC): a pragmatic, open-label, randomised controlled trial. *Lancet Respir Med*. 2017;5:401-411.

97. Ramirez JA, Vargas S, Ritter GW, et al. Early switch from intravenous to oral antibiotics and early hospital discharge: a prospective observational study of 200 consecutive patients with community-acquired pneumonia. *Arch Intern Med*. 1999;159:2449-2454.

98. Castro-Guardiola A, Viejo-Rodríguez AL, Soler-Simon S, et al. Efficacy and safety of oral and early-switch therapy for community-acquired pneumonia: a randomized controlled trial. *Am J Med.* 2001;111:367-374.

99. Engel MF, Bruns AH, Hulscher ME, et al. A tailored implementation strategy to reduce the duration of intravenous antibiotic treatment in community-acquired pneumonia: a controlled before-and-after study. *Eur J Clin Microbiol Infect Dis*. 2014;33:1897-1908.

100. Shrayteh ZM, Rahal MK, Malaeb DN. Practice of switch from intravenous to oral antibiotics. *Springerplus*. 2014;3:717.

101. Nathwani D, Lawson W, Dryden M, et al. Implementing criteria-based early switch/early discharge programmes: a European perspective. *Clin Microbiol Infect*. 2015;(suppl 2):S47-55.

102. Uni M, Nishimura N, Yamano Y, et al. Efficacy of early switch from intravenous to oral antimicrobials in patients with aspiration pneumonia: a prospective observational study. *Respir Investig*. 2015;53:225-231.

103. Moher D, Liberati A, Tetzlaff J, et al. Preferred Reporting Items for Systematic Reviews and Meta-analyses: the PRISMA statement. *PLoS Med*. 2009;6:1-6.

Appendix A. Literature classification schema.*

Design/ Class	Therapy†	Diagnosis‡	Prognosis§
1	Randomized, controlled trial or meta-analysis of randomized trials	Prospective cohort using a criterion standard or meta-analysis of prospective studies	Population prospective cohort or meta-analysis of prospective studies
2	Nonrandomized trial	Retrospective observational	Retrospective cohort Case control
3	Case series	Case series	Case series

*Some designs (eg, surveys) will not fit this schema and should be assessed individually.
†Objective is to measure therapeutic efficacy comparing interventions.
‡Objective is to determine the sensitivity and specificity of diagnostic tests.
§Objective is to predict outcome, including mortality and morbidity.

Appendix B. Approach to downgrading strength of evidence.

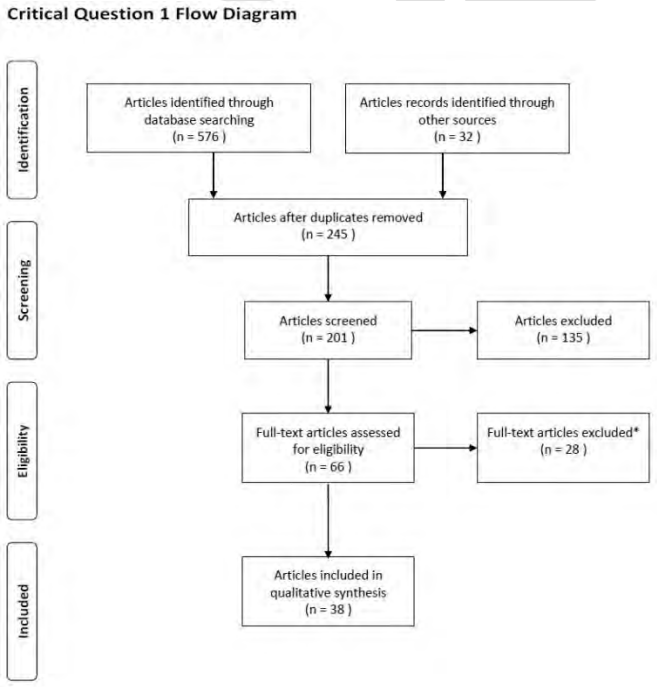
	Design/Class		
Downgrading	**1**	**2**	**3**
None	I	II	III
1 level	II	III	X
2 levels	III	X	X
Fatally flawed	X	X	X

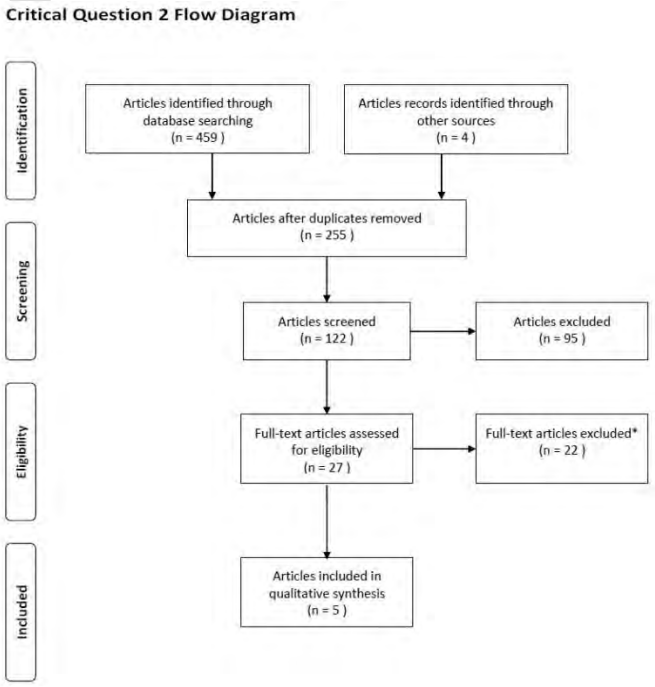
Appendix C. Likelihood ratios and number needed to treat.*

LR (+)	LR (–)	
1.0	1.0	Does not change pretest probability
1–5	0.5–1	Minimally changes pretest probability
10	0.1	May be diagnostic if the result is concordant with pretest probability
20	0.05	Usually diagnostic
100	0.01	Almost always diagnostic even in the setting of low or high pretest probability

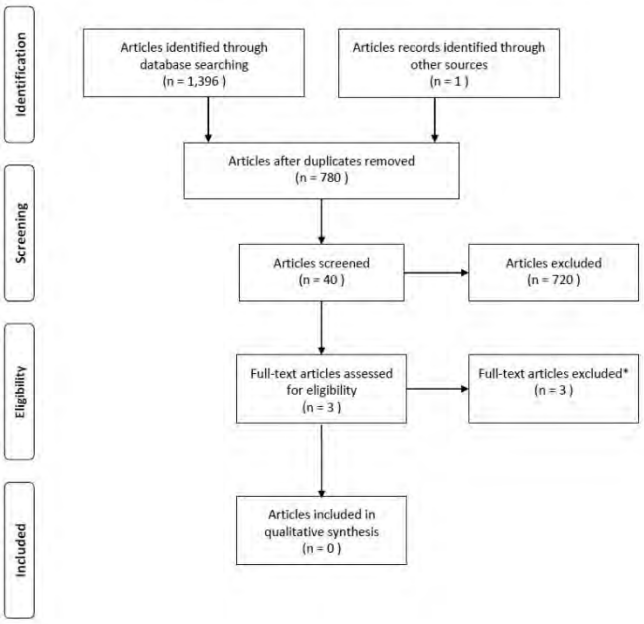
LR, likelihood ratio.
*Number needed to treat (NNT): number of patients who need to be treated to achieve 1 additional good outcome; NNT=1/absolute risk reduction×100, where absolute risk reduction is the risk difference between 2 event rates (ie, experimental and control groups).

Appendix D. PRISMA[103] flow diagrams.





Critical Question 3 Flow Diagram



*Articles identified with fatal flaws or ultimately determined to not be applicable to the critical question. See "Methodology" section for more detail.

1067 **Table 1.** Mortality prediction aids.

	PSI[10]		CURB-65[23]	
Category	**Specific Criteria**	**Points**	**Specific Criteria**	**Points**
Demographics				
Age		(Age, y)	Age ≥65 y	1
Sex	Female	–10		
Residence	Nursing home resident	10		
Coexisting illnesses				
Neoplastic disease	Present	30		
Liver disease	Present	20		
Congestive heart failure	Present	10		
Cerebrovascular disease	Present	10		
Renal disease	Present	10		
Physical examination				
Mental status	Altered/confused	20	Altered/confused	1
Respiratory rate	≥30 breaths/min	20	≥30 breaths/min	1
Blood pressure	SBP <90 mm Hg	20	SBP <90 mm Hg or DBP ≤60 mm Hg	1
Temperature	<35°C (95°F) or ≥39.9°C (103.8°F)	15		

Pulse	≥125 beats/min	10		
Laboratory and imaging studies				
Arterial pH	<7.35	30		
BUN	≥30 mg/dL (≥11 mmol/L)	20	>7 mmol/L	1
Sodium	<130 mmol/L	20		
Glucose	≥250 mg/dL (14 mmol/L)	10		
Hematocrit	<30%	10		
PaO2	<60 mm Hg	10		
Chest radiograph	Pleural effusion present	10		

PSI Risk Class	30-Day Mortality, %	CURB-65 Score	30-Day Mortality, %
Class I: Age <50 y, no listed illnesses or examination findings	0.1	0	0.6
Class II: ≤70 points	0.6	1	2.7
Class III: 71–90 points	0.9	2	6.8
Class IV: 91–130 points	9.3	3	14.0
Class V: >130 points	27.0	≥4	27.8

Table 2. Prediction aids for ICU admission.

Criteria	ATS 2001[30]		IDSA/ATS 2007[32]		SCAP (CURXO-80)[38]		SMART-COP[16]		REA-ICU[41]	
		Score		Score		Score		Score		Score
Mechanical ventilation	Invasive mechanical ventilation	Major	Invasive mechanical ventilation	Major						
Shock	Septic shock	Major	Septic shock with need for vasopressors	Major						
Blood pressure (BP)	Systolic BP ≤90 mm Hg	Minor	Hypotension requiring aggressive fluid resuscitation	Minor	Systolic BP <90 mm Hg	Major	Systolic BP <90 mm Hg	2		
Radiographic findings	Multilobar disease	Minor	Multilobar infiltrates	Minor	Multilobar or bilateral infiltrates	Minor	Multilobar involvement	1	Multilobar infiltrates or pleural effusion	2
Oxygenation	PaO2/FiO2 <250 mm Hg	Minor	PaO2/FiO2 ≤250 mm Hg	Minor	PaO2/FiO2 <250 mm Hg	Minor	Age ≤50 y: PaO2 <70 mm Hg, SpO2 ≤93%, or PaO2/FiO2 <333 mm Hg Age >50 y: PaO2 <60 mm Hg, SpO2 ≤90%, or PaO2/FiO2 <250 mm Hg	2	PaO2 <60 mm Hg or SpO2 <90%	2
Respiratory rate (breaths/min)			≥30	Minor	>30	Minor	Age ≤50 y: ≥25 Age >50 y: ≥30	1	≥30	1
Mental status			New confusion or disorientation	Minor	Altered mental status	Minor	New-onset confusion	1		
BUN (mg/dL)			≥20	Minor	>30	Minor			>11	1
WBC count (cells/mm^3)			<4,000	Minor					<3,000 or ≥20,000	1
Platelet count			<100,000 cells/mm^3	Minor						
Temperature			<36°C (96.8°C)	Minor						
Arterial pH					<7.30	Major	<7.35	2	<7.35	2
Age (y)					≥80	Minor			<80	1
Albumin (g/dL)							<3.5	1		
Pulse rate (beats/min)							≥125	1	≥125	1
Sex									Male	1
Comorbidities*									1 or more	1
Sodium (mEq/L)									<130	3
Suggested criteria for ICU admission	≥1 major or ≥2 minor criteria		≥1 major or ≥3 minor criteria		≥1 major or ≥2 minor criteria		≥3 points		≥7 points	

*Including cancer, liver disease, kidney disease, stroke, CHF, coronary disease, COPD, or diabetes.

Evidentiary Table.

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Fine et al[10] (1997)	III for Q1	Hybrid, retrospective and prospective observational; derivation cohort: adult inpatients with CAP; excluded those with HIV, recent admission, or transfers; 78 hospitals in 23 states; validation cohort: adult patients hospitalized with CAP in Pennsylvania and a prospective cohort of adult patients with CAP from 5 institutions, using both outpatients and inpatients	Derivation cohort; chart abstraction; 250 candidate predictive variables; outcome, 30-day mortality	Derivation: 14,199 patients (retrospective); validation: 38,039 patients (retrospective), 2,287 patients (prospective); instrument includes age, comorbidities, physical examination findings, and laboratory findings; derived and validated a clinical prediction instrument with 5 risk classes: I, mortality: 0.1% to 0.4% II, mortality: 0.6% to 0.7% III, mortality: 0.9% to 2.8% IV, mortality: 8.2% to 12.5% V, mortality: 27.0% to 31.1%	Limited methodological detail; derivation among large administrative data sets but validated among a prospective cohort

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Carratalà et al[11] (2005)	II for Q1	Randomized clinical trial conducted at 2 tertiary care hospitals (1 academic and 1 urban) in Barcelona, Spain, between October 2000 and October 2002	Enrolled patients >18 y with diagnosis CAP; excluded if immunosuppressed; patients with CAP were stratified into risk classes by PSI scores; patients in risk classes I, IV, and V were excluded; patients in risk classes II and III were randomized; primary outcome percentage of patients with an overall successful outcome defined as meeting all 7 criteria: (1) cure of PNA, (2) absence of adverse drug reactions, (3) absence of medical complications during treatment, (4) no need for additional visits, (5) no changes in initial treatment with levofloxacin, (6) absence of subsequent hospital admission in the 30 days after randomization, and (7) absence of death from any cause in the 30 days after randomization	A total of 224 patients were enrolled; N=203 analyzed; of these, 110 received outpatient care and 114 were hospitalized; 21 patients were excluded for protocol breaches not following eligibility criteria; overall successful outcome was achieved in 83.6% of outpatients and 80.7% of hospitalized patients (absolute difference 2.9 percentage points; 95% CI –7.1 to 12.9 percentage points)	Small sample size; complex primary endpoint; examined only PSI classes II and III; study not blinded but had concealed allocation

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Armour et al[12] (2003)	III for Q1	Multicenter prospective observational study at primary care practice clinics or emergency departments at 9 medical centers (5 community healthcare systems, 3 university-affiliated hospital systems, and 1 Veterans Affairs Medical Center) in Georgia and Virginia in the US between November 1996 and March 1998	Eligible patients: 18 to 50 y with any risk factors (cancer, congestive heart failure, stroke, chronic kidney disease, liver disease, altered mental status, tachycardia, tachypnea, fever, or hypotension); or patients 50 to 80 y with none of the above factors; initial diagnosis may have been on clinical grounds; all patients received CXR within 2 days of presentation; patients excluded if coming from skilled nursing facility or other facility, if previously hospitalized within 10 days, known history of HIV, was an organ transplant recipient, or was receiving dialysis for end-stage renal disease; calculated PSI for each patient; primary outcome: 30-day mortality; missing data handled by assigning lowest-risk score for categories with missing data; patients in PSI class I and V (calculated after enrollment) excluded from analysis	Enrolled 675 patients; PSI AUC for predicting mortality was 0.75; mortality by PSI class: class II, 1.0% (95% CI 0.3% to 3.0%); class III, 2.4% (95% CI 0.8% to 5.4%); class IV, 11.4% (95% CI 7.1% to 17.1%); total 4.1% (95% CI 2.8% to 5.9%)	Excluded PSI classes I and V cases after enrollment, selection bias may be introduced; logistic regression models used for binary outcomes conceivably for each category instead of running ordinal logit models; outpatient and inpatient status included, but unclear whether the rule also determined or influenced disposition decisions; industry sponsored

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Aujesky et al[13] (2005)	III for Q1	Multicenter prospective cohort study; 32 EDs in Pennsylvania and Connecticut	Eligibility: patients 18 y or older, clinical diagnosis of PNA, and a new radiographic pulmonary infiltrate; excluded if considered to have HAP, immunosuppression or comorbid conditions that distinguished them diagnostically or therapeutically from PNA, or psychosocial problems incompatible with outpatient treatment, enrollment, or follow-up; outcome: all-cause mortality within 30 days; excluded patients whose mortality status could be not be ascertained; any missing variables in the PSI or CURB scores were assumed to be normal: based on commonly accepted definitions of low-risk patients (PSI risk classes I through III; CURB scores <1; and CURB-65 scores <2); estimated sensitivity, specificity, and positive and negative predictive values for cut points defining high risk; assessed discriminatory power with AUC analysis	N=3,181 patients; overall 4.6% mortality within 30 days; at every threshold, PSI had a higher sensitivity and a lower specificity than CURB scores; >95% NPV across all thresholds for all prediction rules; positive predictive values were low; the PSI had a greater discriminatory power to predict 30-day mortality than CURB scores: PSI 0.81, CURB 0.73, CURB-65 0.76	Secondary analysis of clinical pathway studies for PNA; unclear how this biased results; excluded individuals for whom mortality data were missing; N=57, could have biased results; unclear whether sampling was random or all were approached; unclear attrition among those who were approached; missing data assumed to be normal rather than using multiple imputation or sensitivity analysis; decision to drop those for whom mortality data could not be ascertained is problematic, could have checked death records; 30-day mortality was lower (4.6%) than in previous studies of PNA prognosis focused on inpatients; spectrum bias inflated NPVs for all rules compared to prior studies; industry sponsored

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Capelastegui et al[14] (2006)	III for Q1	Single-center prospective cohort study; public 400-bed teaching hospital in Northern Spain	Adults >18 y admitted to the hospital's ED with a diagnosis of CAP; excluded if immunosuppressed or admitted to hospital in last 14 days; PSI, CURB-65, and CRB-65 calculated for all patients	A total of 1,776 patients: 1,100 inpatients (61.9%) and 676 outpatients (38.1%); of these, 1,724 (97.1%) had data sets for all risk scores under evaluation; 30-day mortality rate in the entire cohort was 6.7%; AUC for predicting 30-day mortality: PSI AUC 0.89 (95% CI 0.86 to 0.91); CURB-65 AUC 0.87 (95% CI 0.84 to 0.90); CRB-65 AUC 0.86 (95% CI 0.84 to 0.89); the 474 patients with CURB-65 scores of 2 were distributed in 2 subgroups, with statistically significant (P<.001) differences in 30-day mortality: 40.9% in PSI risk classes I through III (2.6% 30-day mortality), and 59.1% in PSI risk classes IV and V (11.1% 30-day mortality); among patients with CURB-65 scores of 3 to 5, 92.6% (274 of 296 patients) belonged to PSI risk classes IV and V, with 30-day mortality rates of 28.5%	Secondary analysis of a clinical protocol implementation study; CURB scores retrospectively applied for risk severity, but disposition decisions may have affected results; chart review was used to ascertain variables and scored normal if data were missing

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Chalmers et al[15] (2010)	III for Q1	Meta-analysis of prospective and retrospective studies published between 1980 and August 2009	Objective to assess differences in performance between the PSI, CURB-65, and CRB-65 risk scores in predicting mortality from CAP; followed MOOSE (Meta-analysis of Observational Studies in Epidemiology) guidelines; used PubMed and EMBASE; included all languages; excluded conference abstracts; 2 investigators independently assessed article eligibility and quality using modified Hayden criteria, tables included; pooled estimates for outcomes ratios, sensitivity, specificity, positive and negative LRs reported from random-effects models stratified by risk categories; heterogeneity assessed using Cochran *Q* test and Higgins I^2 test	N=40 studies identified meeting eligibility criteria; 17 studies reported data for CURB-65, 11 studies reported data for CRB-65, and 31 articles reported data for PSI, comprising 33 individual cohorts; the majority of studies used 30-day mortality as their primary outcome measure, although inhospital mortality was used in a few studies; there were no significant differences in the AUC curves between PSI, CURB-65, and CRB-65 in the main analysis or in any of the extensive subanalyses; PSI had a superior negative LR and identified a higher percentage of patients as low risk compared with CURB-65 and CRB-65; the high risk groups of CURB-65 and CRB-65 had a higher positive LR	Inconsistent outcome use; significant heterogeneity in all analyses of discrimination; no sensitivity analysis was undertaken using higher-quality studies

1080

1081 **Evidentiary Table (continued).**

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Charles et al[16] (2008)	III for Q1	Multicenter prospective cohort study in Australia	Included adult ED patients with CAP who were admitted; positive prediction of IRVS; derived SMART-COP rule and validated it in 5 historical cohorts; also evaluated PSI and CURB-65 rules	IRVS required in 91 of 882 episodes (derivation) and patients; in derivation cohort, AUC 0.87 to predict IRVS; for threshold of 3, sensitivity 92% (95% CI 85% to 97%) and specificity 62% (95% CI 59% to 66%); in validation cohorts, predictive ability was generally worse	Predictor and outcome variables were not measured in blinded fashion; cohort only includes patients who were admitted
Akram et al[17] (2011)	III for Q1	Systematic review and meta-analysis	Included original studies with at least 20 outpatients with CAP; excluded non-CAP diagnoses; and calculated severity scores (PSI, CRB-65, CURB-65); included patients managed exclusively as outpatients or those treated in ED and discharged from ED within 24 h; primary outcome: 30-day mortality; compared outcomes between high- and low-risk patients; for each severity score, pooled sensitivity and specificity are reported	858 abstracts reviewed; 60 articles selected as potentially eligible; 15 studies met criteria; 2 excluded owing to insufficient patient numbers or insufficient data reported; PSI: 10 studies with 3,972 patients; pooled results: PSI I through III: mortality 0.2%, PSI IV and V: mortality 10.1%; for PSI I through III, pooled sensitivity was 92% (95% CI 64% to 100%) and pooled specificity was 90% (95% CI 89 to 91); AUC was 0.92 (SE 0.03); CRB65: 4 studies with 1,648 patients; pooled results: score 0, 0% mortality; score 1, 0.5%; score 2, 6.3%; score 3, 13.2%; score 4, no patients; using CRB-65 >1 to define hospital admission, pooled sensitivity was 81% (95% CI 54% to 96%) and pooled specificity was 91% (95% CI 90% to 93%) AUC 0.91 (SE 0.05); CURB-65: 2 studies; no meta-analysis performed owing to low number of studies	Included prospective and retrospective studies; only included English-language articles; small number of studies for CRB-65 and CURB-65; limited numbers of adverse outcomes led to instability with CIs

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Atlas et al[18] (1998)	III for Q1	Single-center prospective cohort study, results compared with historical controls; program evaluation of treating patients at home with PNA; nonrandomized interventional study including patients who do not receive the intervention	Eligible patients: 18 to 84 y, new infiltrate on CXR, symptoms consistent with PNA; excluded if immunocompromised, pregnant, homeless, history of intravenous drug use, unable to receive oral meds, or on long-term oxygen therapy; intervention provided physicians with PSI and corresponding mortality risk; enrolled patients had access to home nurse visits and the antibiotic clarithromycin; observed 166 prospectively enrolled low-risk patients and compared their results with those of 147 low-risk historical controls from the prior year	Percentage treated as outpatient increased from 42% to 57%, but more patients in the intervention group were subsequently admitted (0% vs 9%); trend toward more patients in the intervention group receiving all their care in the outpatient setting but not statistically significant	No adjustment for baseline severity or propensity to admit; industry sponsored

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Marrie et al[19] (2000)	III for Q1	Randomized trial of 19 hospitals to pathway (n=9) vs no pathway/conventional (n=10); 1,743 patients for 6 mo (January to June 1998); pathway: used the PSI to guide admission decision, but the pathway includes administration of Levaquin, and practice guidelines, in addition to the PSI	Outcome: reduction in number of BDPM and outcome: reduction in percentage of low-risk patients admitted for CAP; exclusion criteria: immunocompromised, shock, pregnant/nursing, chronic renal failure; used PSI <90 to recommend discharge; 2 independent investigators evaluated outcomes and were unaware of the treatment assignment	Pathway associated with a 1.7-day reduction in BDPM, 18% decrease in admission of low-risk patients (31% vs 49%), 1.7 fewer days of IV antibiotics (4.6 vs 6.3), and more likely to receive a single class of antibiotic (64% vs 27%); pathway use had no adverse effects on quality of life, admission to the ICU (0.3%), mortality (–0.1%), readmission to hospital (0.7%), or complications (0.6%)	Sample size was justified on the basis of a difference in BDPM (10 in each arm, so did not meet power analysis); additionally, lost 1 hospital randomized to the pathway; unclear whether it was the PSI or other aspects of the pathway (Levaquin or practice guidelines) that led to the outcomes; Canadian hospitals only; different health care system than US (limits applicability to US)
Yealy et al[20] (2005)	III for Q1	Cluster randomized trial; 32 EDs randomized to low-, moderate-, or high-intensity process improvement for CAP care, using the PSI as a tool for risk stratification	Prospective enrollment; retrospective outcome assessment by telephone, medical record review, or both; no blinding; safety outcome: 30-day mortality	3,615 patients enrolled; only 1 patient died in the low-risk group treated as an outpatient	Indirectly applicable to question because this study evaluated process improvement, which included PSI as a part; generalizable because it included 32 EDs from 2 states, using an effectiveness paradigm

1086

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Julián-Jiménez et al[21] (2013)	III for Q1	Prospective, pre-post analysis of implementation of the management of CAP in ED clinical practice guidelines from 2008; single-center tertiary care center in Spain; consecutive adult sample of n=400	"Appropriate" decision re: admission/discharge based on PSI and biomarkers; early and appropriate antibiotics, total antibiotic and IV therapy times, time to clinical stabilization, length of hospital stay, and inhospital mortality	35% of the pre group had an "inappropriate" destination in 35% of the time compared with 3.6% in the post group; inappropriate discharges in PSI groups 4 and 5 decreased from 35.5% in the pre to 2% in the post group, and in PSI groups 1 through 3 it decreased from 44% to 5.1%; the number of readmissions to the ED after initial discharge was lower in the post group (22, or 28.6%, to 3, or 4.5%)	Baseline differences: the prior use of antibiotics and proportion with severe sepsis was 9% and 7.2%, more common in the post group; definition of what is appropriate or inappropriate is defined by the guideline, so it is circular reasoning to state that the disposition was appropriate or not; however, there does seem to be a difference in the proportion of readmissions to the ED, which was lower in the post group; it is a single-center study using circular reasoning
Lim et al[23] (2003)	III for Q1	Multicenter retrospective cohort study, academic, European	Patients admitted for CAP; evaluated CURB prediction rule to predict 30-day mortality; derived and validated CURB-65 rule	N=1,068 (derivation 718, validation 214) with 9% mortality; CURB ≥2: sensitivity 74% (95% CI 68% to 80%), specificity 73% (95% CI 67% to 79%); CURB-65 ≥2: sensitivity 80%, specificity 61%	Secondary analysis of prospectively collected data; cohort includes only inpatients; it was basically an internal validation because they divided up the data set into 80% used for derivation and 20% for the validation; no description is provided about the chart review in gathering the predictor variables

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Dean et al[25] (2016)	III for Q1	Multicenter retrospective cohort study; 7 Intermountain Healthcare Hospitals in Utah; two 12-mo periods: December 2009 through November 2010, December 2011 through November 2012	Investigated pleural effusions at first encounter and subsequent clinical outcomes; enrolled patients >18 y evaluated in EDs and receiving diagnosis of PNA (*ICD-9* codes 480 through 487.0) or respiratory failure or sepsis (*ICD-9* codes 518.x and 038.x) as the primary diagnosis, with PNA secondary; PNA severity calculated with eCURB; PaO2 calculated with proxies for missing arterial blood gas data; other missing data imputed with modified iterative-scheme algorithms; excluded if no radiographic evidence for PNA, if diagnosis of aspiration, or if immunocompromised; severity-adjusted association of both unilateral and bilateral effusions with comorbid illnesses modeled using hospital admission, length of stay, and mortality as outcomes; hierarchical logistic and linear regression models used to determine performance characteristics	N=4,771 with PNA; of these, 690 (14.5%) had a pleural effusion; patients with pleural effusion at presentation were more likely to be admitted to the hospital (77% vs 57%; *P*<.001) and stayed longer in the hospital (median 2.8 vs 1.3 days; *P*<.001); if initially not admitted to the hospital from the ED, patients were more likely to be secondarily admitted within 7 days (17% vs 5%; *P*<.001); patients with pleural effusion had a greater likelihood of mortality (OR 2.6; 95% CI 2.0 to 3.5; *P*<.001), controlling for eCURB and the PaO2/FiO2 ratio; additionally controlling for the Elixhauser comorbidity score decreased the OR to 2.4	Unclear how presence of effusion influenced disposition decisions

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Jones et al[26] (2014)	III for Q1	Multicenter retrospective cohort study; 7 Intermountain Healthcare Hospitals in Utah from December 2009 to December 2010	The study aimed to (1) compare their admission criteria to A-DROP ≥2 and CURB-65 ≥2 for their agreement with actual hospital admission and potential to reduce hospital admissions and outpatient failures (secondary hospitalization or death), and (2) compare eCURB, CURB-65, and A-DROP for their ability to predict 30-day mortality for ED patients with CAP versus health care–associated PNA; enrolled patients >18 y with primary diagnosis of PNA, or respiratory failure/sepsis primary with PNA secondary; excluded for aspiration, immunocompromised, or absence of radiographic evidence for PNA; the CURB-65, eCURB, and A-DROP scores were tested for their ability to predict 30-day mortality using logistic regression and by calculating the AUC; we also used the AUC to compare admission criteria to CURB-65 ≥2 and A-DROP ≥2 for accuracy in predicting inpatient versus outpatient triage	N=2,308 patients, admission rate 57%, 30-day mortality 6.1%, 7-day secondary hospitalization 5.8%, and outpatient failure rate 6.4%; admission criteria predicted hospital admission with an AUC of 0.77 compared with 0.73 for CURB-65 ≥2 and 0.78 for A-DROP ≥2; hypothetical 100% concordance with admission criteria decreased the hospitalization rate to 52% and reduced the outpatient failure rate to 3.9%, slightly better than A-DROP ≥2 (54% and 4.3%) and CURB-65 ≥2 (49% and 5.1%); among the 30-day mortality predictors, eCURB was superior overall, with an AUC of 0.83 vs 0.79 for A-DROP, and 0.78 for CURB-65 (P<.001); there was no statistically significant difference in performance between A-DROP and CURB-65 (P=.97)	Unclear how investigators used other rules to affect disposition decisions; unclear whether manual abstraction was undertaken blinded to disposition and 30-day mortality; study required hierarchical modeling to account for clustering by hospital site

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Buising et al[28] (2006)	III for Q1	Prospective cohort study at a single urban center, Melbourne, Australia	Enrolled ED patients with diagnosed PNA; excluded if <18 y, history of immunosuppression, cystic fibrosis, hospital discharge in prior 2 wk; assessed PSI, CURB, CURB-65, Modified BTS severity score (2-step CURB), revised ATS score; the performance characteristics of the severity scores in predicting inhospital mortality, need for ICU admission and composite outcome of requiring either inotropic support or noninvasive or invasive ventilation within 48 h of presentation when no other cause for circulatory or respiratory failure was clinically evident; secondary analysis excluding patients >90 y, those from nursing homes, and those receiving palliative care	N=392 patients with CAP; of these, 26 (6.6%) required ICU admission, 37 (9.4%) died while in hospital, 48.4% of dead patients were >90 y or resided in a nursing home, or were considered to be unsuitable for aggressive treatment; PORT mortality prediction: class I, 0; class II, 0; class III, 2%; class IV, 8%; class V, 28%; excluded nursing home, >90 y, or palliative patients; sensitivity of the tools for mortality in the remaining patients was 18 of 19 patients (94.7%) for both PSI classes IV and V and for CURB; 17 of 19 patients (89.5%) for CURB-65; 100% for the modified BTS severity score, and 11 of 19 patients (57.8%) for the revised ATS score; 29 patients who died were not admitted to the ICU before death, 11 of whom were not in the group >90 y, from a nursing home, or identified as not for resuscitation within 24 h of presentation; the CURB, PSI classes IV and V, and modified BTS severity score tools all identified 10 of these 11 patients as “severe”; the rates of ICU admission in each of the PSI classes were class I, 0; class II, 2%; class III, 5%; class IV, 7%; and class V, 14%; the revised ATS score performed well in identifying patients requiring ICU admission, as did the modified BTS severity score, but CURB-65 had a sensitivity of only 57.7% for ICU admission; PSI classes IV and V and CURB had similar predictive values for this outcome of interest; for 8 patients who required ICU admission and were not admitted directly from the emergency department, 7 required transfer from the ward to the ICU within 24 h; both the PSI classes IV and V and the CURB definitions of severity correctly identified 7 of these 8 patients (1 patient was misclassified by both tools)	Scores may have been used to determine severity and disposition and ICU admission was an outcome leading to overestimation of performance owing to incorporation bias; only 35.9% of patients had arterial blood gas tested, limiting PSI scoring; unclear how missing data were handled; included cases of "clinical PNA"; some data were retrieved retrospectively

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Chalmers et al[31] (2011)	III for Q1	Meta-analysis of prospective and retrospective studies published between 1980 and October 2009	Objective to assess differences in performance between the PSI, CURB-65, and CRB-65, ATS risk scores in predicting ICU admission from CAP; all studies were considered eligible if they fulfilled the following criteria: original publications, inclusion of patients with CAP, radiographic confirmation of CAP and exclusion of non-CAP diagnoses, such as nonpneumonic exacerbation of COPD; calculation of severity score based on admission data; studies involving only outpatients were excluded; primary outcome was the frequency of ICU admission (during hospitalization for CAP or within 30 days of diagnosis) in patients meeting severity score criteria; surrogates of ICU admission, such as the receipt of mechanical ventilation or vasopressor support, were also collected; used PubMed and EMBASE; included all languages; excluded conference abstracts; 2 investigators independently assessed article eligibility and quality using	N=28 studies included in meta-analysis; 26 articles reported data on PSI and the prediction of ICU admission, reporting cohorts comprising 25,609 patients with 2,410 ICU admissions, giving a cumulative ICU admission rate of 9.4%; using a PSI ≥IV to determine ICU admission, the pooled sensitivity was 74.1% (95% CI 72.3% to 75.8%) and the pooled specificity 47.9% (95% CI 47.3% to 48.6%), with a positive LR of 1.48 (95% CI 1.38% to 1.59%) and a negative LR of 0.53 (95% CI 0.47 to 0.60); 11 articles reported data for CURB-65 and the prediction of ICU admission; these studies reported data on 11,602 patients with an event rate of 9.9% overall; using CURB-65 ≥3 to determine ICU admission, the pooled sensitivity was 48.8% (95% CI 45.9% to 51.7%) and the pooled specificity was 74.0% (95% CI 73.2% to 74.9%), with a positive LR of 1.70 (95% CI 1.36 to 2.11) and a negative LR of 0.72 (95% CI 0.60 to 0.86); the diagnostic OR was 2.85 (95% CI 2.17 to 3.74); using CURB-65 ≥4 to determine ICU admission, the pooled sensitivity was 28.9% (95% CI 22.5% to 35.9%) and the pooled specificity was 89.9% (95% CI 88.6% to 91.0%), with a positive LR of 2.09 (95% CI 1.12 to 3.90) and a negative LR of 0.86 (95% CI 0.68 to 1.09); 4 studies reported data for CRB-65 and ICU admission; data were available for only 3,096 patients with 271 events, giving a cumulative ICU admission rate of 8.8%; using a score of ≥3 to determine ICU admission, the pooled sensitivity was 41.7% (95% CI 35.8% to 47.8%) and the pooled specificity was 85.1% (95% CI 83.8% to 86.4%), with a positive LR of 3.0 (95% CI 1.44	Inconsistent outcome use; significant heterogeneity in all analyses of discrimination; no sensitivity analysis was undertaken using higher-quality studies; incorporation bias from investigators using rules to determine disposition likely because these rules disseminated into common practice

			modified Hayden criteria, tables included; pooled estimates for outcomes ratios, sensitivity, specificity, positive and negative LRs reported from random-effects models stratified by risk categories; heterogeneity assessed with Cochran's *Q* test and Higgins' I^2 test	to 6.25) and a negative LR of 0.69 (95% CI 0.57 to 0.84); 9 studies reported data on the 2001 ATS criteria; these studies contained 4,833 patients with an ICU admission rate of 16.4%; the pooled sensitivity was 66.7% (95% CI 63.3% to 70.0%) and the pooled specificity was 84.6% (95% CI 83.5% to 85.7%), with a positive LR of 7.05 (95% CI 4.39 to 11.3) and a negative LR of 0.34 (95% CI 0.26 to 0.44); 5 studies reported validation data for the 2007 IDSA/ATS criteria; the validation studies involved 6,488 patients with an ICU admission rate of 14.5%; the pooled sensitivity was 61.2% (95% CI 58% to 64.3%) and the pooled specificity was 88.6% (95% CI 87.7% to 89.4%), with a pooled positive LR of 6.2 (95% CI 3.3 to 11.7) and a pooled negative LR of 0.43 (95% CI 0.35 to 0.53); none of the scoring systems demonstrated a positive LR >10 or a negative LR <0.1 using any of the recognized cutoffs; patients in CURB-65 group 0 were at lowest risk of ICU admission, negative LR 0.14 (95% CI 0.06 to 0.34), whereas the 2001 ATS criteria had the highest, positive LR 7.05 (95% CI 4.39 to 11.3)	

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments

Liapikou et al[33] (2009)	III for Q1	Retrospective cohort study at single urban, academic medical center between 2000 and 2007	Adults with CAP admitted to hospital; outcome: ICU admission	N=2,102 (235 admitted to ICU); 2007 IDSA/ATS criteria for severe CAP: sensitivity 71%, specificity 88% for ICU admission; κ coefficient=0.45 between IDSA/ATS prediction and ICU admission	Retrospective, secondary analysis of earlier cohort study; creatinine >2 mg/dL imputed for blood urea nitrogen ≥20 mg/dL criterion; unclear external generalizability because this was a single-center study
Fukuyama et al[35] (2011)	III for Q1	Single-center prospective study at community hospital in Japan	Patients admitted for CAP; evaluated different clinical prediction rules to predict mechanical ventilation, septic shock, ICU admission, or inpatient mortality	N=505 with 6.5% inpatient mortality; España rule: sensitivity 97%, specificity 35%; PSI (IV and V): sensitivity 93%, specificity 31%; A-DROP: sensitivity 77%, specificity 60%; CURB-65: sensitivity 60%, specificity 69%; 2007 IDSA/ATS: sensitivity 87%, specificity 62%; SMART-COP: sensitivity 93%, specificity 45%	Outcome assessment was not blinded; cohort includes only inpatients and therefore may not generalize to ED population

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments

Chalmers et al[36] (2011)	III for Q1	Prospective observational study of consecutive adult patients with CAP admitted to National Health Service Lothian (Scotland, United Kingdom)	Cohort of PNA patients without major criteria for ICU admission but who were eligible for ICU admission if required; exclusion criteria included HAP, systemic immunosuppression, radiographic changes owing to lung cancer rather than PNA, HIV infection, solid organ transplant, and pulmonary TB or any obvious reason for ICU admission; no scoring systems were used to guide ICU admission decisions in the study hospitals; PSI, CURB-65, SCAP, SMART-COP, 2001 ATS minor criteria were calculated; outcomes: severe CAP, defined as definition of severe CAP; secondary outcome was all-cause 30-day mortality; calculated performance characteristics and AUC for ROCs	Of the 1,723 PNA patients identified, 1,625 lacked major criteria, and 1,062 had no contraindications to ICU admission (ie, do-not-resuscitate orders); overall 30-day mortality rate was 4.5%, and 7.6% of patients subsequently required ICU admission; of the patients admitted to the ICU, 86.4% required mechanical ventilation/vasopressor support during their admission, 207 patients (19.5%) met at least 3 2007 IDSA/ATS minor criteria with an AUC-ROC curve of 0.85 (95% CI 0.82 to 0.88) for prediction of mechanical ventilation/vasopressor support, 0.85 (95% CI 0.82 to 0.88) for prediction of ICU admission, and 0.78 (95% CI 0.74 to 0.82) for prediction of 30-day mortality; criteria were at least as equivalent to more established scoring systems	To calculate severity scores, missing data were assumed to be normal; <0.1% of data were missing for calculation of severity scores, and no values were missing for calculation of the 2007 IDSA/ATS criteria; none of the scoring systems achieved a positive LR of >10 or a negative LR of <0.1, which is regarded as providing robust prediction; none of the prediction tools achieved sensitivity or specificity of 100%; spectrum bias, given persons at highest risk were removed from the analysis; unclear study enrollment dates

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments

España et al[38] (2006)	III for Q1	Single-center prospective cohort study in Spain between March 2000 and March 2004	Enrolled patients >18 y with a pulmonary infiltrate on CXR not known to be old and with symptoms consistent with PNA; excluded if immunocompromised; patients with an expected terminal event (defined as metastatic cancer, advanced dementia, or a disease or condition with a high likelihood of predicted fatality during the next 30 days) were included; from the β parameter obtained in the multivariate logistic regression models, a score was assigned to each predictive variable; assessed with a derivation and validation set; by adding up the points assigned to each predictive variable, a score was given to each patient, with a higher score corresponding to a higher likelihood of SCAP; retrospective, external validation cohort was formed with patients admitted to 4 other hospitals in the same health network	N=1,776; of these, 46 episodes were classified as an expected terminal event at diagnosis; 1,057 patients were randomly assigned to the derivation cohort and 719 to the internal validation cohort; the rate of SCAP among admitted patients was 11.5% in the derivation cohort, 9.8% in the internal validation cohort, and 12% in the external cohort; inhospital mortality was 9.1%, 8.2%, and 9.7%, respectively; in multivariate analyses, 8 independent predictive factors were correlated with SCAP: systolic blood pressure <90 mm Hg, arterial pH <7.30, respiratory rate >30 breaths/min, blood urea nitrogen >30 mg/dL, oxygen arterial pressure <54 mm Hg or PaO2/FiO2 <250 mm Hg, altered mental status, ≥80 y, and multilobar/bilateral lung infiltrates on radiographs; when applying a cutoff point of 10 or greater, prediction rule showed an AUC of 0.83 for the derivation cohort, 0.86 for internal validation cohort, and 0.72 for the external validation; both m-ATS and CURB-65 had low sensitivity (51.3% and 68.4%), whereas PSI risk classes IV and V and adjusted PSI demonstrated poor specificity (68.1% and 57.5%) for the derivation cohort, trend lessened in the validation cohorts	Unclear whether blinded to outcome assessments; unclear whether investigators used other rules for patient disposition (incorporation bias); unclear how missing data were handled, seemingly cases were dropped because most <5%; however, some as high as 40% for respiratory rate, may have affected results

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments

España et al[39] (2010)	III for Q1	Multicenter retrospective cohort study in Spain	Included adult ED patients with CAP, the majority of whom were admitted; outcome: 30-day mortality; evaluated SCAP, PSI, and CURB-65 rules	Validation cohort: N=712 with 6.7% 30-day mortality; SCAP: AUC 0.75 (95% CI 0.68 to 0.81); CURB-65: AUC 0.73 (95% CI 0.66 to 0.80); PSI: AUC 0.79 (95% CI 0.74 to 0.85)	Predictor and outcome variables were not measured in blinded fashion; authors reported that study was prospective but did not provide sufficient details to support this claim

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments

Labarère et al[41] (2012)	III for Q1	Retrospective cohort study; secondary analysis of RCT at 6 facilities in Switzerland	Using original data from a prospective multicenter RCT study of CAP patients, external validation of the REA-ICU index in predicting early ICU admission and clinically relevant outcomes was undertaken; also examined predictive performance of PNA severity assessment tools and alternate clinical prediction models of SCAP requiring intensive care; included patients with a definite diagnosis of CAP, defined by at least 1 respiratory symptom plus at least 1 finding during auscultation or 1 sign of infection, along with a new infiltrate on CXR; ineligible if unable to give consent, severe dementia, active intravascular cardiac unit, immunosuppression, life-threatening medical comorbidities leading to possible imminent death (HAP or if hospitalized in prior 14 days), and patients with chronic infection necessitating antibiotic treatment	N=850 patients; 30-day ICU admission and mortality rates were 64 of 850 patients (7.5%) and 40 of 850 patients (4.7%); in validation sample, rates of early intensive respiratory or vasopressor support, 30-day ICU admission, and 30-day all-cause mortality were 1.5%, 1.8%, and 1.5% for patients assigned to REA-ICU risk class I and 20.7%, 31.0%, and 20.7% for patients assigned to REA-ICU risk class IV; the REA-ICU index yielded AUC higher than PSI and CURB-65 scores in predicting ICU admission and comparable to the 2007 IDSA/ATS minor severity criteria, SMART-COP, and SCAP (CURXO-80) in predicting early or 30-day outcome measures; REA-ICU index and other prediction models of severe CAP did not perform better than the PSI and CURB-65 scores in predicting 30-day mortality; none of the clinical prediction models of severe CAP and PNA severity assessment tools yielded a positive LR >10 or a negative LR <0.1 in predicting early ICU admissions; the NPVs ranged from 95% for the CURB-65 group 3 to 98% for the REA-ICU risk classes II through IV; the positive predictive values ranged from 9% for the PSI risk classes IV and V to 22% for the presence of 3 or more 2007 IDSA/ATS minor severity criteria	No clustering adjustment for data collected from 6 facilities; criteria for confusion not validated; no assessment of reliability of predictors; included patients with do-not-intubate orders; unclear how the REA-ICU and other predictors influenced disposition decisions; using ICU admission as a proxy for severe PNA may be confounded by other factors

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments

Marti et al[42] (2012)	II for Q1	Meta-analysis of prospective and retrospective studies	Assess performance of existing clinical prediction rules to identify in the ED patients with CAP requiring ICU admission or intensive treatment; prospective or retrospective studies evaluating clinical prediction rules in adult immunocompetent patients with CAP to predict the need for ICU admission, intensive treatment, or early mortality (<14 days); the evaluation had to be performed during the first 24 h after hospital admission; studies addressing specific patient subgroups based on cause or age were excluded; a prediction rule was defined as the combination of 2 or more clinical or biologic markers	N=36 articles included; identified 11 main severity scores based on 20 variables; sufficient data were available to perform a meta-analysis on 8; PSI: score of ≥IV had a pooled sensitivity of 75% and a specificity of 48%; a cutoff of V increased specificity to 84% and decreased sensitivity to 38%; ability of PSI to predict ICU admission was modest, with AUC 0.69; ability to predict an alternative definition of SCAP, including mortality, was superior, with a pooled sensitivity of 92.4% and specificity of 56.2% in 4 cohorts of 3,195 patients; CURB-65 was studied in 9 cohorts including 5,773 patients and 479 ICU admissions (8.3%); at score ≥3 pooled sensitivity was 56%, and specificity was 74%; performance of CURB-65 to predict ICU admission was similar to PSI with AUC of 0.69; ability to predict need for ventilation or vasopressors was studied in 3 publications including 2,951 patients, 264 requiring ICU; results were similar, with a pooled sensitivity of 57.2% and specificity of 77.2%; CRB-65: 2 studies included 2,078 patients and 122 ICU patients (5.8%) measured ability of CRB-65 to predict ICU	Heterogeneity and pooling with random-effects models, sensitivity analyses done when there were sufficient data and numbers of articles; some data are reported and pooled even when heterogeneity was unable to be assessed; major heterogeneity limited validity of the meta-analysis; inclusion in the studied population of patients not at risk for ICU admission (patients with therapeutic limitations); and use as a predictor of a surrogate of the outcome (use of mechanical ventilation and vasopressors, which are universally delivered only in an ICU or intermediate care unit); ICU admission is influenced by ICU bed availability, local ICU admission policy, or subjectivity of the ICU specialists evaluation; some rules have been fully incorporated in specialist society recommendations, influencing ICU admission practices—incorporation bias; and overestimation of their accuracy

				admission; for score ≥3 pooled sensitivity was 34% and specificity was 91%; CURB: ability to predict ICU admission was studied in 4 cohorts of 1,418 patients and 161 ICU admissions (12.1%); pooled sensitivity of CURB ≥2 to predict ICU admission was 76.8% and specificity was 68.6%; 2001 ATS: consists of 2 major (mechanical ventilation or shock) and 3 minor criteria (BP <90 mm Hg, PaO2/FiO2 <250 mm Hg, and multilobar involvement on CXR); the rule is considered positive in the presence of 1 major or 2 minor criteria; identified 8 studies including 7,116 patients with 908 ICU admissions (12.8%); the pooled sensitivity was 69.5%, and specificity was 90.1%; pooled AUC could not be calculated owing to insufficient data; pooled sensitivity was 52.7% and specificity was 95.1%; 2007 ATS/IDSA consists of 2 major (mechanical ventilation or shock) and 9 minor criteria; rule is positive in presence of 1 major or 3 minor criteria; 5 publications evaluated; 2 studies of 2,400 patients and 266 ICU patients (11%) validated the original rule to predict ICU admission; pooled sensitivity	

				was 84% and specificity was 78%; 4 studies evaluated the performance of minor criteria in a total of 6,412 patients including 650 ICU patients (10.1%); pooled sensitivity was 57%, and specificity was 90%; SMART-COP: pooled sensitivity to predict the need for vasopressors or mechanical ventilation was 79% and specificity was 68%; 2 studies evaluated this rule to predict ICU admission, with a pooled sensitivity of 79% and specificity of 64% on 1,567 patients including 112 ICU admissions (7.1%); SCAP score pooled performance of this rule on 3 cohorts totaling 3,402 patients (SCAP, 9%) to predict a composite definition of SCAP (inhospital death, mechanical ventilation, or shock) was 92% for sensitivity and 64% for specificity; pooled performance of the SCAP score to predict ICU admission in 2 recent cohorts was similar in terms of sensitivity (94%) but lower for specificity (46%)	

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Sharp et al[45] (2016)	III for Q1	Multicenter retrospective cohort study at 14	Report the accuracy of CURB-65 at predicting 30-day mortality for	N=21,183 with diagnosis of CAP; 7,952 (37.5%) resulted in ED discharge and 13,231	Rules have been fully incorporated in specialist society recommendations, perhaps

		Kaiser Permanente EDs in Southern California from July 2009 to June 2012	groups of ED patients who were discharged or hospitalized; the primary outcome was 30-day all-cause mortality; eligible if >18 y with primary diagnosis of PNA or primary diagnosis of respiratory failure or sepsis with PNA as secondary; excluded if diagnosis of health care–associated PNA, hospitalized in prior 30 days, or immunocompromised; performance characteristics reported with AUC, *c* statistics, sensitivity analyses	(62.5%) resulted in admission; for all ED CAP encounters (admitted and discharged), the *c* statistic, describing the accuracy of CURB-65 to predict 30-day mortality, was 0.76 (95% CI 0.75 to 0.77); a CURB-65 threshold of ≥1 (N=13,920), a low-risk score that has previously been suggested to support outpatient management, was 92.8% sensitive and 38.0% specific for identifying patients who died within 30 days; CURB-65 was more accurate among discharged patients (*c* statistic=0.86; 95% CI 0.82 to 0.91) than admitted patients (*c* statistic=0.69; 95% CI 0.67 to 0.71); CURB-65 threshold of ≥1 demonstrated higher sensitivity (94.8% vs 92.7%) and specificity (62.4% vs 22.3%) among those discharged (N=6,982) than for those admitted (N=6,938)	influencing admission practices and treatment decisions leading to incorporation bias and overestimation of accuracy; models failed to account for clustering; missing data were assumed normal or abnormal in lieu of multiple imputation

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Chen and Li[46] (2015)	III for Q1	Prospective cohort study from January 2012 to May 2014 at a single	Objective: investigate the predictive performance of lactate, CURB-65, and a combination of lactate and CURB-65 for mortality,	N=1,641 patients; 861 (53%) were hospitalized (38% to a general ward, 15% to the ICU), whereas the remaining	Investigators were not blinded to CURB score or outcomes; incorporation bias likely influenced

		academic urban center ED in China with approximately 250,000 ED visits per year	hospitalization, and ICU admission in PNA patients in the ED; lactate and CURB-65 were defined to have 3 risk classes: low, moderate, and high; the CURB-65 risk category thresholds matched those proposed in the original study: low (CURB-65 ≤1), moderate (CURB-65 =2), and high risk (CURB-65 ≥3); lactate risk classes were defined as follows: low risk (lactate <2 mmol/L), moderate risk (2 to 4 mmol/L), and high risk (>4 mmol/L); the cohort was then separated into 3 risk groups according to the combination of lactate and CURB-65 (LAC-CURB-65): patients with 2 low risks, patients with any moderate risk, and those with a high risk; the 28-day mortality, hospitalization, and ICU admission were compared among the 3 groups; logistic regression models used to determine AUCs and performance characteristics for each risk category and outcome	780 (47%) were treated as outpatients or observed in the ED; 547 of 1,641 patients (33%) died within 28 days; lactate and CURB-65 were higher in patients who died, were hospitalized, or were admitted to the ICU compared with patients who were not (*P*<.001); lactate and CURB-65 independently predicted outcomes; the performance of lactate in predicting 28-day mortality, hospitalization, and ICU admission was higher than that of CURB-65 (*P*<.01); for LAC-CURB-65, patients at low or moderate risk had mortality rates of 2% and 14%, respectively, and hospitalization rates of 15% and 40%, respectively, whereas none were admitted to ICU; patients at high risk had the highest mortality (52%), hospitalization (70%), and ICU admission rates (27%)	hospital disposition decisions; mortality rates high (33%), leading to spectrum bias

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Christ-Crain et al[47] (2007)	III for Q1	Prospective cohort study at a single academic urban center ED in Basel,	Primary study objective was to determine antibiotic duration based on PCT guidance; a secondary outcome was assessment of	N=302 patients; total cortisol and free cortisol, but not CRP or leukocytes, increased with increasing severity of CAP according to the PSI	No mention of blinded outcome assessment; unclear whether results from laboratory tests and PSI scoring affected disposition decisions—incorporation bias;

		Switzerland, from November 2003 through February 2005	prognostic factors and biomarkers in CAP; patients >18 y with suspected CAP enrolled; excluded cystic fibrosis, active TB, and severely immunocompromised; PCT, CRP levels, leukocyte count, clinical variables, and the PSI were measured; proADM levels were measured with a new immunoassay; CAP defined by presence of 1 or more of the following: cough, sputum production, dyspnea, temperature >38.0°C (100.4°F), rales, WBC $>10\times10^9$/L or $<4\times10^9$/L, infiltrate on CXR; patients were followed for 7 wk on average in the original study; this substudy validated the use of cortisol in the risk stratification of CAP; the major outcome measures were PSI and survival	(*P*<.001); total cortisol and free cortisol levels on presentation in patients who died during follow-up were significantly higher compared with levels in survivors; AUC was 0.76 (95% CI 0.70 to 0.81) for total cortisol and 0.69 (95% CI 0.63 to 0.74) for free cortisol; this was similar to the AUC of the PSI 0.76 (95% CI 0.70 to 0.81) and better compared with CRP, PCT, or leukocytes; in univariate analysis, the predictive potential of total cortisol equaled the prognostic power of PSI for mortality	preplanned secondary analysis; unclear whether antibiotic duration was affected by proADM levels; unclear how missing data were handled; funded by the assay company

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Christ-Crain et al[48] (2008)	III for Q1	Prospective cohort study at a single academic urban center ED in Basel, Switzerland, from	Primary study objective was to determine antibiotic duration based on PCT guidance; a secondary outcome was assessment of prognostic factors and	N=302 patients enrolled; patients with mild CAP defined as PSI class I, II, or III had significantly lower B-type natriuretic peptide levels compared with patients with	No mention of blinded outcome assessment; unclear whether results from laboratory tests and PSI scoring affected disposition decisions—incorporation bias; preplanned secondary analysis;

		November 2003 to February 2005	biomarkers in CAP; patients >18 y with suspected CAP enrolled; excluded: cystic fibrosis, active pulmonary TB, HAP, and the severely immunocompromised; PCT, CRP levels, leukocyte count, clinical variables, and the PSI were measured; proADM levels were measured with a new immunoassay; CAP defined by presence of 1 or more of the following: cough, sputum production, dyspnea, temperature >38.0°C (100.4°F), rales, WBC $>10\times10^9$/L or $<4\times10^9$/L, infiltrate on CXR; patients were followed for 7 wk on average in the original study; the major outcome measures were PSI and survival; this substudy validated the use of B-type natriuretic peptide in the risk stratification of CAP	severe CAP defined as PSI class IV and V (*P*=.02); the combination of B-type natriuretic peptide and the PSI significantly improved the prognostic accuracy of the PSI alone (AUC 0.78 vs 0.71; *P*=.02)	unclear whether antibiotic duration was affected by proADM levels; unclear how missing data were handled; funded by the assay company

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Lee et al[49] (2011)	III for Q1	Prospective cohort study at single academic center in Korea between April 2008 and March 2010	Determine association of commonly used biochemical markers, such as albumin and CRP, with mortality and the prognostic performance of these markers combined with the PSI for mortality and	N=424 patients; 28-day mortality was 13.7%; in patients who were categorized into the same PSI class, especially PSI classes IV and V, mortality was higher in those who had low serum albumin (<3.3 mg/dL) or high CRP (≥14.3 mg/dL) than in	Secondary analysis of protocol implementation study for PSI; unclear how PSI and other tests affected disposition decisions—incorporation bias;

			adverse outcomes in patients with CAP; hypothesized albumin and CRP would be associated with 28-day mortality and improve mortality prediction in hospitalized patients with CAP; eligible patients >18 y and had a diagnosis of CAP; excluded if transferred from another hospital, discharged from a hospital in prior 10 days, prior diagnosis of PNA within 30 days, active pulmonary TB, HIV, or chronically immunosuppressed; primary outcome 28-day mortality; secondary outcomes, vasopressor use, mechanical ventilation, ICU admission; logistic regression and Cox proportional hazards models used	patients who had high serum albumin (≥3.3 mg/dL) or low CRP (<14.3 mg/dL); in patients who had albumin less than 3.3 mg/dL, mortality was significantly higher than in those with albumin 3.3 mg/dL or more (22.1% vs 6.8%; *P*<.05); mortality was higher in patients with CRP 14.3 mg/dL or more than in those with CRP less than 14.3 mg/dL (20.2% vs 9.2%; *P*<.05); the AUC to predict 28-day mortality was 0.66 (95% CI 0.60 to 0.72) for albumin, 0.61 (95% CI 0.55 to 0.68) for CRP, and 0.76 (95% CI 0.71 to 0.81) for PSI; the AUCs significantly increased when albumin or CRP was added to PSI; for ICU admission, vasopressor use, or need for mechanical ventilation, albumin had an additive role with PSI (AUC 0.75), but CRP did not; however, the combination of albumin, CRP, and PSI increased AUC significantly (0.76) compared with PSI alone (0.70)	unclear how cut points were selected; by trial and error, theory, or optimization algorithms

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Golcuk et al[50] (2015)	III for Q1	Prospective observational study at a single center in Turkey between September 2013 and July 2014	Investigated whether MPV is correlated with the CURB-65 and whether a combination of the CURB-65 score with MPV could better predict the 28-day mortality in patients with CAP;	A total of 174 patients (mean age 66.7 y [standard deviation 15.8 y]; 66.1% men) with CAP were enrolled in this study; all-cause mortality at the 28-day follow-up evaluation was 16.1%; a significant and inverse correlation between MPV and	Unclear how missing data were handled; unclear whether investigators were blinded to MPV results or study purpose; unclear how CURB-65 affected baseline disposition decisions

			patients included if >18 y, hospitalized, or discharged from the ED with CAP; excluded those immunosuppressed, pregnant, readmissions, HAP, aspiration PNA, TB; CAP defined as new pulmonary infiltrates on chest imaging with symptoms consistent with PNA, including cough with or without sputum, temperature >38.0°C (100.4° F) or <36.0ºC (96.8° F), pleuritic chest pain not acquired in a hospital, or all 3; PNA severity assessed with CURB-65; survival analysis models used	CURB-65 score was found (R=–0.58; *P*=.001); optimal MPV cutoff for predicting 28-day mortality at ED admission was 8.55 fL, with a 75% sensitivity and a 75.3% specificity; CURB-65 prediction of 28-day mortality, AUC 0.81 (95% CI 0.74 to 0.89); CURB-65 and MPV 0.89 (95% CI 0.81 to 0.93)	

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Christ-Crain et al[51] (2006)	III for Q1	Prospective cohort study at a single academic urban center ED in Basel, Switzerland, from November 2003 through February 2005	Primary study objective was to determine antibiotic duration based on PCT guidance; a secondary outcome was assessment of prognostic factors and biomarkers in CAP; patients >18 y with suspected CAP enrolled; excluded: cystic	N=302 patients; proADM levels, in contrast to CRP and leukocyte count, increased with increasing severity of CAP, classified according to the PSI score (ANOVA, *P*<.001); in patients who died during follow-up, proADM levels on admission were significantly	No mention of blinded outcome assessment; preplanned secondary analysis; unclear whether antibiotic duration was affected by proADM levels; unclear how missing data were handled; funded by the assay company

			fibrosis, active TB, HAP, and the severely immunocompromised; PCT, CRP levels, leukocyte count, clinical variables, and the PSI were measured; proADM levels were measured with a new immunoassay; CAP defined by presence of 1 or more of the following: cough, sputum production, dyspnea, temperature >38.0°C (100.4°F), rales, WBC >10 or <4×10^9/L, infiltrate on CXR; patients were followed for 7 wk on average in the original study; this substudy validated the use of PCT in the risk stratification of CAP	higher compared with levels in survivors, 2.1 nmol/L (95% CI 1.5 to 3.0) versus 1.0 nmol/L (95% CI 0.6 to 1.6), *P*<.001; in ROC analysis for survival, the AUC for proADM was 0.76 (95% CI 0.71 to 0.81), which was significantly higher compared with PCT (*P*=.004), CRP (*P*<.001), and total leukocyte count (*P*=.001) and similar to the AUC of the PSI (0.73; *P*=.54); a clinical model including the PSI and proADM increased the prognostic accuracy to predict failure compared with a model relying on the PSI alone (AUC 0.77; 95% CI 0.70 to 0.84; *P*=.03)	

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Courtais et al[52] (2013)	III for Q1	Prospective cohort single-center ED in France from June 2009 to July 2010	Evaluated the prognostic value of midregional proADM in ED patients with a diagnosis of CAP and analyzed the added value of proADM as a risk stratification tool in comparison with other biomarkers and clinical severity scores; evaluated	N=109; 9 patients died within 30 days; a 0.58 correlation between proADM and PSI was found; PSI and proADM levels were significantly predictive of risk of death; in patients with PSI class IV and V (score >90), proADM levels significantly predicted risk of death (OR 4.68;	Industry sponsored; too few outcomes to support results or the analyses that were undertaken

			proADM, CRP and PCT, along with the PSI score in consecutive CAP patients; primary outcome 30-day mortality; performance characteristics assessed with ROC curve analysis, logistic regression, and reclassification metrics for all patients and for patients with high PSI scores	95% CI 1.66 to 20.22; *P*=.012), whereas PSI score did not (*P*=.12); AUC was higher for proADM than for PSI score, AUC 0.81 (95% CI 0.65 to 0.96) and 0.66 (95% CI 0.44 to 0.89), respectively; reclassification analysis revealed that combination of PSI and proADM allows a better risk assessment than PSI alone (*P*=.001)	

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Huang et al[59] (2009)	III for Q1	Multicenter prospective cohort study of 28 teaching and nonteaching hospital EDs in southwestern Pennsylvania, Connecticut, southern Michigan, and	Objective: describe the pattern of MR-proADM in a broad CAP cohort, confirm its prognostic role, and compare its performance to PCT; eligible: ≥18 y with clinical and radiologic diagnosis of PNA; excluded if transferred from another hospital, discharged from hospital in prior 10 days, diagnosis of PNA within 30 days, receiving long-term	N=1,653 patients; MR-proADM levels consistently increased with PSI class and 30-day mortality (*P*<.001); MR-proADM had a higher AUC for 30-day mortality than PCT (0.76 vs 0.65, respectively; *P*<.001); adding MR-proADM to the PSI in all	Only 71% of patients in the larger study cohort had MR-proADM levels tested; secondary analysis of larger study; unclear whether investigators blinded to PCT results during hospitalization, although likely, given methods; unclear whether mortality results were known by data abstractors; multiple comparisons and

		western Tennessee between November 2001 and November 2003	mechanical ventilation, history of cystic fibrosis, active pulmonary TB, having a known positive HIV antibody titer, having alcoholism with evidence of end-organ damage, admitted for palliative care, incarcerated, or pregnant; prospectively assessed severity of illness using PSI; calculated CURB-65 retrospectively using altered mental status or a new change in Glasgow Coma Scale score as proxy measures for confusion; primary outcome was 30-day mortality; secondary outcomes included 90-day mortality, length of stay, and ICU admission; survival analysis models	subjects minimally improved performance; among low-risk subjects (PSI classes I to III), mortality was low and did not differ by MR-proADM quartile; however, among high-risk subjects (PSI classes IV and V; N=546), subjects in the highest MR-proADM quartile (N=232; 42%) had higher 30-day mortality than those in MR-proADM quartiles 1 to 3 (23% vs 9%, respectively; *P*<.0001); similar results were seen with CURB-65	stratifications were done without any adjustments; industry sponsored

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
España et al[60] (2015)	III for Q1	Single-center prospective cohort study in Spain from July 2008 to July 2009	Prospective observational study in a teaching hospital among patients with CAP; in addition to collecting data for the prognostic scales, samples were taken at the ED for assessing PCT, CRP, and proADM levels; compared the prognostic accuracy of biomarkers with severity	N=491 patients with CAP; 256 admitted to the hospital and 235 treated as outpatients; admitted patients had higher biomarker levels than outpatients (*P*<.001); the SCAP score and proADM level had the best AUCs for predicting PNA-related complications (0.83 and 0.84, respectively); considering SCAP score plus proADM level, the AUC increased significantly	Unclear how physicians used risk scores to influence disposition decisions; unclear how missing data were handled; industry sponsored

			scores to predict PNA-related complications, using the AUC; classification and regression trees analysis used to derive prediction rules; investigators were blinded to laboratory results when making disposition decisions but may have used prediction scores	to 0.88; SCAP score class 0 or 1 with a proADM level <0.5 ng/mL was the best indicator for selecting patients for outpatient care	

126

127 **Evidentiary Table (continued).**

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Huang et al[61] (2008)	III for Q1	Multicenter prospective cohort study of 28 teaching and nonteaching hospital EDs in southwestern Pennsylvania, Connecticut, southern Michigan, and	Described the pattern of PCT in CAP, and determined whether PCT provides prognostic information beyond PSI and CURB-65; eligible: ≥18 y with clinical and radiologic diagnosis of PNA; excluded if transferred from another hospital, discharged from hospital in prior 10 days, diagnosis of PNA within 30 days, receiving long-term mechanical ventilation, history of cystic fibrosis, active pulmonary TB,	N=1,651; PCT levels: tier I 32.8%, tier II 21.6%, tier III 10.2%, tier IV 35.4%; used alone, PCT test characteristics: specificity 35% to 64%, sensitivity 87% to 92%, positive LR 1.41, and negative LR 0.22; adding PCT to PSI in all subjects minimally improved performance; adding PCT to low-risk PSI subjects (classes I through III) provided no additional information; subjects in PCT tier I had low 30-day mortality regardless	Secondary analysis of larger study; only 71% had PCT levels tested; unclear whether investigators blinded to PCT results during hospitalization, although likely, given methods; unclear whether mortality results were known by data abstractors; multiple comparisons and stratifications were done

		western Tennessee between November 2001 and November 2003	with a known positive HIV antibody titer, having alcoholism with evidence of end-organ damage, admitted for palliative care, incarcerated, or pregnant; prospectively assessed severity of illness using PSI; calculated CURB-65 retrospectively using altered mental status or a new change in Glasgow Coma Scale score as proxy measures for confusion; stratified PCT into 4 tiers: tier I <0.1, tier II ≥0.1 to <0.25, tier III ≥0.25 to <0.5, and tier IV ≥0.5 ng/mL; primary outcome was 30-day mortality; secondary outcomes included 90-day mortality, length of stay, and ICU admission; survival analysis models	of clinical risk, including those in higher-risk classes (1.5% vs 1.6% for those in PSI classes I through III vs classes IV and V); among high-risk PSI subjects (classes IV and V), 126 of 546 patients (23.1%) were in PCT tier I, and the negative LR of PCT tier I was 0.09; PCT tier I was also associated with lower burden of other adverse outcomes; similar results were seen with CURB-65 stratification; results were similar with CURB-65: 181 of 825 patients (21.9%) of CURB-65 group 2 and 3 subjects had a PCT level in tier I, and mortality was 4 of 181 patients (2.2%) vs 89 of 644 patients (13.8%) for subjects with PCT levels in tier I vs tiers II through IV (*P*<.0001), yielding a negative LR for a low PCT of 0.18	without any adjustments; industry sponsored

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Self et al[62] (2016)	III for Q1	Multicenter prospective cohort study CDC EPIC between January 2010 and June 2012	Evaluate the association of a single serum PCT measurement at hospital presentation with the need for IRVS during the first 72 h among adults hospitalized with CAP; also evaluated the additive value of PCT when used in conjunction with several existing PNA	N=1,770 patients; 115 patients (6.5%) required IRVS within 72 h of hospital presentation; higher PCT concentration correlated with increasing PNA severity at presentation as measured by the number of ATS minor criteria present, PSI score, and SMART-COP score; addition of PCT to each of PNA severity score models increased the AUC curves; area under the AUC curve for the ATS minor criteria alone was 0.75 and improved to 0.78 when PCT was added; addition of PCT represented a significant improvement in model fit for IRVS for each severity score (LR test *P*<.01 for each model); PCT concentration had larger contribution to predicting IRVS than any	Secondary analysis of prospective trial, one of many; rules have been fully incorporated in specialist society recommendations, perhaps influencing ICU admission practices and decisions to start vasopressors or intubate, leading to incorporation bias and overestimation of

			severity scores; logistic regression models, AUC analysis, performance characteristics with CIs reported	of the individual ATS minor criteria; patients classified as low risk by the ATS minor criteria (<3 criteria present) had a 4.7% (95% CI 3.7% to 5.7%) risk of IRVS; PCT <0.05 ng/mL corresponded to a 2.4% (95% CI 1.7% to 3.4%) IRVS risk, whereas a PCT concentration of 10 ng/mL corresponded to a 12% (95% CI 6.4% to 21.3%) risk; without considering PCT, patients classified as high risk by the ATS minor criteria (≥3 criteria present) had a 29.7% (95% CI 21.7% to 37.6%) risk of IRVS; within this high-risk subgroup by ATS minor criteria, PCT <0.05 ng/mL was associated with a 13.2% (95% CI 9.3% to 18.5%) IRVS risk, whereas a PCT concentration of 10 ng/mL corresponded to a 36.2% (95% CI 25.0% to 49.1%) risk; similar results were found with PSI and SMART-COP	accuracy; models failed to account for clustering

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Schuetz et al[64] (2017)	II for Q2	Cochrane meta-analysis using individual patient-level data from 26 RCTs in 12 countries and 6,708 patients; 14 of the trials were in the ED and included 3,805 patients	PCT to initiate or stop antibiotics in lower respiratory tract infections; primary outcomes were all-cause mortality or 30-day treatment failure; secondary outcomes included duration of antibiotic therapy	Mortality lower in PCT-guided therapy: 286 of 3,336 PCT guided (8.6%) compared with 336 of 3,372 (10.0%) (adjusted OR 0.83; 95% CI 0.70 to 0.99); no difference in treatment failure of PCT-guided therapy (23% vs 24.9%); lower antibiotic use (2.43 days less) in PCT-guided groups	No significant difference in outcomes when analysis was limited to ED trials; heterogeneity of trials; half of trials were funded by Thermo Fisher, the manufacturer of the PCT assay; some caution needs to be used in interpreting the OR because the absolute mortality reduction was 1.4%; because physicians used PCT for decisionmaking, there was no blinding to the treatment allocation group; lack of high-quality criterion standard for bacterial infection

Schuetz et al[65] (2018)	II for Q2	Meta-analysis using patient-level data and Cochrane methodology; 26 RCTs in 12 countries and 6,708 patients; 14 of the trials were in the ED including 3,805 patients	PCT to initiate or stop antibiotics in lower respiratory tract infections; outcomes were treatment failure or death; secondary outcomes included duration of antibiotic therapy	Mortality lower in PCT-guided therapy (adjusted OR 0.83; 95% CI 0.70 to 0.99); no difference in treatment failure of PCT-guided therapy (23% vs 24.9%); lower antibiotic use (2.43 days less) in PCT-guided groups; when only including ED-based trial, the finding of mortality benefit was no longer statistically significant	This is the same meta-analysis as the 2017 Cochrane review: same 26 articles and same 6,708 patients

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Huang et al[66] (2018)	II for Q2	Multicenter clinical trial; 14 emergency departments in US	Adult patients with acute lower respiratory infection but for whom there was uncertainty about use of antibiotics; 1:1 randomization between use of PCT assay and guideline to aid interpretation vs usual care; outcomes: total antibiotic exposure; composite of adverse outcomes that could be attributed to withholding antibiotics	N=1,656 (826 PCT group; 830 usual care); PCT levels received by clinicians in 95.9% of the PCT group and 2.2% of the usual care group; no difference in antibiotic days between groups (mean 4.2 vs 4.3 days, respectively; difference=–0.05, 95% CI –0.6 to 0.5; *P*=.87); no difference in adverse outcomes between groups (11.7% vs 13.1%, respectively; difference=–1.5%, 95% CI –4.6% to 1.7%; *P*<.001 for noninferiority)	Did not directly address whether antibiotics could be safely withheld on the basis of low PCT; approximately 20% lost to 30-day follow-up

Müller et al[90] (2007)	III for Q2	545 patients with suspected lower respiratory tract infection; combined patient cohorts from 2 previous prospective RCTs; preplanned post hoc analysis	Comparison of PCT-driven antibiotics versus standard of care; additionally, PCT, CRP, and WBC evaluated as tools to diagnose and prognosticate CAP outcomes	PCT and hsCRP, AUC 0.92 (95% CI 0.89 to 0.94), improved the AUC for diagnosing PNA compared with physical examination alone, AUC 0.79 (95% CI 0.75 to 0.83); PCT was better, AUC 0.88 (95% CI 0.84 to 0.93), compared with hsCRP, AUC 0.76 (95% CI 0.69 to 0.83); PCT >0.1 μg/L had a 90% sensitivity and 59% specificity; hsCRP >40 mg/L had an 89% sensitivity and 52% specificity; PCT and CRP performed best in diagnosis and risk stratification of CAP	Single-center study; combined 2 studies with slightly different recruitment inclusion and exclusion criteria; pathogen identified by culture in only 26% of patients, leaving criterion standard in question; polymerase chain reaction was not performed routinely for *Streptococcus pneumoniae* and not performed at all for *Mycoplasma pneumoniae* or *Chlamydia pneumoniae*; lack of high-quality criterion standard for bacterial infection

Evidentiary Table (continued).

Study & Year Published	Class of Evidence	Setting & Study Design	Methods & Outcome Measures	Results	Limitations & Comments
Rainer et al[91] (2009)	III for Q2	Single-center prospective case-control study of 561 adult patients with lower respiratory tract infection	Measured the CRP to neopterin ratio to predict bacterial infection; suspected PNA diagnosed clinically based on 2 or more of the following clinical signs and symptoms: temperature ≥38°C (100.4°F), chills, tachypnea ≥24 breaths/min, tachycardia ≥100 beats/min, pleuritic chest pain, cough, sputum production, dyspnea, chest signs	CRP elevated above 10 nmol/L in 94.9% of patients with bacterial cause; CRP also higher in patients with bacterial PNA vs viral PNA (177.5 vs 33.1 mg/L; *P*<.0001); neopterin levels higher in viral than in bacterial PNA (25.2 vs 13.3 nmol/L; *P*<.0001) CRP to neopterin ratio was higher in bacterial vs viral PNA (12.5 vs 1.2 mg/nmol; *P*<.0001). CRP to neopterin ratio ≤0.06 had 100% sensitivity and 3.7% specificity and CRP to neopterin ratio of >40 had a sensitivity of 9.4% and specificity of 100%	Single-center study; specialized test (neopterin) unclear utility in the ED; lack of high-quality criterion standard for bacterial infection; assumed no coexistence of viral and bacterial infection

ATS, American Thoracic Society; *AUC*, area under the curve; *BDPM*, bed days per patient management; *BTS*, British Thoracic Society; *CAP*, community-acquired pneumonia; *CI*, confidence interval; *CRP*, C-reactive protein; *CXR*, chest radiograph; *dL*, deciliter; *eCURB*, electronic version of CURB-65; *fL*, femtoliter; *h*, hour; *HAP*, hospital-acquired pneumonia; *hsCRP*, high-sensitivity C-reactive protein; *IDSA*, Infectious Diseases Society of America; *IRVS*, invasive respiratory or ventilator support; *L*, liter; *LR*, likelihood ratio; *mg*, milligram; *mL*, milliliter; *MPV*, mean platelet volume; *MR-ProADM*, midregional pro-adrenomedullin; *ng*, nanogram; *NPV*, negative predictive value; *nmol*, nanomole; *OR*, odds ratio; *PCT*, procalcitonin; *PNA*, pneumonia; *ProADM*, pro-adrenomedullin; *PSI*, Pneumonia Severity Index; *RCT*, randomized controlled trial; *REI-ICU*, risk of early admission to the ICU; *ROC*, receiver operating characteristic; *SCAP*, severe community-acquired pneumonia; *TB*, tuberculosis; *US*, United States; *WBC*, white blood cell; *y*, year; *μg*, microgram.

Clinical Policy: Critical Issues in the Management of Adult Patients Presenting to the Emergency Department With Community-Acquired Pneumonia

From the American College of Emergency Physicians Clinical Policies Subcommittee (Writing Committee) on Critical Issues in the Evaluation and Management of Adult Patients Presenting to the Emergency Department With Community-Acquired Pneumonia:

Devorah J. Nazarian, MD, Chair
Orin L. Eddy, MD
Thomas W. Lukens, MD, PhD
Scott D. Weingart, MD
Wyatt W. Decker, MD

Approved by the ACEP Board of Directors, June 23, 2009

Supported by the Emergency Nurses Association, July 21, 2009

0196-0644/$-see front matter

doi:10.1016/j.annemergmed.2009.07.002

[Ann Emerg Med. 2009;54:704-731.]

ABSTRACT

This clinical policy from the American College of Emergency Physicians focuses on critical issues concerning the management of adult patients presenting to the emergency department (ED) with community-acquired pneumonia. It is an update of the 2001 clinical policy for the management and risk stratification of adult patients presenting to the ED with community-acquired pneumonia. A subcommittee reviewed the current literature to derive evidence-based recommendations to help answer the following questions: (1) Are routine blood cultures indicated in patients admitted with community-acquired pneumonia? (2) In adult patients with community-acquired pneumonia without severe sepsis, is there a benefit in mortality or morbidity from the administration of antibiotics within a specific time course? The evidence was graded and recommendations were given based on the strength of evidence.

INTRODUCTION

Community-acquired pneumonia (CAP) is a major health problem in the United States. CAP is the seventh leading cause of death in the United States, with 1.7 million hospital admissions per year.[1,2] The annual economic costs of CAP-related hospitalizations have been estimated at $9 billion.[3] Pneumonia carries an age-adjusted mortality rate up to 22%.[1] Despite clinical advances, pneumonia mortality rates have not decreased significantly since penicillin became routinely available.[4]

Pneumonia can be divided into 4 categories based on the site of acquisition of illness: CAP, hospital-acquired pneumonia (HAP), ventilator-associated pneumonia (VAP), and health care-associated pneumonia (HCAP).[5] CAP has recently been defined as an acute pulmonary infection in a patient who is not hospitalized or living in a long-term care facility 14 or more days before presentation and does not meet the criteria for HCAP.[5] HAP is defined as a new infection occurring 48 hours or longer after hospital admission. VAP is defined as pneumonia occurring 48 to 72 hours after endotracheal intubation. HCAP encompasses many patients previously defined as having CAP. HCAP is defined as infection occurring within 90 days of a 2-day or longer hospitalization; in a nursing home or long-term care residence; within 30 days of receiving intravenous antibacterial therapy, chemotherapy, or wound care or after a hospital or hemodialysis clinic visit; or in any patient in contact with a multidrug-resistant pathogen.[6] An emerging body of evidence suggests that patients with HCAP more closely resemble patients with HAP and may require HAP-like treatments.[6-8]

Given the significance of CAP, improving pneumonia care has become a recent focus of many organizations such as The Joint Commission and the Centers for Medicare & Medicaid Services (CMS). There are a number of core measures for patients admitted with the diagnosis of pneumonia. Core measures that evaluate the emergency department (ED) care of CAP patients include blood culture collection prior to first antibiotic administration (when ED blood cultures are drawn), administration of initial antibiotics within 6 hours of ED arrival (previously within 4 hours), and appropriate antibiotic selection.[9]

To comply with antibiotic quality measures and CMS and private payer pay for performance programs, some EDs have moved toward treating possible CAP patients with antibiotics before the diagnosis is confirmed.[10] In this age of increasing antibiotic resistance, this may have negative consequences in excess of any putative benefit. Kanwar et al[11] studied 2 cohorts of patients with the ED diagnosis of CAP, before and after the implementation of antibiotic timing guidelines. To achieve an increase in the number of patients with time to first antibiotic dose less than 4 hours, an additional 17% of patients were unnecessarily treated with antibiotics. Khalil et al[12] performed a retrospective analysis of factors associated with the eventual diagnosis of CAP in patients presenting to the ED. Of 1,948 patients who presented with respiratory complaints, only 198 eventually were diagnosed with CAP. If half of the patients in this study received empiric antibiotics, at least 40% of the patients would have received antibiotics unnecessarily, potentially increasing antibiotic resistance in the community. In an online questionnaire, Pines et al[10] found that 37% of academic EDs administer antibiotics before obtaining chest radiograph. In a retrospective chart review of patients admitted with pneumonia, 22% of the patients presented in a manner that can result in delayed antibiotics delivery as a result of diagnostic uncertainty.[13] The most recent iteration of the CMS guidelines includes provisions for diagnostic uncertainty when assessing time to first antibiotic dose. With the current ED crowding crisis, the feasibility of rapid antibiotic administration can be difficult.[14-16]

The disposition of patients with pneumonia is a major decision for emergency physicians, with impact on patient outcome. Prognostic tools such as the Pneumonia Severity Index (PSI) and severity-of-illness indexes such as the CURB and CURB-65 scores have been validated in several studies and can be used to aid in admission decisions.[17,18] The PSI stratifies patients into 5 categories on the basis of mortality risk. It has been suggested that patients in groups I and II be treated as outpatients, those in group III be treated in an observation unit or with a short hospitalization, and those patients who fall into groups IV and V be admitted for treatment.[19] CURB-65 is an easy-to-use severity-of-illness score that uses the following factors as indicators of increased mortality: Confusion, Urea, Respiratory rate, low Blood pressure, and age 65 or greater. Lim et al[20] suggested that patients with a CURB-65 score of 2 be treated as inpatients; those with a score of 3 or greater will often require an ICU.* These prognostic tools do not take into account the psychosocial factors and other comorbidities that

*Confusion based on specific mental test or disorientation to person, place, or time, Urea >7 mmol/L (20 mg/dL), Respiratory Rate ≥30 breaths/min, Blood pressure systolic <90 mm Hg or diastolic ≤60 mm Hg, and age ≥65 years.

may also play a role in the emergency physician's determination of the best site of treatment for patients with CAP.

Most patients admitted for CAP are first cared for in the ED.[21] This clinical policy critically evaluates the available evidence about 2 often controversial critical issues in the care of patients admitted with the diagnosis of CAP.[11,13,22-25] The focused critical questions addressed in this policy include the following:

1. Are routine blood cultures indicated in patients admitted with CAP?
2. In adult patients with CAP without severe sepsis, is there a benefit in mortality and morbidity from the administration of antibiotics within a specific time course?

METHODOLOGY

This clinical policy was created after careful review and critical analysis of the medical literature. Multiple searches of MEDLINE, MEDLINE In-Process, and the Cochrane database were performed. Specific key words/phrases used in the searches are identified under each critical question. All searches were limited to English-language sources, human studies, and adults. Additional articles were reviewed from the bibliography of articles cited and from published textbooks and review articles. Subcommittee members supplied articles from their own files, and more recent articles identified during the process were also included.

The reasons for developing clinical policies in emergency medicine and the approaches used in their development have been enumerated.[26] This policy is a product of the American College of Emergency Physicians (ACEP) clinical policy development process, including expert review, and is based on the existing literature; when literature was not available, consensus of emergency physicians was used. Expert review comments were received from individual emergency physicians and from individual members of the American College of Chest Physicians, the American College of Physicians, the Infectious Diseases Society of America, the Institute for Clinical Systems Improvement, the Society for Academic Emergency Medicine, and ACEP's Section on Critical Care Medicine. Their responses were used to further refine and enhance this policy; however, their responses do not imply endorsement of this clinical policy. Clinical policies are scheduled for revision every 3 years; however, interim reviews are conducted when technology or the practice environment changes significantly.

All articles used in the formulation of this clinical policy were graded by at least 2 subcommittee members for strength of evidence and classified by the subcommittee members into 3 classes of evidence on the basis of the design of the study, with design 1 representing the strongest evidence and design 3 representing the weakest evidence for therapeutic, diagnostic, and prognostic clinical reports, respectively (Appendix A). Articles were then graded on 6 dimensions thought to be most relevant to the development of a clinical guideline: blinded versus nonblinded outcome assessment, blinded or randomized allocation, direct or indirect outcome measures (reliability and validity), biases (eg, selection, detection, transfer), external validity (ie, generalizability), and sufficient sample size. Articles received a final grade (Class I, II, III) on the basis of a predetermined formula, taking into account design and quality of study (Appendix B). Articles with fatal flaws were given an "X" grade and not used in formulating recommendations in this policy. Evidence grading was done with respect to the specific data being extracted and the specific critical question being reviewed. Thus, the level of evidence for any one study may vary according to the question, and it is possible for a single article to receive different levels of grading as different critical questions are answered. Question-specific level of evidence grading may be found in the Evidentiary Table included at the end of this policy.

Clinical findings and strength of recommendations regarding patient management were then made according to the following criteria:

Level A recommendations. Generally accepted principles for patient management that reflect a high degree of clinical certainty (ie, based on strength of evidence Class I or overwhelming evidence from strength of evidence Class II studies that directly address all of the issues).

Level B recommendations. Recommendations for patient management that may identify a particular strategy or range of management strategies that reflect moderate clinical certainty (ie, based on strength of evidence Class II studies that directly address the issue, decision analysis that directly addresses the issue, or strong consensus of strength of evidence Class III studies).

Level C recommendations. Other strategies for patient management that are based on preliminary, inconclusive, or conflicting evidence, or in the absence of any published literature, based on panel consensus.

There are certain circumstances in which the recommendations stemming from a body of evidence should not be rated as highly as the individual studies on which they are based. Factors such as heterogeneity of results, uncertainty about effect magnitude and consequences, strength of prior beliefs, and publication bias, among others, might lead to such a downgrading of recommendations.

This policy is not intended to be a complete manual on the evaluation and management of adult patients with CAP but rather a focused examination of critical issues that have particular relevance to the current practice of emergency medicine.

It is the goal of the Clinical Policies Committee to provide an evidence-based recommendation when the medical literature provides enough quality information to answer a critical question. When the medical literature does not contain enough quality information to answer a critical question, the members of the Clinical Policies Committee believe that it is equally important to alert emergency physicians to this fact.

Recommendations offered in this policy are not intended to represent the only diagnostic and management options that the emergency physician should consider. ACEP clearly recognizes

the importance of the individual physician's judgment. Rather, this guideline defines for the physician those strategies for which medical literature exists to provide support for answers to the crucial questions addressed in this policy.

Scope of Application. This guideline is intended for physicians working in hospital-based EDs.

Inclusion Criteria. This guideline is intended for patients 18 years of age or older with signs and symptoms of CAP and radiographic evidence of pneumonia.

Exclusion Criteria. This guideline is not intended for patients who are pregnant, or immunocompromised (including patients with HIV/AIDS, organ transplant, or recipients of corticosteroids, antineoplastic therapy, or other immunosuppressive agents), or have been hospitalized within the last 30 days.

CRITICAL QUESTIONS

1. Are routine blood cultures indicated in patients admitted with CAP?

Patient Management Recommendations

Level A recommendations. None specified.

Level B recommendations. Do not routinely obtain blood cultures in patients admitted with CAP.

Level C recommendations. Consider obtaining blood cultures in higher-risk patients admitted with CAP (eg, severe disease, immunocompromise, significant comorbidities, or other risk factors for infection with resistant organisms).

Key words/phrases for literature searches: pneumonia, community-acquired pneumonia, blood cultures, microbiology, bacteremia, utility of blood cultures, timeline 1996 – May 20, 2009.

The following have been identified as CMS core measures for patients admitted with CAP: (1) the collection of blood cultures prior to antibiotic administration, when ED blood cultures are drawn; (2) blood cultures performed within 24 hours prior to or 24 hours after hospital arrival for patients who were transferred or admitted to the ICU within 24 hours of presentation to the hospital.[9] The 2007 American Thoracic Society and Infectious Diseases Society of America guidelines for the management of patients with CAP recommended pretreatment blood cultures for those patients hospitalized with the following conditions: cavitary infiltrates, leukopenia, active alcohol abuse, chronic severe liver disease, asplenia, positive test result for pneumococcal urinary antigen, pleural effusion, or those admitted to the ICU. Blood cultures are optional for those without the specifically listed conditions.[27]

Ideally, blood cultures identify a pathogen and its susceptibility, allowing antibiotic therapy to be customized for each patient. However, blood cultures are infrequently positive, and blood culture results do not often lead to change in management. A variety of Class II and III studies have reported the incidence of positive culture results in patients admitted with CAP. The yield reported ranges from 0% in a series of 74 patients with nonsevere CAP without significant comorbidities[28] to 33% in 146 ICU patients with CAP from Reunion Island.[29] Typically, the range is 1% to 16%.[30-41]

A number of Class II and III studies have investigated the impact of blood cultures on antibiotic management in CAP patients. Antibiotic therapy was changed based on blood culture results in 0% to 5% of patients cultured.[31-33,38,39,42-44] Change in patient condition (either improvement or deterioration) was more likely to prompt antibiotic modification than results of blood cultures.[33,44,45] Few changes were made for coverage of resistant organisms identified by blood cultures. The Class II study by Campbell et al[31] found that only 0.4% of blood cultures drawn yielded an organism resistant to recommended empiric antibiotics. Similarly, the Class II study by Kennedy et al[39] noted 4 of 414 cultures drawn (1%) yielded resistant organisms, resulting in 2 patients having their initial treatment changed (2 others had coverage altered to more effective antibiotics before culture results were known). One Class II study[45] and multiple Class III studies reporting changes in empiric therapy based on blood culture results demonstrate similar findings. These studies, ranging in size from 86 to 517 patients, reported organisms resistant to empiric therapy in 0% to 2.7% of patients that were cultured.[32,33,38,42-46]

There are few data about blood culture performance in CAP patients and association with outcomes such as mortality, time to clinical stability, and length of stay. In a Class II multicenter study, Dedier et al[47] retrospectively examined 1,062 patients with a primary admission diagnosis of pneumonia. They found no difference in mortality or length of stay between patients who had blood cultures and those who did not have blood cultures before receiving antibiotics and no difference in mortality or length of stay between patients who had blood cultures and those who did not have blood cultures within 24 hours of admission. In the frequently cited Class III study by Meehan et al,[48] investigators retrospectively examined a national study set of 1,343 Medicare patients with a discharge diagnosis of pneumonia. The authors concluded that blood culture collection within 24 hours was associated with lower 30-day mortality; however, the odds ratio (OR) was 0.9, with a confidence interval (CI) of 0.81 to 1.0 and a nonsignificant *P* value of 0.07. This same study examined collection of blood cultures before or after antibiotic administration and found no significant association with lower mortality if patients had blood cultures collected before receiving antibiotics.

Blood culture results may be misleading and may cause unintended consequences. False-positive or contaminated specimens are common, and in some studies, rates of false-positive blood cultures approach those of true-positive.[32,33,39-40,42] Treatment based on preliminary false-positive blood culture results may lead to unnecessary antibiotic coverage and increased length of stay, pending final identification of the organism. Metersky et al[40] retrospectively analyzed 13,043 Medicare patients with CAP and found 7% with true-positive blood cultures and 5% false-positive blood cultures. Patients

with contaminated blood cultures had an average length of stay of 1 day longer than those who did not have contaminated blood cultures ($P<0.01$). False-positive blood cultures are also costly. Bates et al[49] reported that total hospital charges were $4,000 greater for patients with contaminated blood cultures compared with those with negative blood cultures.

Data suggest that blood cultures are more likely to provide results leading to a change in management in select patients. Liver disease, hypotension, hypothermia or fever, tachycardia, uremia, hyponatremia, and leucopenia or leukocytosis have been identified as independent predictors of bacteremia.[40] Immunocompromised patients and patients from nursing homes or other long-term care facilities are more likely to have unusual or resistant pathogens identified by blood cultures.[34,39,50] Patients with severe pneumonia may also benefit from blood culture tests.[29,51] In a prospective Class III study of 209 patients, Waterer and Wunderink[38] found that blood culture results led to change in antibiotics only in patients with PSI class IV and V disease, whereas patients in PSI class I to III had no antibiotic changes based on blood culture results.

In summary, the routine use of blood cultures in all patients admitted with CAP has a low yield and rarely leads to change in management or outcome for patients admitted with CAP. False-positive blood culture results may complicate the course for patients admitted with CAP. Therefore, blood cultures should be tailored to the individual patient. Patients with severe pneumonia, who are immunocompromised or have other significant comorbidities, may benefit from having blood cultures drawn. Because antibiotic administration before blood culture testing decreases blood culture yield, when blood cultures are necessary, they should be drawn before antibiotic administration.[37,40,41]

2. In adult patients with CAP without severe sepsis, is there a benefit in mortality or morbidity from the administration of antibiotics within a specific time course?

Patient Management Recommendations

Level A recommendations. None specified.

Level B recommendations. There is insufficient evidence to establish a benefit in mortality or morbidity from antibiotics administered in less than 4, 6, or 8 hours from ED arrival.

Level C recommendations. Administer antibiotics as soon as feasible once the diagnosis of CAP is established; there is insufficient evidence to establish a benefit in morbidity or mortality from antibiotics administered within any specific time course.

Key words/phrases for literature searches: pneumonia, community-acquired pneumonia, time to treatment, rapid antibiotic delivery, morbidity, mortality, outcomes, length of stay, quality of care, timeline 1988 – May 20, 2009.

The timely administration of antibiotics to infected patients is good emergency medical practice. Before giving antibiotics, a reasonable assurance of the diagnosis is essential to avoid mistreatment, medication overuse, and increased antibiotic resistance.[13,22,52]

In the most recent consensus guidelines on the management of CAP in adults, the Infectious Diseases Society of America and the American Thoracic Society agreed that there is a paucity of data to support a specific time recommendation for the administration of antibiotics in ED patients with CAP.[27] Their recommendation states: *for patients admitted through the ED, the first antibiotic dose should be administered while* [the patient is] *still in the ED.*[†]

Four-Hour Cutoff

In a frequently cited article, Houck et al[53] analyzed whether the time to first antibiotic dose might be associated with reductions in mortality and morbidity. In a retrospective multicenter, Class III study, Houck et al[53] examined the charts of 13,771 Medicare patients with a primary or secondary International Classification of Diseases, Ninth Revision (ICD-9) diagnosis of pneumonia, who had not received out-of-hospital antibiotics. The patients analyzed were older than 65 years, had not received out-of-hospital antibiotics, and had radiographic evidence of pneumonia in the ED. This study showed an association between antibiotics administered within 4 hours and a decreased 30-day mortality, with an OR of 0.85 (95% CI 0.76 to 0.95). There was also a significant association with reduction of inhospital mortality and reduction of length of stay exceeding the 5-day median.

This study's limitations include the following: more patients in the group with time to first antibiotic dose less than 4 hours received appropriate antibiotics, though this was included in multivariate analysis.[53] There was a post hoc determination of the 4-hour cutoff. Any of the cutoff times from 3 to 8 hours were associated with similar 30-day mortality. The researchers chose the 4-hour cutoff, even though adjusted ORs of the 4- and 8-hour cutoffs were identical. They attempted to control for confounders through the performance of multivariate analysis. Although the study controlled for many possible confounders, the possibility of missing others potentially biases the results, which may account for the fact that despite the multivariate analysis, patients who received antibiotics between 0 and 2 hours did not have any significant mortality reduction.

Early administration of antibiotics is reliant on the early diagnosis of pneumonia. Patients whose disease is more difficult to diagnose because of atypical presentations may receive their antibiotics later. If any of the factors that lead to the delayed diagnosis are also associated with mortality, then the link between early antibiotic administration and mortality may be spurious. Waterer et al[54] examined these factors in a prospective Class II study. The researchers performed an observational study of time to first antibiotic dose in patients older than 18 years and diagnosed with CAP during their hospitalization. In univariate analysis, this study confirmed the aforementioned association between time to first antibiotic dose less than 4 hours and mortality. However, when the data were examined for factors that can cause a delayed

[†]Infectious Diseases Society of America/American Thoracic Society grading: moderate recommendation, level III evidence.

diagnosis of pneumonia, 3 factors emerged: altered mental status, the absence of hypoxia, and the absence of fever. When reanalyzed controlling for these factors, all of the mortality benefit associated with time to first antibiotic dose less than 4 hours disappeared. Altered mental status and the absence of fever remained associated with increased mortality after the multivariate analysis. This study's results indicate that for patients presenting with CAP and altered mental status or the inability to mount a febrile response, it may be more difficult to rapidly diagnose pneumonia, and they may be at higher risk for death.[54] The study by Houck et al[53] did not specifically control for altered mental status or the presence of fever in the multivariate analysis.

In a prospective, observational Class II study, Silber et al[55] examined the differences in *time to clinical stability*[‡] in 409 patients based on their door-to-antibiotic time. Three cohorts were analyzed: antibiotics in less than 4 hours, antibiotics in 4 to 8 hours, and antibiotics in greater than 8 hours. There were no statistically significant differences in time to clinical stability between the groups.

In another Class II study, Marrie and Wu[56] implemented a CAP pathway for non-ICU patients at 6 Canadian hospitals. They prospectively analyzed the effects of time to first antibiotic dose on inhospital mortality. Of the 3,043 patients included in analysis, the mortality rate for time to first antibiotic dose less than 4 hours was 9.2% and the rate for time to first antibiotic dose greater than 4 hours was 8.6%. If patients who received antibiotics before their arrival at the ED were removed (as in the study by Houck et al[53]), the mortality rate for time to first antibiotic dose less than 4 hours was 8.3% and the mortality rate for time to first antibiotic dose greater than 4 hours was 8.1%, a nonsignificant difference.

Battleman et al[57] performed a Class III, multicenter, retrospective analysis of 609 patients with a chart-coding diagnosis of pneumonia. They examined the association between time to first antibiotic dose and prolonged length of stay (prolonged length of stay was defined as ≥9 days). They found an association between shorter time to first antibiotic dose and fewer patients with prolonged length of stay. This finding was also observed in patients who received their antibiotics in the ED rather than on the floor. This study excluded patients who died, and the actual data analysis of prolonged length of stay was not provided. Potential factors that may lead to a delayed diagnosis were not included in the analysis.

Six-Hour Cutoff

No research has specifically examined a 6-hour cutoff for the time to first antibiotic dose. This time period was part of the data of the study by Houck et al[53] mentioned above. This cutoff had a significant association with reduced mortality (adjusted OR 0.84; 95% CI 0.73 to 0.95); but the conclusions are limited by all of the same factors present in the 4-hour cutoff.

Beyond 6 Hours

An 8-hour cutoff for time to first antibiotic dose has been analyzed in a number of studies. A large, multicenter, retrospective, Class III study by Meehan et al[48] demonstrated an association between antibiotic administration within 8 hours of ED arrival and mortality (adjusted OR 0.85; 95% CI 0.75 to 0.96). This study shares the same methodology as the analysis by Houck et al,[53] and its conclusions are limited by many of the same issues. Patients were included based on claims data, which may have led to selection bias. Confounding factors such as altered mental status, the absence of fever, and other clinical factors hindering diagnosis were not included in the multivariate analysis.

The study by Marrie and Wu[56] mentioned above also included data on time to first antibiotic dose less than 8 hours compared with greater than 8 hours. There was no significant mortality difference between these 2 groups. Even when patients who received antibiotics before arrival at the hospital were removed from the cohorts, no significant mortality benefit emerged for early antibiotic administration.[§]

Dedier et al[47] retrospectively studied 1,062 CAP patients from 38 hospitals. This Class III study examined the effect of time to first antibiotic dose less than 8 hours on inpatient mortality, length of stay, and time to clinical stability. There were no significant associations with rapid antibiotic administration in any of these measures. There is insufficient evidence to establish a specific cutoff time for antibiotics administration in patients who are diagnosed with CAP in the ED. In the noncritically ill patient, it is prudent to administer antibiotics as soon as possible after a definitive diagnosis is made.

Relevant industry relationships of subcommittee members: There were no relevant industry relationships disclosed by the subcommittee members.

Relevant industry relationships are those relationships with companies associated with products or services that significantly impact the specific aspect of disease addressed in the critical question.

Earn CME Credit: Continuing Medical Education is available for this article at: http://www.ACEP.EMedHome.com.

REFERENCES

1. Arias E, Smith BL. Deaths: preliminary data for 2001. *Natl Vital Stat Rep*. 2003;51:1-44.
2. Centers for Medicare and Medicaid Services. Medicare and Medicaid statistical supplement, 1995. *Healthcare Finance Rev Stat*. Suppl 1995; 1–388.
3. Halm EA, Tierstein AS. Clinical practice. Management of community-acquired pneumonia. *N Engl J Med*. 2002;347:2039-2045.

[‡]Time to clinical stability is a composite measure of the first 24-hour period during which the patient has all of the following: systolic blood pressure ≥90 mm Hg, pulse rate ≤100 beats/min, respiratory rate ≤24 breaths/min, temperature ≤101°F, O_2 saturation ≥90, and the ability to eat.

[§]*P* values of 0.81 were calculated from the study data with the SPSS 14.0 statistical package (SPSS, Inc, Chicago, IL).

4. Feikin DR, Schuchat A, Kolczak M, et al. Mortality from invasive pneumococcal pneumonia in the era of antibiotic resistance, 1995-1997. *Am J Public Health*. 2000;90:223-229.
5. Talan PA, DeBleuix P, Kollef MH. A new paradigm in emergency medicine: healthcare-associated pneumonia. *Clinical Courier*. 2007;25:1-16.
6. American Thoracic Society, Infectious Diseases Society of America. Guidelines for the management of adults with hospital-acquired, ventilator-associated, and healthcare-associated pneumonia. *Am J Respir Crit Care Med*. 2005;171:388-416.
7. Kollef MH, Shorr A, Tabak YP, et al. Epidemiology and outcomes of health-care-associated pneumonia: results from a large US database of culture-positive pneumonia. *Chest*. 2005;128:3854-3862.
8. Hiramatsu K, Niederman MS. Health-care-associated pneumonia: a new therapeutic paradigm. *Chest*. 2005;128:3784-3787.
9. The Joint Commission. Specifications manual for national hospital quality measures. Available at: http://www.jointcommission.org/PerformanceMeasurement/PerformanceMeasurement/Current+NHQM+Manual.htm. Accessed May 15, 2009.
10. Pines JM, Hollander JE, Lee H, et al. Emergency department operational changes in response to pay-for-performance and antibiotic timing in pneumonia. *Acad Emerg Med*. 2007;14:545-548.
11. Kanwar M, Brar N, Khatib R, et al. Misdiagnosis of community-acquired pneumonia and inappropriate utilization of antibiotics: side effects of the 4-h antibiotic administration rule. *Chest*. 2007;131:1865-1869.
12. Khalil A, Kelen G, Rothman RE. A simple screening tool for identification of community-acquired pneumonia in an inner city emergency department. *Emerg Med J*. 2007;24:336-338.
13. Metersky ML, Sweeney TA, Getzow MB, et al. Antibiotic timing and diagnostic uncertainty in Medicare patients with pneumonia. Is it reasonable to expect all patients to receive antibiotics within 4 hours? *Chest*. 2006;130:16-21.
14. Fee C, Weber EJ, Maak CA, et al. Effect of emergency department crowding on time to antibiotics in patients admitted with community-acquired pneumonia. *Ann Emerg Med*. 2007;50:501-509.
15. Pines JM, Localio AR, Hollander JE, et al. The impact of emergency department crowding measures on time to antibiotics for patients with community-acquired pneumonia. *Ann Emerg Med*. 2007;50:510-516.
16. Pines JM, Hollander JE, Localio AR, et al. The association between emergency department crowding and hospital performance on antibiotic timing for pneumonia and percutaneous intervention for myocardial infarction. *Acad Emerg Med*. 2006;13:873-878.
17. Capelastegui A, Espana PP, Quintana JM, et al. Validation of a predictive rule for the management of community-acquired pneumonia. *Eur Respir J*. 2006;27:151-157.
18. Aujesky D, Auble TE, Yealy DM, et al. Prospective comparison of three validated prediction rules for prognosis in community-acquired pneumonia. *Am J Med*. 2005;118:384-392.
19. Fine MJ, Auble TE, Yealy DM, et al. A prediction rule to identify low-risk patients with community-acquired pneumonia. *N Engl J Med*. 1997;336:243-250.
20. Lim WS, van der Eerden MM, Laing R, et al. Defining community acquired pneumonia severity on presentation to hospital: an international derivation and validation study. *Thorax*. 2003;58:377-382.
21. Yealy DM, Auble TE, Stone RA, et al. The emergency department community-acquired pneumonia trial: methodology of a quality improvement intervention. *Ann Emerg Med*. 2004;43:770-782.
22. Walls RM, Resnick J. The Joint Commission on Accreditation of Healthcare Organizations and Center for Medicare and Medicaid Services community-acquired pneumonia initiative: what went wrong? *Ann Emerg Med*. 2005;46:409-411.
23. Fee C, Sharpe BA, Nguy M, et al. JCAHO/CMS core measures for community-acquired pneumonia. *Ann Emerg Med*. 2006;47:505-506.
24. Moran GJ, Abrahamian FM. Blood cultures for community-acquired pneumonia: can we hit the target without a shotgun? *Ann Emerg Med*. 2005;46:407-408.
25. Rothman RE, Quianzon CCL, Kelen GD. Narrowing in on JCAHO recommendations for community-acquired pneumonia. *Acad Emerg Med*. 2006;13:983-985.
26. Schriger DL, Cantrill SV, Greene CS. The origins, benefits, harms, and implications of emergency medicine clinical policies. *Ann Emerg Med*. 1993;22:597-602.
27. Mandell LA, Wunderink RG, Anzueto A, et al. Infectious Diseases Society of America/American Thoracic Society consensus guidelines on the management of community-acquired pneumonia in adults. *Clin Infect Dis*. 2007;44:S27-S72.
28. Theerthakarai R, El-Halees W, Ismail M, et al. Nonvalue of the initial microbiological studies in the management of nonsevere community-acquired pneumonia. *Chest*. 2001;119:181-184.
29. Paganin F, Lilienthal, F, Bourdin A, et al. Severe community-acquired pneumonia: assessment of microbial aetiology as mortality factor. *Eur Respir J*. 2004;24:779-785.
30. Beovic B, Bonac, B, Kese D, et al. Aetiology and clinical presentation of mild community-acquired bacterial pneumonia. *Eur J Clin Microbiol Infect Dis*. 2003;22:584-591.
31. Campbell SG, Marrie TJ, Anstey R, et al. The contribution of blood cultures to the clinical management of adult patients admitted to the hospital with community-acquired pneumonia: a prospective observational study. *Chest*. 2003;123:1142-1150.
32. Chalasani NP, Valdecanas MA, Gopal AK, et al. Clinical utility of blood cultures in adult patients with community-acquired pneumonia without defined underlying risks. *Chest*. 1995;108:932-936.
33. Corbo J, Friedman B, Bijur P, et al. Limited usefulness of initial blood cultures in community acquired pneumonia. *Emerg Med J*. 2004;21:446-448.
34. El-Solh AA, Sikka P, Ramadan F, et al. Etiology of severe pneumonia in the very elderly. *Am J Respir Crit Care Med*. 2001;163:645-651.
35. Ewig S, Bauer T, Hasper E, et al. Value of routine microbial investigation in community-acquired pneumonia treated in a tertiary care center. *Respiration*. 1996;63:164-169.
36. Fine MJ, Stone RA, Singer DE, et al. Processes and outcomes of care for patients with community-acquired pneumonia: results from the Pneumonia Patient Outcomes Research Team (PORT) cohort study. *Arch Intern Med*. 1999;159:970-980.
37. Glerant JC, Hellmuth D, Schmit JL, et al. Utility of blood cultures in community-acquired pneumonia requiring hospitalization: influence of antibiotic treatment before admission. *Respir Med*. 1999;93:208-212.
38. Waterer GW, Wunderink RG. The influence of the severity of community-acquired pneumonia on the usefulness of blood cultures. *Respir Med*. 2001;95:78-82.
39. Kennedy M, Bates DW, Wright SB, et al. Do emergency department blood cultures change practice in patients with pneumonia? *Ann Emerg Med*. 2005;46:393-400.
40. Metersky ML, Ma A, Bratzler DW, et al. Predicting bacteremia in patients with community-acquired pneumonia. *Am J Respir Crit Care Med*. 2004;169:342-347.
41. van der Eerden MM, Vlaspolder F, de Graaff CS, et al. Value of intensive diagnostic microbiological investigation in low- and high-

risk patients with community-acquired pneumonia. *Eur J Clin Microbiol Infect Dis*. 2005;24:241-249.
42. Ramanujam P, Rathlev NK. Blood cultures do not change management in hospitalized patients with community-acquired pneumonia. *Acad Emerg Med*. 2006;13:740-745.
43. Socan M, Marinic-Fiser N, Kraigher A, et al. Microbial aetiology of community-acquired pneumonia in hospitalized patients. *Eur J Clin Microbiol Infect Dis*. 1999;18:777-782.
44. Woodhead MA, Arrowsmith J, Chamberlain-Webber R, et al. The value of routine microbial investigation in community-acquired pneumonia. *Respir Med*. 1991;85:313-317.
45. Sanyal S, Smith PR, Saha AC, et al. Initial microbiologic studies did not affect outcome in adults hospitalized with community-acquired pneumonia. *Am J Respir Crit Care Med*. 1999;160:346-348.
46. Waterer GW, Jennings SG, Wunderink RG. The impact of blood cultures on antibiotic therapy in pneumococcal pneumonia. *Chest*. 1999;116:1278-1281.
47. Dedier J, Singer DE, Chang Y, et al. Processes of care, illness severity, and outcomes in the management of community-acquired pneumonia at academic hospitals. *Arch Intern Med*. 2001;161:2099-2104.
48. Meehan TP, Fine MJ, Krumholz HM, et al. Quality of care, process, and outcomes in elderly patients with pneumonia. *JAMA*. 1997;278:2080-2084.
49. Bates DW, Goldman L, Lee TH. Contaminant blood cultures and resource utilization. The true consequences of false-positive results. *JAMA*. 1991;265:365-369.
50. Lujan M, Gallego M, Fontanals D, et al. Prospective observational study of bacteremic pneumococcal pneumonia: effect of discordant therapy on mortality. *Crit Care Med*. 2004;32:625-631.
51. Moine P, Vercken JB, Chevret S, et al. Severe community-acquired pneumonia. Etiology, epidemiology, and prognosis factors. French Study Group for Community-Acquired Pneumonia in the Intensive Care Unit. *Chest*. 1994;105:1487-1495.
52. Houck PM. Antibiotics and pneumonia: is timing everything or just a cause of more problems? *Chest*. 2006;130:1-3.
53. Houck PM, Bratzler DW, Nsa W, et al. Timing of antibiotic administration and outcomes for Medicare patients hospitalized with community-acquired pneumonia. *Arch Intern Med*. 2004;164:637-644.
54. Waterer GW, Kessler LA, Wunderink RG. Delayed administration of antibiotics and atypical presentation in community-acquired pneumonia. *Chest*. 2006;130:11-15.
55. Silber SH, Garrett C, Singh R, et al. Early administration of antibiotics does not shorten time to clinical stability in patients with moderate-to-severe community-acquired pneumonia. *Chest*. 2003;124:1798-1804.
56. Marrie TJ, Wu L. Factors influencing in-hospital mortality in community-acquired pneumonia: a prospective study of patients not initially admitted to the ICU. *Chest*. 2005;127:1260-1270.
57. Battleman DS, Callahan M, Thaler HT. Rapid antibiotic delivery and appropriate antibiotic selection reduce length of hospital stay of patients with community-acquired pneumonia: link between quality of care and resource utilization. *Arch Intern Med*. 2002;162:682-688.

Evidentiary Table.

Study	Year	Design	Intervention(s)/Test(s)/Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Theerthakarai et al[28]	2001	Prospective observational study; 1 hospital in Paterson, NJ	Enrolled consecutive patients with the diagnosis of CAP to assess the value of the initial microbiological studies, consisting of sputum Gram's stain, sputum culture, and blood culture, in the etiologic diagnosis of CAP without comorbidity	212 patients screened,74 patients included; ages 22-64 y; all patients had: sputum Gram's stain (all mixed flora), sputum culture (4 pathogens 5%), blood cultures (all negative)	No positive blood culture results in this low-risk population with nonsevere CAP; all patients had improved symptoms by 48 h and became afebrile in 96 h; no patient required a change in empiric antibiotic coverage instituted at admission	Small sample size; unusually low yield on cultures; no baseline patient comparisons; study included only those patients able to produce valid sputum sample, they could differ from all patients with CAP; possible selection bias; 21 (28%) did not meet ATS guideline criteria for admission; multiple exclusion criteria, essentially eliminating all high-risk, elderly, and sick patients	III
Paganin et al[29]	2004	Prospective observational study 1995-2004; data from 1 hospital on a French island in the Indian Ocean	Consecutive patients admitted from the ED to ICU for CAP from 9/1995-12/2000; study objective: to assess the etiology and prognostic factors of CAP patients admitted to the ICU; exclusion criteria: severe immunosuppression	146 patients, 34 excluded as they did not meet definition of CAP; 112 total included; 94 (84%) male, 70 (62.5%) alcoholic, 48 (43%) died; 55 patients PSI I-II-III; 57 patients PSI IV-V; all had at least 1 blood culture; 37 (33%) positive blood culture; 23 *S pneumoniae*, 9 *Klebsiella*, 2 cases of resistant *S pneumoniae*	Blood culture more likely to be positive in sicker patients, and positive blood culture was an independent risk factor for death in sicker patients with CAP (relative risk 2.7; CI 0.8-8.9; P=0.0002), also septic shock, high SAPS II score and infection with *Klebsiella*	Study setting and population (French island in the Indian Ocean), mostly male, mostly alcoholic; not generalizable, selection bias; low level of antibiotic resistance; 55 patients PSI I-II-III (why were these in the ICU?)	III

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Beovic et al[30]	2003	Prospective; multicenter in Slovenia	Consecutive patients with CAP presenting to 7 study centers looking at etiology and clinical picture of mild CAP; study patients were both inpatient and outpatients	116 patients enrolled, 113 included in study 109 had complete data; 96/109 (88%) were PSI I or II; 1 patient had a positive blood culture (*S pneumoniae*); etiology established in 68 (62.4%), 17 typical, 42 atypical, 9 mixed	Atypical pathogens play an important role in mild CAP; there was a substantial similarity in the clinical presentation of pneumonia caused by different agents; blood cultures are very rarely positive in mild CAP treated with oral antibiotics	Treatment with oral agents was inclusion criteria; potential selection bias; very small number of patients given that enrollment included 7 study centers; study patients were both inpatient and outpatients; investigators do not report how many were inpatients	III

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Campbell et al[31]	2003	Prospective; multicenter, 19 centers in Canada	Patients admitted with CAP either receiving care per clinical guideline or conventional management; clinical usefulness of blood culture in the management of patients hospitalized with CAP	2,804 patients enrolled, 1,061 excluded; 716 intervention arm; 1,027 conventional arm; 760 (74%) blood cultures drawn, 43 (5.7%) "significant" positive blood culture; 3 patients (0.4%, 3/760) changed to broader spectrum as indicated by blood culture, 1 MSSA, 1 PRSP, 1 MRSA; 6 changed to broader spectrum not indicated by blood culture; 12 changed to narrower/cheaper as indicated by blood culture; 2 changed to narrower/cheaper not indicated by blood culture; 17 continued empiric therapy despite blood culture indication to step down; blood culture results did not correlate with PSI	There was a 2% chance (15/760) of having a change of therapy directed by blood culture results; in only 0.4% was this change likely to have improved the outcome for the patient; those with positive blood culture had a 39% chance of having therapy changed due to blood culture results, and a 42% chance of having therapy continued not indicated by blood culture results; routine blood cultures rarely contribute significantly to the clinical management of CAP	Data pulled from study on use of clinical pathway for managing CAP — limits internal validity; large number of patients excluded — potential selection bias; intervention arm patients may be less likely to step down or change drugs because drug is supplied; intervention patients more likely to have blood culture drawn (58% vs. 33%); limits validity; baseline characteristics of patients not compared; selection bias; false-positive contaminants not counted or discussed	II

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Chalasani et al[32]	1995	Retrospective; single institution	Chart review of adults hospitalized with CAP to determine the clinical utility of obtaining routine blood culture before the administration of antibiotics in certain non-immunosuppressed patients	1,250 patients identified with discharge diagnosis of CAP, 517 patients met study criteria; 6.6% (34) true-positive blood culture, 4.8% (25) contaminated blood culture; 56 patients had antibiotics changed: 42 patients with negative blood culture and 14 patients with positive blood culture; 1.4% (7 of 517 patients) had antibiotic change as a result of blood culture results, 6 narrowed, and 1 broadened to cover *H influenzae*	Blood cultures have limited clinical utility and questionable cost-effectiveness; no penicillin resistance noted; rate of true-positive blood culture similar to rate of contaminated blood culture	Retrospective design; patients identified by discharge diagnosis; selection bias; low rate of antibiotic resistance compared to current 2007 rates; contaminant determined by treating physician; reason for antibiotic change inferred for the chart, not necessarily documented	III

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/ Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Corbo et al[33]	2004	Retrospective; single institution in the Bronx	In ED patients hospitalized with CAP, the hypothesis that the proportion of false-positive blood cultures would exceed the proportion of true positives was tested; a secondary aim was to quantify the frequency with which antibiotic therapy was changed based on blood culture results	821 patients admitted, 355 had blood cultures; 20% positive blood cultures (70/355), 33 true-positive (9%) and 37 false-positive (10%); 238 patients had change in antibiotics; 25 true-positive changed antibiotics: 10 due to blood cultures, 10 due to clinical improvement, 1 due to worsening, 4 for other reasons; 26 false positive changed antibiotics: 6 due to blood cultures, 187/285 with negative blood cultures changed antibiotics with 2 changes due to blood culture results; overall, 18 patients (5%) had antibiotic change attributed to blood culture: 10 true-positive with antibiotic change (7 narrowed, 3 broadened [not because resistant]), 6 false positive with antibiotic change, 2 true-negative with antibiotic change; 151 (43%) had antibiotics changed due to clinical improvement and 23 (6%) with antibiotics changed due to clinical deterioration	Rate of contaminated blood cultures equaled rate of true-positive blood cultures; clinical condition is used much more frequently than blood culture to change antibiotics; no organism was identified by blood culture that was resistant to antibiotic regimen originally chosen	Retrospective design; underlying conditions stated to be similar in groups but no table provided; authors comment that length of stay is increased when antibiotic coverage is erroneously broadened to cover false-positive blood culture results but no data given; no data on mortality, length of stay; PSI not reported	III

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/ Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
El-Solh et al[34]	2001	Prospective cohort; 2 university hospitals in New York state	Elderly patients with CAP admitted to an ICU while receiving mechanical ventilation studied to determine the prevalence of respiratory pathogens and the effect of comorbidity and functional status on the microbial etiology of severe pneumonia in the very elderly; nursing home, as well as CAP patients, included	136 patients eligible, 104 patients enrolled, 57 from home, 47 from nursing home; in community patients the most common pathogen was *S pneumoniae*, legionella; in nursing home patients the most common pathogen was *S aureus* (MSSA 11, MRSA 3); mortality of 54.8% not different between community vs nursing home patients; mortality significantly higher in those who received inadequate antimicrobial therapy (39% vs 4%, *P*=0.007)	93 blood cultures, 15 positive (16%), more positive from nursing home than home (10 vs 5) but not statistically significant; elderly nursing home patients requiring mechanical ventilation are at risk for pathogens that are different from the usual CAP and those pathogens are potentially drug resistant	Few data on blood cultures; very specific, select population, not generalizable; physician care not standardized	III
Ewig et al[35]	1996	Retrospective; 1 hospital in Germany	CAP patients referred to a tertiary care center studied to determine the diagnostic yield of microbiological investigations and their value in directing antibiotic therapy; relationship between microbial results and association with pretreatment, severity of disease, and change in antibiotics	93 episodes in 92 patients, 32 ICU patients 22 transfers in from another institution; 20 died; 74% (69) treated with at least 1 antibiotic before admission; 50 blood cultures done, with 7 positive (14%); 52 serology with 12 definitive pathogens; 25 bronchoscopy with 1 definitive pathogen; 56 sputum culture — excluded to identify definitive pathogen	Results of microbial investigation led to antibiotic change in 9 cases; blood culture results led to antibiotic change in 0 cases; definitive pathogen identified in 8/32 (25%) severe and 11/51 (22%) nonsevere CAP; severity did not correlate with ability to identify pathogen—they did not specifically address blood culture and severity	Small study population given data from 8 y; although no baseline patient table, reported mix is atypical (male:female 62:30), also lots of transfers in, much potential bias, cannot generalize to ED population; PSI not reported	III

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Fine et al[36]	1999	Prospective observational; multicenter	Ambulatory and hospitalized CAP patients studied for process-of-care blood culture, other laboratory and microbiologic testing, length of stay, admit to ICU, mortality, time to return to usual activities	12,500 potential cases of CAP screened; 3,964 potential participants; 2,287 (57.7%) patients enrolled, 944 outpatients, 1,343 inpatients; 8.5% (77) of outpatients had blood culture before antibiotics, 2.6% (2) were positive; 71.2% (951) inpatients had blood culture before antibiotics, 82 (8.6%) were positive	Most patients with pneumonia have pneumonia of unknown etiology, negative blood culture; *S pneumoniae* and *H influenzae* most common pathogens identified; blood culture recommended despite low yield because of the prognostic importance of bacteremia and the potential to direct therapy against a specific pathogen	Large number of eligible patients not enrolled; enrolled patients were younger, more likely to be white, more likely to be low risk for mortality; few outpatients had blood culture done; study did not directly assess the effect of routine microbiologic testing on medical outcomes	III
Glerant et al[37]	1999	Prospective observational; 1 hospital in France	Patients hospitalized for moderate CAP (non-ICU) to compare the utility and cost benefits of blood culture in patients who had or had not received antibiotic therapy before admission	53 patients; all had blood cultures; 30 no previous antibiotic, 23 had previous antibiotic; 30 without previous antibiotics had 74 blood cultures drawn, 8 positive in 5 patients; 23 with previous antibiotics had 62 blood cultures drawn, 0 true-positive, 2 contaminants; bacteremia in patients without previous antibiotic 5/30 vs with antibiotic 0/23 $P<0.05$; all isolated organisms were susceptible to anti-biotic initially chosen	There is reduced clinical utility and cost benefit of blood cultures in patients hospitalized for moderate CAP who have received an antibiotic treatment before admission; blood cultures not likely to be positive in moderately ill hospitalized patients previously treated with antibiotics	Authors do not state how many CAP patients were missed or not enrolled; small study population; authors state coexisting illnesses similar in pretreated and not pretreated groups; however, no table or statistics provided to show baseline characteristics of the 2 groups; PSI not reported	III

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/ Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Waterer and Wunderink[38]	2001	Prospective cohort; 1 hospital in Memphis	Prospectively studied the yield and effect of blood culture in patients admitted with CAP; studied the relationship between blood culture yield and correlation with PSI, as well as whether blood culture results led to a change in management; hypothesized that blood culture would only have a significant effect on patient management in patients in PSI grades IV and V; included only if subjects had 2 blood cultures before any antibiotic; exclusion criteria: nonambulatory nursing home patients, had chemotherapy in past 30 days, had previous hospitalization in past 30 days, AIDS, immunosuppressant therapy	Higher PSI correlated with higher yield from blood culture *P*=0.02 PSI #+blood culture I – 1 (5.3%) II – 6 (10.2%) III – 4 (10.3%) IV – 10 (26.7%) V – 8 (13.9%); change in management based on blood culture results; no difference in mortality in patients with empiric antibiotic change (16%) vs those with change based on microbiological results (25%) (significance not reported); 20 *S pneumonia* isolated, 3 had MIC≥2 for penicillin, 11 resistant to erythromycin	209 subjects; all had blood cultures; 22 (10.5%) died, 38 (18.2%) positive blood culture, 9 (4%) contaminants, 29 (13.9%) true-positive blood culture, 12/29 had change in management based on blood culture results: in 7 antibiotic therapy was intensified, changed in 1 patient, and decreased in 5 patients; for PSI I-III, 11/117 had positive blood culture, 0 had change in management based on blood culture; for PSI IV-V, 18/92 had positive blood culture, 12 had change in management based on blood culture; blood culture isolate resistant to empiric antibiotic in 1 case; blood culture results led to a change in management only in sicker patients with PSI IV-V .	Prospective cohort, not clear that this was consecutive patients; only included patients who had 2 blood cultures before antibiotics; authors do not report how many total patients with CAP were admitted and did not have blood culture; also authors do not report number of patients with CAP not enrolled; potential selection bias; conclusions about patients with positive blood culture are limited by the small number of these patients, n=29; the 1 patient with a blood culture showing a resistant organism leading to a change in antibiotic died	III

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/ Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Kennedy et al[39]	2005	Prospective observational; 1 hospital in Boston	Patients admitted with blood culture done and CAP diagnosed, and the relationship between blood culture results and change in empiric therapy in blood culture–positive patients	3,762 ED patients had blood cultures, 414 patients diagnosed with pneumonia; 7% (29) blood cultures true-positive, 360 blood cultures negative; 6% blood cultures considered contaminated; 3 patients died before blood culture results; 15 patients had therapy altered by blood culture results: 11 narrowed, 4 broadened; in 11 patients the therapy unchanged, and of these, 8 could have been narrowed; 4 patients had blood cultures positive for organism resistant to empiric therapy; 2 had therapy changed to better antibiotic before blood culture results (based on clinical condition); all 4 of these patients had risk factors for resistant organisms: 3 nursing home residents and 1 alcoholic with multiple comorbidities; 30 organisms identified in 29 patients; 12/30 nonsusceptible to at least 1 antibiotic; 9/30 nonsusceptible to agents in more than 1 antibiotic class	Blood cultures are low yield and infrequently change management; 3.6% of all patients had blood culture; in blood culture positive patients, blood culture leads to change in management in 52% (15/29); 100 blood cultures would have to be done in CAP patients to identify 1 patient with a resistant organism; all patients with blood cultures positive for resistant pathogens had risk factors for resistant organisms: 3 nursing home residents and 1 alcoholic with multiple comorbidities; rate of true-positive blood cultures similar to rate of contaminated blood cultures	Analysis of blood culture-positive patients as a group is problematic because there are only 29 patients; low rate of penicillin resistance (20%); obtaining blood culture was part of study inclusion criteria; may overestimate blood culture yield; study did not include patients with CAP who did not have a blood culture done: selection bias	II

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/ Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Metersky et al[40]	2004	Retrospective; multicenter national study from Medicare claims database	Review of Medicare National Pneumonia Project/CMS QI program database to determine predictors of bacteremia; decision tool made and validated; derivation of rule: 4/1998-3/1999; validation of rule: 7/2000-3/2001	Derivation study; 39,242 cases of pneumonia,16,327 excluded — no blood culture; 5,180 excluded based on criteria and 4,692 excluded for missing data; 13,043 cases reviewed: 7% (886) bacteremia; 5% (643) contaminated blood cultures; multivariate analysis showed increased length of stay due to false-positive blood culture results; use of antibiotics before blood culture was negatively associated with bacteremia; independent predictors of bacteremia: liver disease, systolic BP <90 mm Hg; temperature <35° or ≥40° C; pulse ≥ 125 beats/min; blood urea nitrogen ≥30 mg/dL; sodium <130 mmol/L WBC <5,000/mm^3 or >20,000/mm^3; age, respiratory compromise not associated with bacteremia; validation study: 12,771 patients,7% (954) bacteremic; 849 bacteremic patients would be identified by decision tool, 105 missed; 583 (5%) contaminants	Patients with contaminated blood cultures had longer length of stay than those who did not $P<0.01$; use of antibiotics before blood culture was negatively associated with bacteremia; decision tool identified 88%-89% of patients with bacteremia while reducing 38% of blood cultures done; 20% mortality among patients with bacteremia would have been missed by decision rule; PSI not significantly associated with bacteremia	Patients identified from claims data with retrospective review, potential selection bias; patients age ≥65 y, potential for bias; not generalizable; tool is better at detecting pneumococcal bacteremia than other pathogens; only detected 65% of non-pneumococcal *Streptococcus* sp; a problem because one goal of blood culture is to identify unusual organisms; study not designed to analyze outcome; rule not tested prospectively	II for blood culture yield; III for other conclu-sions

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/ Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
van der Eerden et al[41]	2005	Prospective observational; 1 large hospital in the Netherlands	Evaluated the diagnostic yield of different microbiological tests in hospitalized patients with CAP	262 patients, 158 (60%), patients with identified pathogen, 40 (15%) positive blood cultures; no penicillin or macrolide resistant *S pneumoniae* identified; pretreatment with antibiotics led to lower blood culture yield: 5/66 (8%) vs 35/188 (19%), *P*=0.03; combination sputum examination with Gram's stain, culture, and pneumococcal antigen showed the highest diagnostic yield (49%), followed by urinary PCA test (20%), followed by blood culture (16%); no correlation between blood culture yield and disease severity/PSI	Investigation of sputum with Gram's stain; culture and pneumococcal antigen provided the largest yield in determining the etiology of CAP; pretreatment with antibiotics decreases blood culture yield	Total number of patients hospitalized for pneumonia and how many patients were not enrolled and not reported — potential selection bias; some baseline characteristics given but no table for comparison; low antibiotic resistance rate; not generalizable; no comment on effect of blood culture/microbiologic results on mortality or length of stay, or change in antibiotics	II for blood culture yield
Ramanujam and Rathlev[42]	2006	Retrospective observational; single hospital	Patients admitted from ED with diagnosis of CAP in which blood cultures were drawn before antibiotics; included ICU patients, excluded immunosuppressed, recently hospitalized and nursing home patients; all patients were treated with either ceftriaxone+azithromycin or levofloxacin	Number of positive blood cultures and changes in antibiotics due to blood culture results; recovery of resistant organisms and if empiric antibiotics are sufficient for patients with CAP	532 ED patients hospitalized with CAP; 289 patients enrolled;13 (4.5%) patients had true-positive blood cultures, 13 had false-positive blood cultures; organisms isolated were sensitive to empiric antibiotics in all cases; no patient required an antibiotic change due to resistance; 4 patients had change in antibiotics due to deterioration of clinical status	Retrospective design; small study population; many CAP patients did not have a blood culture — possible selection bias; small number of positive blood cultures with no resistant organisms, difficult to say whether empiric antibiotics are always appropriate	III

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/ Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Socan et al[43]	1999	Prospective; 1 hospital in Slovenia	Adult patients >15 y of age admitted with pneumonia (included nursing home patients) to determine the microbial etiology of pneumonia in adult patients	211 patients, 195 had blood cultures with blood cultures positive in 23 (12%); empiric therapy changed because of blood culture results in 2 (1% of all blood cultures or 9% of positive blood cultures) patients	Blood culture results do not often lead to change in therapy in this setting	Total number of patients hospitalized for pneumonia and number not enrolled not reported; potential selection bias; unusually low rate of pneumococcal pneumonia 5.7%, and low rate of antibiotic resistance; limits generalizability; one third of patients were taking antibiotic before admission to hospital	III
Woodhead et al[44]	1991	Prospective; 2 British hospitals	How microbiological investigations are used in an unselected group of adult patients with CAP, and evaluate the usefulness of the results obtained in changing antibiotic regimen; consecutive adults admitted with CAP; patients identified prospectively, charts reviewed retrospectively; excluded: patients admitted to geriatric ward, communicable disease unit, malignancy, immunosuppression	Change in antibiotic therapy due to microbiological identification of pathogens; antibiotic changes occurred in: 33 (31%) patients total; 13/28 (46%) of patients with pathogen identified (by any method); 20/78 (26%) of patients without pathogen identified; 9 (8%) patients had change because of results of microbiological tests; 18 (17%) had change because of clinical condition	122 patients identified, 106 included; 28 (26%) had causative pathogen identified; 86 (81%) had blood culture done, 9 (10%) positive; 4 (4%) had change because of blood culture results; 2 (2%) had coverage broadened because of blood culture results; blood cultures are infrequently positive and rarely change management	No information/reporting on antibiotic resistance, therefore unsure whether study has external validity; older data from Britain, limits generalizability; absolute number of patients with antibiotic changes is low, difficult to make conclusions based on 33 patients	III

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/ Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Sanyal et al[45]	1999	Retrospective; single hospital	Review of all adult patients with CAP discharged in 1996 treated by 1993 ATS guidelines to determine whether results of microbiologic studies led to change in antibiotics in patients who fail to respond to initial antibiotics (nonresponders); compared patients with severe and nonsevere CAP	184 patients, 94.6% (174) had blood cultures, 11% (19/174) blood cultures positive; 116 had sputum analysis, 34% (40/116) positive; no difference in rate of positive blood culture between severe CAP and nonsevere CAP (11% for each); 14% (25/184) did not respond to initial antibiotics; 6 nonsevere CAP, none had positive blood culture, changes in antibiotics made empirically; 19 severe CAP: 4 died <72 h, 13 had positive microbiologic studies, 1 had antibiotic change based on blood culture (grew MRSA); 11 patients had microbiologic studies sensitive to initial antibiotics, but antibiotics were changed empirically because of clinical deterioration; patients with bacteremia had greater mortality than nonbacteremic patients (21% vs 6.5%, $P<0.05$)	Blood culture changed management in 1 patient, 0.5% (1/174) of all blood cultures or 5% (1/19) of positive blood cultures; antibiotics changed empirically more frequently than per results of microbiologic studies (85% vs 15%; no P value reported); in nonresponders there was no difference in mortality between those in whom antibiotics were changed empirically and those with microbiologic study-guided changes	Difficult to come to conclusion about nonresponders because actual number of nonresponders (25) is low; retrospective design; patients identified by discharge diagnosis; low level of antibiotic resistance; all *S pneumoniae* isolated by blood cultures were susceptible to penicillin; all patients for whom microbiologic studies changed management came from long-term care facility	II for blood culture yield

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/ Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Waterer et al[46]	1999	Retrospective; 1 hospital in Memphis	To determine how often physicians change management based on blood culture results positive for *S pneumonia*; included patients admitted with diagnosis of CAP, blood culture drawn before antibiotics and at least 1 positive blood culture for *S pneumonia*; retrospective chart review performed	1,805 patients with CAP; 118 patients with positive blood culture for *S pneumonia*; 105 charts available; 74 patients with CAP and blood culture positive for *S pneumoniae* included in study; 15 isolates were penicillin resistant, 4 "high grade" (only one with MIC=4); 4 isolates were cephalosporin resistant, 1 high grade; 51 patients without penicillin allergy grew *S pneumoniae* susceptible to penicillin; antibiotics were changed to penicillin in only 11 of these (21.6%)	Blood culture changed management in 31 (42% of positive blood culture); antibiotic changed in 2 (2.7%) patients because of resistance; no correlation between disease severity and blood culture positivity; physicians often do not narrow therapy as indicated by blood culture results	Retrospective design; select population—study looks at admitted CAP patients with blood cultures positive for *S pneumoniae* only; resistance rate low and level of resistance low compared with 2007 rates of resistance; authors do not report how many patients with CAP had blood cultures done; therefore cannot calculate blood culture yield; furthermore, cannot calculate the overall utility of blood culture (of the total number of blood cultures done, what percentage led to a change in management?)	III
Dedier et al[47]	2001	Retrospective chart review; multicenter; 38 United States academic hospitals	CAP patients studied to determine relationship between prompt achievement of process of care markers (blood culture within 24 hours of admit, blood culture before antibiotic, antibiotic within 8 h of hospital arrival, oxygenation measurement within 24 h) and outcomes (reaching clinical stability within 48 h of hospital admission, decreased length of stay and inpatient deaths)	1,457 patients, 1,062 eligible; 89% admitted through ED; 76.2% had antibiotics within 8 h; 82.5% blood cultures by 24 h; 72.3% had blood cultures before antibiotics; 94.5% had oxygen measured by 24 h; increased severity of illness was associated with blood culture performance (P=0.009) and shorter time to antibiotics (P=0.04)	No improvement in death, length of stay for patients with blood culture before antibiotics or patients with blood cultures within 24 h; no consistent relationship between process-of-care marker achievement and improvement in the clinical outcomes	Retrospective design; patients identified by discharge diagnosis; selection bias; median number of patients from each hospital 28, which seems low; large number of patients excluded; high number of low-risk patients in the study population (29% PSI I-II); data not given explicitly for PSI IV-V patients; no propensity matching performed despite low rate of outcome	II for blood culture; III for anti-biotics

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/ Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Meehan et al[48]	1997	Retrospective; multicenter national study from Medicare claims database	Review of claims data from Medicare national claims history file and patient charts to assess quality of care for Medicare patients hospitalized with pneumonia and to determine whether process-of-care performance is associated with lower 30-day mortality; 4 processes of care investigated: blood cultures before antibiotics, blood cultures within 24 h, time to antibiotic administration, and oxygenation assessment within 24 h	500 potential cases were selected randomly from each state, DC, and Puerto Rico; 26,000 potential cases, 14,069 aggregate study set; 2,500 subset of sampled cases created, exclusion criteria applied to create 1,343 national study set; mean age 79.4 y; 23.4% from nursing homes; 58.2% had at least 1 comorbidity; inhospital mortality 10.3%; 30-day mortality 15.3%; blood culture collection within 24 h of admission associated with lower 30-day mortality: OR 0.9 (95% CI 0.81-1.0), *P*=0.07; blood culture collection before antibiotic administration was not significantly associated with higher or lower mortality OR 0.92 (95% CI 0.82-1.2), *P*=0.10	Administering antibiotics within 8 h of hospital arrival and collecting blood cultures within 24 hours were associated with improved survival	Retrospective review of claims data; potential selection bias; study population older, often from nursing home, often with comorbidities — patients more likely to have blood cultures anyway; Kappa for abstractors as low as 0.48 for recent chemotherapy, 0.52 for mental status; Kappa for blood culture 0.83 within 24 h; study population older and sicker than general ED patients; conclusion that blood culture done within 24 h is associated with reduced mortality comes from data with *P*=0.07, CI includes 1; statistically significant?	III

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/ Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Lujan et al[50]	2004	Prospective observational; 1 hospital in Barcelona	Patients age ≥18 y hospitalized with CAP with blood culture positive for *S pneumoniae* to evaluate the effect of discordant empirical therapy on outcome in bacteremic pneumococcal CAP; outcomes examined included 28-day mortality, use of vasoactive medications, and suppurative complications	100 consecutive patients, 29 pneumococcal isolates showed some resistance to penicillin: 17 intermediate minimum inhibitory concentrations (0.12-1 μg/mL), 12 high minimum inhibitory concentrations (>2 μg/mL); 18 nonsusceptible to macrolides, 2 nonsusceptible to cephalosporin, 27 patients immunocompromised; 10 patients had discordant therapy, 50% (5/10) patients with discordant therapy died compared with 13/90 (14%) who had concordant therapy; estimated excess mortality for initial discordant therapy was 35.6% (95% CI 3.73-67.4); only 3 of 9 patients still alive when blood culture demonstrated discordant therapy actually had therapy changed to appropriate therapy	Significant association between discordant therapy and higher morality in bacteremic patients with pneumococcal CAP; nursing home residence and immunocompromised patients were significantly associated with penicillin and macrolide resistance	Discordant pool included patients with intermediate resistance possible skewing results to show discordant therapy causes less harm; very small number of patients with discordant therapy (10) leads to very wide CI; specific group of patients — blood culture positive for *S pneumonia*; 6 patients receiving discordant therapy treated with amoxicillin-clavulanate as the initial empiric antibiotic, including 2 who were PSI V; not typical of empiric treatment for hospitalized patients in the United States; included immunocompromised patients — possibly biasing to higher mortality	III

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/ Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Moine et al[51]	1994	Prospective observational; multicenter; 15 French centers	Consecutive patients hospitalized with severe CAP in the ICU to determine causative agents, the value of clinical, biologic, and radiologic features in predicting the etiology, and to define prognostic factors in patients with severe CAP	157 CAP patients, 25 excluded; 132 study patients: 98 male, 34 female; 46 had antibiotics before admission; 127 had blood cultures, 34 (27%) positive blood cultures, 22 *S pneumoniae,* 4 *Streptococcus* species, 1 *Escherichia coli*, 5 *Klebsiella*; 31 patients had therapy modified based on bacteriologic results, 16 patients with unsuccessful treatment response had therapy modified based on bacteriologic results (changes due to blood culture in particular not reported)	27% bacteremia in this population of patients with severe CAP; blood culture yield higher in sicker patients; bacteremia significantly associated with death in this population; determining the etiology did not improve survival; 15/34 patients with positive blood culture died; bacteremia significantly associated with death (P=0.004)	Extreme male predominance 98:34; although 31 patients had therapy modified based on bacteriologic findings, it was not reported in how many blood culture specifically changed management	II
Houck et al[53]	2004	Multicenter retrospective cohort	Enrolled 18,209 patients, 4,438 patients excluded for pretreatment antibiotics; chart review of 13,771 patients ≥65 y with ICD-9 code of pneumonia from more than 3,500 hospitals who did not receive antibiotics before arrival at hospital; patients gathered during a 1-y period based on claims data	Inhospital mortality, 30-day mortality, and length of stay >5 days; as associated with antibiotic administration before or after 4 h from arrival	After performance of multivariate logistic regression, antibiotic administration within 4 h when compared to >4 h yielded an adjusted OR of 0.85 (95% CI 0.74-0.98) for inhospital mortality, an adjusted OR of 0.85 (95% CI 0.76-0.95) for 30-day mortality, and an adjusted OR of 0.9 (95% CI 0.83-0.96) for length of stay greater than 5 days	4-h cutoff was determined post hoc; 3- to 8-h cutoffs had near identical 30-day mortality associations; though included in the multivariate analysis, more patients in the antibiotics <4 h group received antibiotic regimens deemed appropriate; did not analyze for altered mental status; enrollment based on claims data and equal numbers sampled per state, not based on state population; did not analyze by individual hospital; hospitals that diagnose more efficiently may be associated with better overall care	III

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/ Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Waterer et al[54]	2006	Single center prospective cohort	451 patients split into antibiotic before or after 4-h groups; about 50% of patients in each cohort	Antibiotics before or after 4 h as associated with mortality; also looked at associations with severity, septic shock, hypoxia, and decreased mental status	On univariate analysis, antibiotics >4 h after arrival was associated with increased risk of death, but when multivariate analysis performed, no statistically significant increased risk of death based on antibiotic time; altered mental state associated with an adjusted OR 3.33 (95% CI 1.28-8.77) and absence of fever was associated with adjusted OR 2.55 (95% CI 1.02-6.37) for mortality	Single center; small number of mortalities in age >65 y population; no mention is made about whether any patients received out-of-hospital antibiotics	II
Silber et al[55]	2003	Prospective observational cohort	409 patients >21 y (though most >65 y) with moderate to severe pneumonia (based on PORT score) were placed into 3 groups based on their time from arrival to antibiotics (group 1 received antibiotics in <4 h, group 2 from 4 to 8 h, group 3 in >8 h)	Time to clinical stability — a composite measure of the first 24 h period that the patient has all of the following: SBP ≥90 mm Hg, pulse rate ≤100 beats/min, respiratory rate ≤24 breaths/min, temperature ≤101°F, O_2 Sat ≥90, and the ability to eat	No statistically significant differences between the groups in time to clinical stability	Excluded patients who received inappropriate antibiotics; excluded patients who never reached clinical stability; moderate sample size may have missed differences	II
Marrie and Wu[56]	2005	Multicenter, prospective observational trial	3,043 patients, mean age 70 y; excluded patients: admitted to the ICU from the ED, aspiration pneumonitis (1st y only), tuberculosis, cystic fibrosis, pregnant, or taking immunosuppressive drugs/CD4 <250	Implemented a care pathway; tracked many interventions and prognostic factors including antibiotics before or after 4 h	No significant difference in mortality with a 4 or 8 h cutoff	Only performed univariate analysis on the time to antibiotic and mortality associations; lack of multivariate analysis of confounding factors decreases clinical utility of these results	II

Evidentiary Table (continued).

Study	Year	Design	Intervention(s)/Test(s)/ Modality	Outcome Measure/Criterion Standard	Results	Limitations/Comments	Class
Battleman et al[57]	2002	Multicenter retrospective cohort	609 patients from 7 hospitals with diagnosis of pneumonia based on DRG coding	Prolonged length of stay (defined as ≥9 days) as associated with door-to-needle time and whether antibiotics were administered in ED or on floor	Decreased number of patients with prolonged length of stay associated with shorter door-to-needle times and antibiotics administered in the ED	Excluded mortalities from analysis; data not shown for analysis of door-to-needle time	III

ATS, American Thoracic Society; *BP*, blood pressure; *CAP*, community-acquired pneumonia; *CI*, confidence interval; *CMS*, Centers for Medicare and Medicaid Services; *DRG*, Diagnosis-Related Group; *ED*, emergency department; *H*, *Haemophilus*; *h*, hour; *ICD-9*, International Classification of Diseases, Ninth Revision; *ICU*, intensive care unit; *MIC*, minimum inhibitory concentrations; *MRSA*, methicillin-resistant *Staphylococcus aureus*; *MSSA*, methicillin-susceptible *Staphylococcus aureus*; *min*, minute; O_2, oxygen; *OR*, odds ratio; *PCA*, pneumococcal antigen; *PORT*, Patient Outcomes Research Team; *PRSP*, penicillin resistant *Streptococcus pneumoniae*; *PSI*, pneumonia severity index; *QI*, quality improvement; *S*, streptococcus; *SAPS*, simplified acute physiology score; *Sat*, saturation; *SBP*, systolic blood pressure; *vs*, versus; *y*, year; *WBC*, white blood cell count.

Appendix A. Literature classification schema.*

Design/Class	Therapy†	Diagnosis‡	Prognosis§
1	Randomized, controlled trial or meta-analyses of randomized trials	Prospective cohort using a criterion standard	Population prospective cohort
2	Nonrandomized trial	Retrospective observational	Retrospective cohort Case control
3	Case series Case report Other (eg, consensus, review)	Case series Case report Other (eg, consensus, review)	Case series Case report Other (eg, consensus, review)

*Some designs (eg, surveys) will not fit this schema and should be assessed individually.
†Objective is to measure therapeutic efficacy comparing ≥2 interventions.
‡Objective is to determine the sensitivity and specificity of diagnostic tests.
§Objective is to predict outcome including mortality and morbidity.

Appendix B. Approach to downgrading strength of evidence.

	Design/Class		
Downgrading	**1**	**2**	**3**
None	I	II	III
1 level	II	III	X
2 levels	III	X	X
Fatally flawed	X	X	X

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: John T. Finnell, MD, MSc, FACEP, FACMI
Chair, Residency Engagement Task Force

Zachary J. Jarou, MD, MBA
Co-Chair, Residency Engagement Task Force

Date: October 14, 2020

Subj: Residency Engagement Task Force Final Report

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

Recommendation

That the Board file the final report of the Residency Engagement Task Force and support the investment necessary to refine ACEP's residency engagement program outreach and materials.

Background

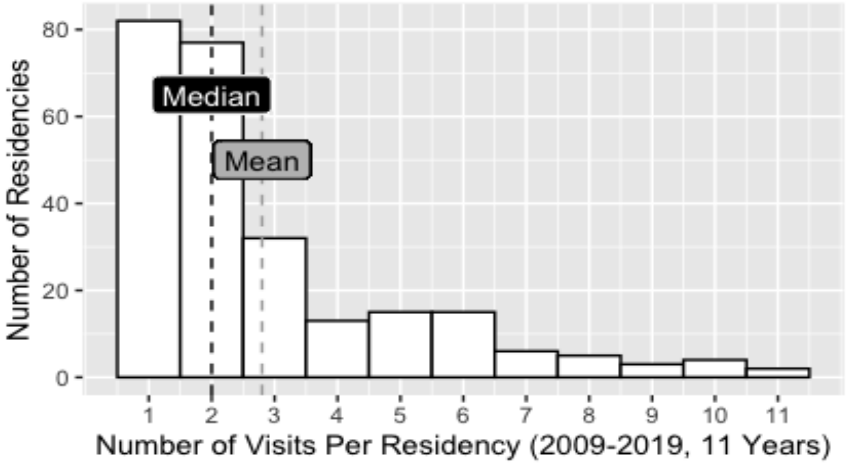
In early 2019, the Residency Engagement Task Force was tasked with the following objectives:

- Evaluate the effectiveness of ACEP's current residency visit program as a means of increasing graduating resident membership to ACEP.
- Assess the effectiveness of ACEP's outreach to residency program directors through the current residency visit program.
- Identify effective ways to establish relationships with residents and residency program directors to increase ACEP membership and position ACEP as a resource for residency programs.
- Make recommendations to the Board about future efforts to accomplish a lasting relationship with graduating residents and residency program directors.

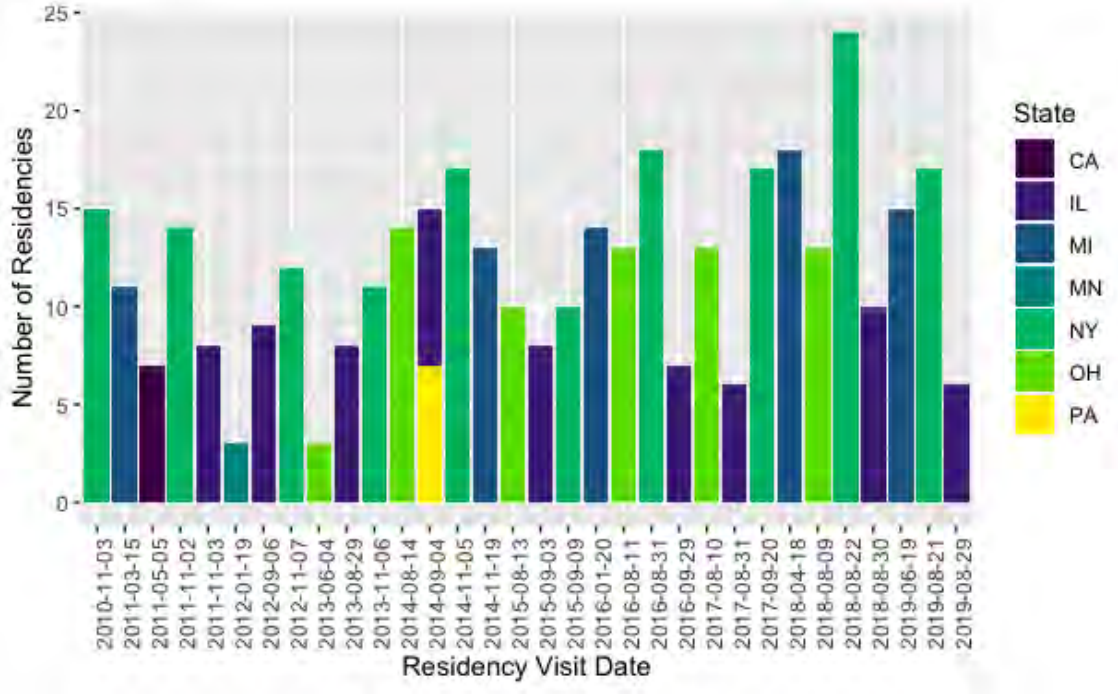
Throughout the year, the task force has met both in person and via conference calls to thoroughly consider the objectives set before them and to develop a set of recommendations for consideration in FY2021.

There was a significant variation in the frequency of ACEP interactions with each residency program. Some programs were "visited" nearly every single year, while it was most common for a program to have been visited twice during the 11-year history of the program. It is not clear why certain programs had more visits than others, however, it may be related to the fact that certain residency interactions are counted when presentations are given at annual ACEP chapter meetings, (IL ACEP) while other chapters do one-on-one visits (TX ACEP).

It would be desirable for ACEP to target new residency programs or programs that have not been visited recently or to target programs where there are opportunities for growth in the post-residency membership retention rate.



As previously mentioned, several residency visits occur through presentations given to multiple programs at the same time, typically as part of the residency programming at the annual meeting of an ACEP chapter. 61.4 % of residency visits were given by the same speaker on the same day. This suggests that regional/statewide meetings may provide an excellent venue to simultaneously reach residents from multiple programs and that there may be an opportunity for national ACEP to help support the outreach and retention efforts that many ACEP chapters are already executing. In FY19, the annual cost of the residency visit program was approximately $61,000, excluding personnel costs.

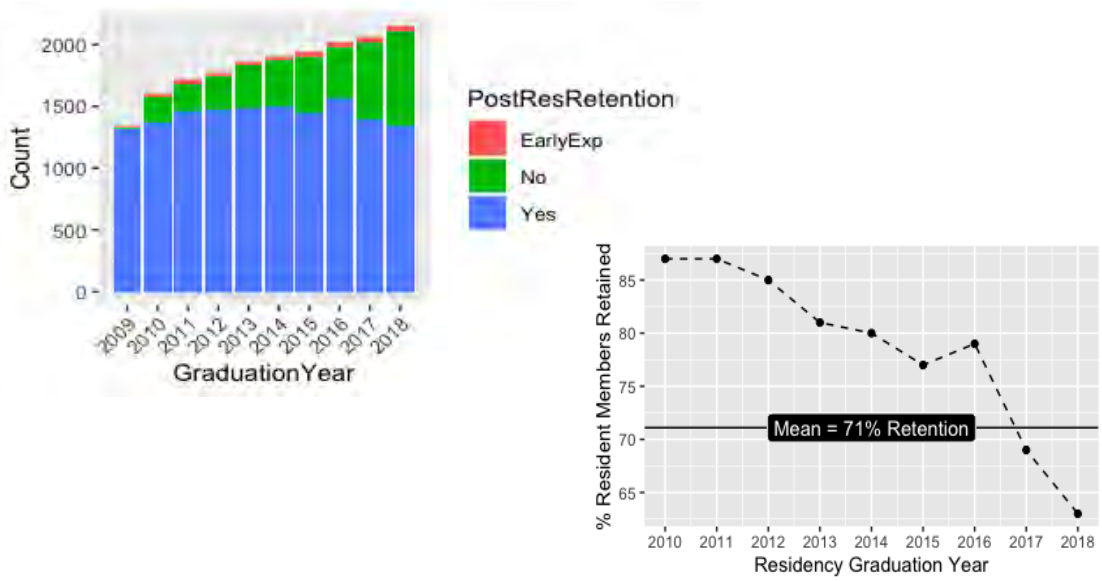


In the past, attendance and feedback for chapter visits has been done on paper. While the task force was provided access to these scanned PDF files, due to the file format, they were not able to be easily analyzed. Moving forward, efforts should be made to collect

attendance and feedback information in an electronic format, tracking which members attended and whether the visit was to an individual residency program or multiple programs at once such as through programming at an ACEP chapter meeting. We also need to ensure that information about residency visits is properly coded to the account number (A-ID) of the residency program and not the account number of the hospital (see Appendix A: Auditing the RVP History Spreadsheet). There are currently no parameters in CRM to prevent misattribution.

Why It's Important to Enhance ACEP's Residency Engagement Strategy

While the raw number of EM residents remaining ACEP members after graduation has been stable because of the large increase in the number of residency programs, when viewed as a percentage of graduates, there has been a significant, progressive decline in the retention rate over the past several years.

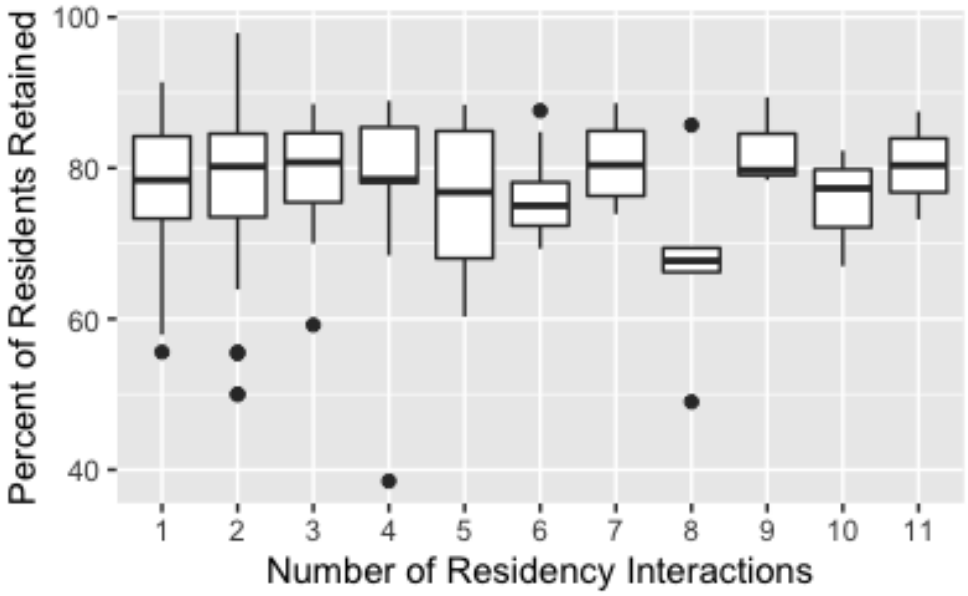


Defining "Retention"

Currently, different business units within ACEP may use different definitions of retention. It is essential that a unified definition be developed to avoid confusion within ACEP and with ACEP partners such as EMRA. The graphs above demonstrate that some residents have their ACEP/EMRA membership expire prior to their graduation year, so we would not expect these members to be retained. Historically, members completing fellowships after residency have falsely been labeled as non-retained. Additionally, non-resident members who joined ACEP for the first time after graduating residency may have been counted as "retained" when they are in fact new members. The query language, data tables, filtering, and data transformations used to calculate the retention rate should be clear and transparent.

Does the Residency Visit Program Increase Retention?

Based on our current dataset, there does not appear to be a clear trend between an increased number of residency interactions and resident retention rate, however this does not stratify which type of visit occurred (individual residency vs. group presentation) or track whether there was an effect on the individuals in attendance versus those who did not attend. These types of analyses should continue to be performed in the future with better datasets to answer this question with more certainty.



Redefining the Purpose of the Residency Visit Program

Historically, the Residency Visit Program has had two potentially disparate goals: (1) to increase ACEP membership among attendees; and (2) to provide a venue for rising ACEP leaders to speak on ACEP's behalf with residents. It is the viewpoint of the task force that the RVP should no longer be seen as a speaking development opportunity. Leadership development is an essential component of what ACEP offers members and these programs should continue to evolve without being specifically tied to residency engagement. We should be utilizing the most engaging speakers that ACEP has access to given that these visits may significantly influence whether resident members become actively involved in EMRA and ACEP during their training and whether they continue to see value in ACEP and retain their membership for the rest of their careers.

The task force additionally believes that these visits should increase engagement with ACEP, increase ACEP's net promoter score among attendees, and serve to advance ACEP's educational mission.

Recommendations For Residency Visits Moving Forward

1. Develop a plan to increase engagement with ACEP chapters to organize residency visits, allowing national ACEP to focus on improved data collection, analytics, and sharing of best practices amongst chapters

    - Many ACEP chapters report already regularly engaging with residency programs.
    - Appendix B: EMRA's List of ACEP Chapter Resident and Student Engagement Programs

2. Develop Hybrid/Virtual Visits
    - A hybrid residency visit was tested in late January 2020 in partnership with TCEP and ACEP. The presentation included residents from BAMC and UT Health San Antonio. The presentation incorporated both on-site and virtual participation from leaders.
    - An overview of ACEP, TCEP, and EMRA was provided in person by ACEP Board member Gillian Schmitz, MD, FACEPp; TCEP President Hemant H. Vankawal,

MD, FACEP; and EMRA President-Elect R.J. Sontag, MD. ACEP Board leaders joined virtually included L. Anthony Cirillo, MD, FACEP; Alison J. Haddock, MD, FACEP; and Christopher S. Kang, MD, FACEP.

- A survey was distributed to resident participants regarding both the content and format for the visit. Program directors received a separate survey on their assessment of the program.
- Appendix C: Survey Results from Hybrid/Virtual Residency Visit (see page 8)

Beyond Residency Visits: Rethinking the Scope of Residency Engagement

The residency "visit" program must be part of a more comprehensive residency "engagement" program developed jointly with EMRA. We need to develop a structured series of "touches" to residents, Chairs, PDs, and faculty at every program in the country. The engagement program should include a "visit" offer to every program, every year, even if those are virtual. We need to decide if the "visit" is focused on a clinical topic, outreach on behalf of ACEP/EMRA, or both. The rest of the "touches" should be through SoMe and other digital opportunities. These should be pre-scheduled to occur at regular intervals throughout the year. There should be a parallel "Chapter Engagement Program" that has a similar structure and regular cadence of "touches" to Chapter Execs, Chapter Leaders, and members. Additionally, EMRA is currently developing a "Residency CV" product that will allow articles, podcasts, book chapters, awards, leadership positions, etc., affiliated with a resident at a program to roll-up into a comprehensive overview of how each residency program is involved with EMRA/ACEP.

Improving Contact & Increasing ACEP Membership Among Chairs and Program Directors

We need to have access to the up-to-date contact information on chairs, PDs, and faculty to build relationships with each residency program. EMRA and ACEP have traditionally reached out to new programs to encourage them to become "EMRAfied" (denoting that the program that pays 100% of all resident member dues). However, staff are not always aware when new programs are approved. Efforts should be made to see if ACGME staff would be willing to alert EMRA/ACEP staff when new programs are publicly posted as approved, or staff should add the dates of the ACGME EM RC meetings to an internal calendar and perform searches on a quarterly basis following each meeting of the EM RC to see if any new programs have been approved.

According to the data reviewed by the task force, ACEP is currently missing contact information for several Chairs and it is unclear the last time Chair contact information was audited. Program Director contact information is updated more frequently since this is a field in EMRA Match and links directly to CRM. There is an opportunity to increase ACEP membership amongst both Chairs and Program Directors.

ACEP Member Status	Chair	Program Director
Current	147	214
Former	30	45
Never	9	7
TOTAL	**186**	**266**

Current outreach strategies include annually sending a co-branded journal to Program Directors and Coordinators with a hand-written note. EMRA pays for the design, printing, and distribution of these co-branded journals. EMRA addresses Program Coordinators annually during their EMARC meeting at the CORD Academic Assembly and through a monthly PC-version of EMRA's What's Up in EM newsletter. EMRA regularly hosts programming involving Program Directors like its EMRA Hangout series and Medical Student Forums. We also reach out to Program Directors to update their EMRA Match Profiles and to highlight awards and recognition opportunities for their residents and colleagues.

Beyond reaching out to new programs, ACGME data shows that there is a 13% rate of turnover in EM Program Directors each year. EMRA and ACEP should develop specific outreach strategies to ensure that positive relationships are maintained or created each time there is a turnover in program leadership. With approximately 260 residency programs there are ~34 new program directors each year that we should be engaging with to ensure that they are maximizing the value that EMRA/ACEP can provide them and their residents.

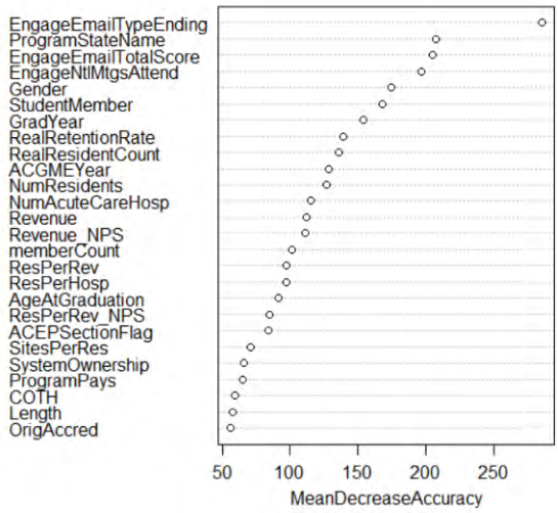
Currently, CRM only tracks the current Program Director and Chair for each program. The fields in CRM should be expanded to include the start and end dates for each of these contacts to make ongoing audits of this information easier to contact and to allow for future data analysis to evaluate the impact of Program Director/Chair membership in ACEP on the residency retention rate for that program. The labels for these positions should also be standardized since both currently have two descriptions: "Residency Director"/"Program Director" and "Residency Academic Department Chair"/"Chair". Additionally, efforts could be expanded to increase engagement with more than one primary Program Coordinator at each residency, as well as Assistant/Associate Program Directors.

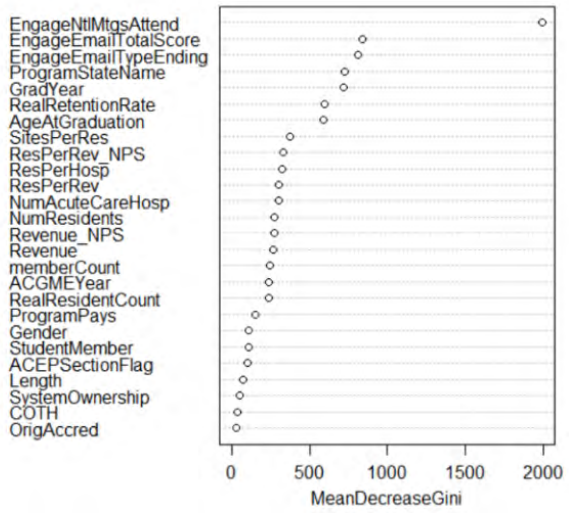
Increasing Resident Retention Through Data-Driven Marketing (Modernizing Our Approach)

Innovations in technology have revolutionized modern approaches to marketing and customer relationship management (CRM). Organizations now have huge amounts of information available about customers that can be analyzed and used to predict behavior, allowing for increased segmentation and personalization, allowing for better targeting and optimization of an organization's return on investment.

Numerous data elements contained within ACEP's CRM were used to develop predictive models of resident retention using machine learning techniques (see Appendix D: Predicting Churn of Resident Members of a National Physician Specialty Organization (Slideshow) and Appendix E: Final Machine Learning Summary Report).

The two primary types of variables that are considered for modeling are those that describe: (1) "who our members are" and (2) "what our members do." Several datasets together to evaluate the importance of characteristics of individual members, residency programs, and health systems on resident retention rates. We developed and tested models using logistic regression, boosting, and random forests which were able to predict resident retention with 80% accuracy, suggesting that ACEP could target promotions to certain segments of graduating members or benefit by attempting to influence modifiable factors prior residency graduation.



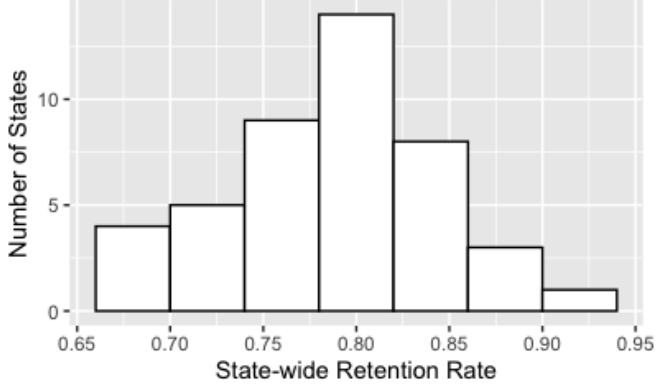


It appears that program length, whether or not dues are paid for by the residency program, or type of original accreditation (ACGME vs. AOA) do not have significant influence on retention. It appears that having personal email addresses rather than institutional addresses may influence retention rate, though it is unclear how a member's email address on file may have changed throughout time or whether it was updated during the renewal process. This finding merits further investigation.

EngageEmailTypeEnding	Not_Retained	Retained	Retention_Rate
<fctr>	<int>	<int>	<dbl>
com	2442	10703	0.814
org	180	328	0.646
edu	649	1012	0.609
MISSING	210	265	0.558

The state that a residency program is located in, and therefore ACEP Chapter, is also valuable in predicting retention, suggesting that ACEP may wish to identify chapters with high retention rates, discover the strategies being employed, and share best practices with chapters with lower retention rates.

"Number of National ACEP Meetings Attended" also predicts retention, which merits further investigation into whether lower registration fees, while not profit-maximizing in the short-run, may ultimately increase customer lifetime value through increased retention.



Lastly, the ClickDimensions score tracked in CRM appears to also have predictive power. It is unclear how this score is calculated or how this corresponds to member engagement with individual email campaigns or promotions. Given its apparent importance, more research should be done to better understand the meanings of these scores and how they can be used to target segments of membership in the future.

Allowing social login (where members can log into the ACEP website using their social media accounts such as Facebook, Twitter, or Google) may allow additional predictive information to be linked to each member record and provide opportunities to target graduating residents through traditionally untapped channels.

Implementation of The Task Force Recommendations

1. Hire a data quality/marketing manager (or similar role) to oversee ACEP's strategic mission regarding data integrity and accuracy. This individual will ensure a common goal of improving the measures that matter most to ACEP. Activities may include:

    a. Adopt a single, transparent method to calculate retention rate to ensure numbers are accurate and can be reliably compared year over year. Ensure membership dashboards highlight retention rates by residency program and ACEP chapter.
    b. Implement a system to regularly audit the accuracy of residency program information, including:
        i. Chair and PD contacts (and their start/end dates and titles)
        ii. Audit Missing/Outlier EMRA Match Fields
        iii. Reconcile List of "EMRAfied" Programs with EMRA's Annual Report (Including Date Active)
        iv. Add Year of ACGME Accreditation
        v. Label Historically Osteopathic
        vi. Regular Reconciliation with External Datasets such as the ACGME
    c. Update ACEP's official RVP history dataset based on reconciliation performed in Appendix A, moving forward collect information regarding who organized the visit (national/chapter), the type of visit (individual program, multiple programs/ACEP chapter, hybrid/virtual), and adopt an electronic mechanism for taking attendance and submitting feedback (use QR code, link to individual member A-ID).

2. Refocus efforts of Residency Engagement. Activities may include:
    a. Develop a plan to increase engagement with ACEP chapters to organize residency visits, allowing national ACEP to focus on improved data collection, analytics, and sharing of best practices amongst chapters.
    b. Target new residency programs or programs that haven't been visited recently or to target programs where there are opportunities for growth in the post-residency membership retention rate.
    c. Regional/statewide meetings may provide an excellent venue to simultaneously reach residents from multiple programs and that there may be an opportunity for national ACEP to help support the outreach and retention efforts that many ACEP chapters are already executing.
    d. ACEP could target promotions to certain segments of graduating members or benefit by attempting to influence modifiable factors prior to residency graduation.
    e. ACEP may wish to identify chapters with high retention rates, discover the strategies being employed, and share best practices with chapters with lower retention rates.

f. Maintain a database of diverse, engaging ACEP and EMRA speakers to participate in residency visits. Speakers should represent the college and work with residency programs and ACEP chapters to determine the content and frequency of visits.

3. Create a repository of digital tools that are made available online, curated regularly:
   a. High quality, compelling video segments of (not more than:30 to 1 min) on key topics (ACEP's history, current policy battles, workforce issues, other key issues) available for chapters and programs to use as needed.
   b. Gamification for interaction (scavenger hunt on acep.org or jeopardy of key issues); maybe a mobile app or tool for group consensus building or competition.
   c. A PowerPoint slide deck that is updated monthly/quarterly by both ACEP and EMRA.
   d. Invest in the creation, production, and distribution of tools/resources/care kits for program directors, program coordinators, department chairs, and junior faculty to build stronger relationships with ACEP.

Fiscal Impact

A financial model was created to identify the post-residency retention rate necessary to cover the costs outlined in this proposal. (See Appendix F: Retention Rate Needed to Pay for ACEP Chief Marketing/Analytics Officer) Staffing decisions are at the discretion of the Executive Director and the proposed new position description and the salary range has yet to be fully developed.

Assumptions/Limitations of the financial model:

- Used a "one decade" customer value since this was more readily available than a lifetime value.
- Estimated that over the course of a decade, one-third of residents who were retained would no longer be ACEP members (based on a prior consulting report and my analysis of the 468k rows of financial data that was previously shared with me) and that this decline is linear.
- Included increased revenues for other ACEP products using the median dues multiplier to estimate the total revenue that the college receives from a member (minus revenues collected for chapters/EMRA, this does include donations to EMF/NEMPAC).

Based on analysis, ACEP would need an additional 35.7 members and a 1.59% increase in retention rates to support the proposed new staff position. In addition to the personnel costs, an additional $49,500 in program costs could be rolled into the calculations, although since several of these are one-time costs, they could also be budgeted for the first year of the revised plan.

Report Quick Links

Appendix A: Auditing the RVP History Spreadsheet

Appendix B: EMRA's List of ACEP Chapter Resident and Student Engagement Programs

Appendix C: Survey Results from Hybrid/Virtual Residency Visit

The hybrid visit offered an opportunity to test the combination of virtual national speakers as part of an in-person meeting agenda. The initial results of the event show the residents' receptivity to this model and a positive impression of ACEP overall.

About half of the attendees (32 out of an estimated 75) participated in a feedback survey.

- 35.5% reported that the presentation was very helpful and 35.5% reported extremely helpful in explaining the value of ACEP membership.
- 35.5% were aware of the benefits of ACEP involvement with 29% reporting they were very aware.
- When asked about the value of the virtual presenters, 38.7% said it significantly enhanced the experience and 48.4% said it somewhat enhanced the experience.
- While 35% were neutral when asked whether the presentation could have been provided without an in-person presenter, 32.3% somewhat disagreed with the suggestion.
- 64% of participants strongly agreed that ACEP does a great job of representing emergency physicians.
- When asked about the likelihood of remaining or becoming an ACEP member in the future (scale from 1-10), 100% of respondents ranked their likelihood at a 9 or 10.
- 74% of respondents said they would recommend ACEP membership to a colleague.

Appendix D: Predicting Churn of Resident Members of a National Physician Specialty Organization (Slideshow)

Appendix E: Final Machine Learning Summary Report

Appendix F: Retention Rate Needed to Pay for ACEP Chief Marketing/Analytics Officer

Residency Engagement Task Force Members

John T. Finnell, MD, MSc, FACEP, FACMI FACEP, Chair
Zachary Jarou, MD, MBA, Co-Chari
Erik Blutinger, MD (EMRA)
L. Anthony Cirillo, MD, FACEP
Kathleen Cowling, DO, MS, MBA, FACEP
Alison J. Haddock, MD, FACEP
Christopher S. Kang, MD, FACEP
Gillian Schmitz, MD, FACEP
Gregory H. Tanquary, DO, MBA (EMRA)
Jana Nelson (Staff Liaison)

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: Julio Lairet, DO, FACEP
Chair, EMS Committee

Gina Piazza, DO, FACEP
Chair – EMS High Threat Emergency Causality Care Subcommittee

Jeffrey Goodloe, MD, FACEP
Board Liaison, EMS Committee

Date: October 18, 2020

Subj: Support for the Committee for Tactical Emergency Casualty Care (C-TECC) and the National TEMS Initiative and Council (NTIC)

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

Recommendation

That the Board of Directors approve the draft policy statement "Support for the Committee for Tactical Emergency Casualty Care (C-TECC) and the National TEMS Initiative and Council (NTIC)" (Attachment A).

Background

The EMS Committee was assigned an objective to continue the work begun by the High Threat Casualty Care Task Force when the task force was dissolved in October 2019. The Board believed the EMS Committee could continue the important work of the task force and address the needs of providing casualty care during a high-threat event.

An EMS Committee workgroup reviewed the work begun by the task force and completed the development of the policy statement, "Support for the Committee for Tactical Emergency Casualty Care (C-TECC) and the National TEMS Initiative and Council (NTIC)." The workgroup believes it is important to acknowledge the resources that have been developed by several other organizations that were beneficial during the development of this policy statement. These include the 2016 National Academies of Sciences, Engineering and Medicine report, "A National Trauma Care System: Integrating Military and Civilian Trauma Systems to Achieve Zero Preventable Deaths after Injury," Tactical Combat Casualty Care (TCCC), Tactical Emergency Casualty Care (TECC), and the National Tactical EMS Initiative and Council (NTIC) competencies.

The College, along with the National Association of EMS Physicians (NAEMSP), the National Association of EMTs (NAEMT), and the National Tactical Officers Association (NTAO), who were stakeholders in the National TEMS Initiative and Council (NTIC) Core Competencies for TEMS project, have previously issued letters of endorsement. The letters of support are provided as Attachments B-E.

The EMS Committee believes this new policy statement will provide the needed guidance for EMS systems providing casualty care during high-threat events and is not aware of any issues that could cause concerns within the EMS community.

Fiscal Impact

Budgeted committee and staff resources for development and distribution of policy statements.

Support for the Committee for Tactical Emergency Casualty Care (C-TECC) and the National TEMS Initiative and Council (NTIC)

Draft, October 2020

In 2016, the National Academies of Sciences, Engineering and Medicine published proceedings entitled "A National Trauma Care System: Integrating Military and Civilian Trauma Systems to Achieve Zero Preventable Deaths after Injury," detailing recommendations to advance trauma care in America. As a key stakeholder, the American College of Emergency Physicians (ACEP) is committed to furthering the report's recommendations.

Aligned with these nationwide efforts and motivated by the escalating frequency and severity of intentional acts of mass violence (e.g. mass shootings), ACEP developed a High Threat Emergency Casualty Care Task Force (HTECCTF) with the aim of reducing potentially preventable mortality in high threat mass casualty incidents, the American College of Emergency Physicians:

- Endorses the standards published by the Committee on Tactical Emergency Casualty Care (TECC); and

- Supports the recommendations of the National TEMS Initiative and Council (NTIC).

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Attachment B

July 11, 2016

Board of Directors, Committee for Tactical Emeregncy Casualty Care (C-TECC)
c/o Dr. David Callaway
19309 Winmeade Drive, Suite 420
Leesburg, VA 20176

Board of Directors, National Tactical EMS Competency Domains
c/o Dr. Andre Pennardt

RE: American College of Emergency Physicians (ACEP) Support for National Tactical EMS Competency Domains.

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

1125 Executive Circle
Irving, Texas 75038-2522

972-550-0911
800-798-1822
972-580-2816 (FAX)
www.acep.org

As a key stakeholder in the development of national tactical emergency medical services (TEMS) standards, please accept this letter of endorsement from the American College of Emergency Physicians (ACEP) of the National TEMS Initiative and Council (NTIC) Core Competencies for TEMS.

We support the integration of the Tactical Emergency Casualty Care (TECC) guidelines into the NTIC 10 domains. The 10 domains agreed upon by multiple stakeholder groups have been developed to serve as a framework for the development of standards for tactical emergency medical care across the spectrum of care providers in the United States. ACEP supports the development of such standards and has many members actively engaged in this process.

Sincerely,

Jay A. Kaplan, MD, FACEP
President

National Association of EMS Physicians®
P.O. Box 19570, Lenexa, KS 66285

Phone: (913) 222-8654, Toll Free: 800-288-3677, Fax: (913) 222-8605
info-NAEMSP@NAEMSP.org ● www.NAEMSP.org

July 11, 2016

RE: NAEMSP® Support for National Tactical EMS Competency Domains

Raymon A. Mollers
Medical First Responder Coordination Branch
Workforce Health and Medical Support Division
Office of Health Affairs
U. S. Department of Homeland Security
Washington, DC 20528

Dear Mr. Mollers,

On May 24, 2016, the Office of Health Affairs of the Department of Homeland Security and the Special Operations Medical Association co-hosted the National Tactical Emergency Medical Support (TEMS) Standards Summit in Charlotte, North Carolina. The purpose of this meeting was to develop consensus on a framework for competency domains in the educational and operational objectives of TEMS.

The National Association of EMS Physicians® (NAEMSP®) was pleased to be represented at this meeting as one of several key stakeholders and thought leaders in pre-hospital emergency care. After thorough review of the proposal, we are pleased to endorse the National TEMS Initiative and Council (NTIC) 10 Domain Framework as a blueprint for standardizing TEMS competencies. This endorsement does not imply endorsement of any specific training program or curriculum and does not address credentialing or jurisdictional issues nor does it imply or require any fiduciary commitment.

Thank you for giving us the opportunity to participate in the DHS/SOMA TEMS Summit and for the ability to review and comment on this important and timely pre-hospital medical care concept.

Sincerely,

Jane H. Brice, MD, MPH
President

cc: David W. Callaway, M.D., C-TECC
Andre Pennardt, M.D., NTIC

National Association of Emergency Medical Technicians
Post Office Box 1400 * Clinton, Mississippi 39060-1400
Phone: 800-34-NAEMT or 601-924-7744 * Fax: 601-924-7325
Website: www.NAEMT.org

June 28, 2016

Board of Directors, Committee for Tactical Emergency Casualty Care (C-TECC)
c/o Dr. David Callaway
19309 Winmeade Drive, Suite 420
Leesburg, VA 20176

Board of Directors, National TEMS Initiative and Council (NTIC)
c/o Dr. Andre Pennardt

RE: NAEMT Support for National Tactical EMS Competency Domains

Dear Board Members,

As a key stakeholder in the national TEMS process, the National Association of Emergency Medical Technicians (NAEMT) endorses the National TEMS Initiative and Council (NTIC) 10 Domain framework as a blueprint for standardizing TEMS competencies.

Formed in 1975 and more than 55,000 members strong, NAEMT is our nation's only organization solely dedicated to representing the professional interests of all EMS practitioners, including paramedics, emergency medical technicians, emergency medical responders and other professionals working in prehospital emergency medicine. NAEMT members work in all sectors of EMS, including government service agencies, fire departments, hospital-based ambulance services, private companies, industrial and special operations settings, and in the military.

We applaud the work of your organizations, along with stakeholders, to develop the competency domains.

Sincerely,

Chuck Kearns

Conrad "Chuck" Kearns, MBA, Paramedic, A-EMD
President, NAEMT

cc Dr. Andrew Pennardt, FACEP, Chairman, NTIC
Dr. David W. Callaway, FACEP, Co-Chairman, C-TECC

NTOA
PO Box 797, Doylestown, PA 18901
Ph: 800.279.9127 Fax: 215.230.7552 www.ntoa.org

August 4, 2016

Dr. Kathryn Brinsfield MD. MPH
Assistant Secretary and Chief Medical Officer
U.S. Department of Homeland Security
Washington, DC 20528

Dear Dr. Brinsfield,

The purpose of this letter is to support and endorse the tactical emergency medical services (TEMS) Core Competency Domains. Recently, the Department of Homeland Security (DHS) convened a meeting at the Special Operations Medical Association (SOMA) conference in Charlotte, NC. The purpose of the meeting was to arrive at a consensus for the C-TECC/NTIC TEMS Competency Domains. The domains outline the essential skills required for medical personnel supporting law enforcement operations.

The National Tactical Officers Association represents more than 40,000 law enforcement officers in the special operations community. One of our many missions is the training, development and support of TEMS. In light of recent critical incidents, including Dallas, Orlando and San Bernardino, we are reminded of the need for TEMS. Countless lives are being saved through the quick and just-in-time medical treatment that is provided on-scene by trained emergency medical personnel.

As you are aware, establishing competency domains for TEMS has been ongoing for many years and the list has matured over time. The domains, which were agreed upon at SOMA, provide an excellent foundation for further definition and applicability.

These Core Competency Domains will greatly benefit the law enforcement community. The NTOA welcomes the opportunity to provide input and assist you in whatever ways we are able.

Sincerely,

Mark Lomax
Executive Director
National Tactical Officers Association

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: Bruce Lo, MD, MBA, RDMS, FACEP
Chair, Academic Affairs Committee

John T. Finnell, MD, MSc, FACEP, FACMI, FAMIA
Board Liaison, Academic Affairs Committee

Date: October 8, 2020

Subj: Overcoming Barriers to Promotion of Women and Underrepresented in Medicine (URiM) Faculty in Academic Emergency Medicine

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

Recommendation

That the Board of Directors approve the policy statement "Overcoming Barriers to Promotion of Women and Underrepresented in Medicine (URiM) Faculty in Academic Emergency Medicine" (Attachment A).

Background

The Academic Affairs Committee (AAC) was assigned an objective for the 2019-20 committee year to "Develop a guide for writing letters of recommendation for academic promotion. Address how best to encourage diversity and inclusion in emergency medicine in terms of academic promotion." This objective was revised during the committee year, with presidential approval, in January 2020 to, "Develop a (brief) policy statement regarding diversity and inclusion in emergency medicine in terms of academic promotion with an accompanying PREP." The draft PREP is included in the information agenda. Comments are requested by November 9, 2020.

Members of the AAC collaborated with multiple groups on this objective. The committee worked with stakeholders from the following groups: ACEP's Diversity, Inclusion, & Health Equity Section, SAEM's Academy for Diversity and Inclusion in Emergency Medicine, CORD, and FemINem.

The policy statement has been provided to CORD and SAEM for endorsement.

Attachment A contains the draft policy statement.

Prior Board Action

None

Fiscal Impact

Budgeted committee and staff resources for development and distribution of policy statements.

Overcoming Barriers to Promotion of Women and Underrepresented in Medicine (URiM) Faculty in Academic Emergency Medicine

Draft, September 2020

The American College of Emergency Physicians (ACEP) is committed to supporting women and underrepresented in medicine (URiM) faculty in advancing their careers and achieving academic promotion. Promotion not only celebrates individual achievement, but also affords faculty access to leadership roles limited to senior rank. By increasing diversity in healthcare leadership and governance, organizations can better address inequities that women and underrepresented minorities face, and improve healthcare delivery to patients with diverse values, beliefs, and behaviors. ACEP recommends the following strategies for academic departments and institutions to achieve organizational excellence with respect to the promotion and advancement of women and URiM faculty:

- Create a culture of inclusivity that hears, values, respects, and acts upon the ideas and experiences of a diverse workforce.
- Pair new faculty with a faculty advocate who can explain the value of promotion, the promotions process, and promotion criteria.
- Help women and URiM faculty build mentorship networks. Recognize and incentivize faculty who are successful mentors and sponsors of women and URiM faculty.
- Track and publicize recruitment and promotion metrics for women and URiM relative to their peers.
- Catalyze participation in research through mentorship, targeted developmental and funding opportunities. Sponsor women and URiM faculty as peer reviewers and editors.
- Ensure that Advancement Promotion and Tenure (APT) committees value the work of women and URiM on diversity committees and initiatives.
- Strive for equity in recognition by having awards committees track their nominations of women and URiM faculty for departmental, institutional, and national awards.
- Call for balanced speaker panels at conferences.
- Champion policies that support women and URiM faculty (e.g. reduction or elimination of overnight shifts in the 3rd trimester, protection against harassment and discrimination).
- Explore family-friendly processes (e.g. emergency childcare services) that lighten the load of the “second shift,” at home.
- Provide unconscious bias training for all healthcare providers.
- Encourage a holistic review of candidates for promotion that considers the impact of variable opportunity and major life events (e.g. medical, parental, or family leave) on productivity.
- Commit to diverse representation on search committees for both junior and senior leadership positions. Evaluate senior leaders on their success in developing diverse talent pipelines.
- Consider term limits for senior leadership roles such as dean and chair positions to allow new voices to be heard.

PLEASE NOTE: THIS RESOLUTION WILL BE DEBATED AT THE 2020 COUNCIL MEETING. RESOLUTIONS ARE NOT OFFICIAL UNTIL ADOPTED BY THE COUNCIL AND THE BOARD OF DIRECTORS (AS APPLICABLE).

Late Resolution

RESOLUTION: ___(20)

SUBMITTED BY: Ramon Johnson, M.D. FACEP
Nicholas Jouriles, M.D. FACEP

SUBJECT: ACEP Commemorative Memorial

WHEREAS, More Americans have died from coronavirus than did in battle throughout several major military conflicts; and

WHEREAS, The official death toll is likely undercounted; and

WHEREAS, Members of the American College of Emergency Physicians along with our emergency nursing colleagues have been on the frontline, caring for an unprecedented number of patients during the national emergency of the coronavirus pandemic; and

WHEREAS, Emergency physicians have demonstrated outstanding leadership in caring for our patients, our colleagues, and our families; and

WHEREAS, Many members of the College have sacrificed their own lives and put their families at risk while serving to protect this nation by caring for patients infected and dying during this deadly pandemic; and

WHEREAS, Many of our members continued to put their lives on the line even when there was inadequate personal protective equipment; and

WHEREAS, Emergency physicians jeopardized their jobs and careers by speaking out in support of assuring the safety of personnel in the emergency department during the pandemic; and

WHEREAS, First responder peers in law enforcement and firefighters have been honored with national memorials authorized by Congress for sacrifices made in the call of duty; therefore be it

RESOLVED, That the American College of Emergency Physicians convene a task force to explore the funding and building of a commemorative memorial to honor members of the College who have lost their lives as a result of the coronavirus pandemic; and be it further

RESOLVED, That the commemorative memorial be built at ACEP headquarters and list the names of our fallen colleagues; and be it further

RESOLVED, That the American College of Emergency Physicians explore legislation to establish a national memorial to be built in Washington, DC to honor the sacrifices made by emergency physicians and emergency nurses as first responders during this national emergency; and be it further

RESOLVED, That progress toward the memorial be reported back to the Council on a yearly basis until these results are achieved.

Background

Background was not developed because the resolution was received late.

PLEASE NOTE: THIS RESOLUTION WILL BE DEBATED AT THE 2020 COUNCIL MEETING. RESOLUTIONS ARE NOT OFFICIAL UNTIL ADOPTED BY THE COUNCIL AND THE BOARD OF DIRECTORS (AS APPLICABLE).

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Late Resolution

RESOLUTION: ___(20)

SUBMITTED BY: Taylor Nichols, MD; Phillip Summers, MD, MPH; Kevin Durgun, MD; Alexander Schmalz, MD, MPH; Marc Futernick, MD; Harrison Alter, MD; California Chapter

SUBJECT: Reporting of Injuries Suspected or Reported to be Resulting from Law Enforcement Actions

WHEREAS, use of force by law enforcement and police accountability have become dominant issues among public health officials, politicians, activists, and the general public, and modest progress has been made through reforms in isolated departments,[1]

WHEREAS, physicians are mandated reporters for injuries suspected or reported to be by firearm or assaultive or abusive conduct, particularly acts of violence against vulnerable populations including child abuse or neglect and elder or dependent abuse, and that ACEP supports continued research and data gathering on this issue,[1-2]

WHEREAS, physicians are therefore mandated reporters of injuries suspected or reported to be sustained as the result of law enforcement actions,

WHEREAS, the only established channels available for mandated reporting of injuries suspected or reported to be resulting from assaultive or abusive conduct, including of injuries suspected or reported to be resulting from law enforcement actions, is reporting to local law enforcement agencies,

WHEREAS, there is a conflict of interest of reporting of injuries suspected or reported to be resulting from law enforcement actions directly to the local law enforcement agencies of the officers involved in said assaultive or abusive conduct, and that such direct reporting has not proven to be an adequate remedy or accountability mechanism,[3]

WHEREAS, "prisoners" are a specifically protected category of people in medical ethics, as indicated by the customary conventions of Institutional Review Boards at institutions conducting research involving human subjects and as recognized by ACEP,[5]

WHEREAS, patients with injuries suspected or reported to be resulting from law enforcement actions and who are in police custody are functionally imprisoned and therefore a vulnerable population deserving of special protections,

WHEREAS, physicians hold a unique position of authority and professional responsibility to patients in the face of law enforcement officers, particularly within our emergency departments, while the victims of injuries resulting from law enforcement actions have limited self-directed recourse and few advocates,[6-10]

WHEREAS, physicians are prohibited from sharing patients' protected health information with any outside entity, such as community oversight committees, civil rights groups, non-law-enforcement government agencies, public health officials, victim services agencies, legal representatives, or the press, which might otherwise provide an alternative avenue for reporting or advocacy for our patients,[10]

WHEREAS, this absence of effective reporting mechanisms impedes police accountability and epidemiologic monitoring of this phenomenon, which in turn obscures transparency and erodes public trust in law enforcement

officers and agencies,

WHEREAS, there is inadequate data collected or publicly available regarding injuries from law enforcement actions,[11]

WHEREAS, the establishment of entities with independent oversight and investigative authority over local law enforcement is a recommended mechanism of law enforcement oversight and accountability,[12] therefore be it

RESOLVED, that ACEP create a toolkit for Chapters to use in advocating for legislation and policies that enhance physician reporting of injuries resulting from law enforcement actions, and thereby improve epidemiologic monitoring and law enforcement accountability regarding use of force, and be it further

RESOLVED, that ACEP include in that toolkit model legislation to establish a reporting mechanism to an independent entity with oversight and investigative authority over local law enforcement agencies, and that such legislation include the collection, analysis, and publication of epidemiologic data regarding injuries resulting from law enforcement actions, and be it further

RESOLVED, that ACEP include in that toolkit an educational component regarding the reporting of injuries suspected or reported to be resulting from law enforcement actions, similar to that which exists regarding child abuse or neglect and elder or dependent abuse.

References

1. Peeples L. What the data say about police brutality and racial bias - and which reforms might work. Nature. 2020;583(7814):22-24.
2. ACEP // Domestic Family Violence. https://www.acep.org/patient-care/policy-statements/domestic-family-violence/. Accessed August 31, 2020.
3. ACEP // American College of Emergency Physicians. https://www.acep.org/imports/clinical-and-practice-management/resources/violence/domestic-family-violence/. Accessed August 31, 2020.
4. McKesson D, Sinyangwe S, Johnetta E, Packnett B. Police Union Contracts and Police Bill of Rights Analysis. Campaign Zero. Accessed September 4, 2020. https://static1.squarespace.com/static/559fbf2be4b08ef197467542/t/5773f695f7e0abbdfe28a1f0/1467217560243/Campaign+Zero+Police+Union+Contract+Report.pdf
5. Recognizing the Needs of Incarcerated Patients in the Emergency Department. ACEP // American College of Emergency Physicians. https://www.acep.org/administration/resources/recognizing-the-needs-of-incarcerated-patients-in-the-emergency-department/. Accessed August 31, 2020.
6. Richardson JB, st. Vil C, Cooper C. Who Shot Ya? How Emergency Departments Can Collect Reliable Police Shooting Data. *Journal of Urban Health*. 2016;93(Suppl 1):8-31. doi:10.1007/s11524-015-0008-7
7. ACEP // Law Enforcement Information Gathering in the Emergency Department. https://www.acep.org/patient-care/policy-statements/law-enforcement-information-gathering-in-the-emergency-department/. Accessed August 31, 2020.
8. Jacoby SF, Kaufman EJ, Richmond TS, Holena DN. When health care and law enforcement intersect in trauma care, what rules apply? *Health Affairs*. 2018. doi:10.1377/hblog20180926.69826
9. Jacoby SF, Richmond TS, Holena DN, Kaufman EJ. A safe haven for the injured? Urban trauma care at the intersection of healthcare, law enforcement, and race. *Social Science and Medicine*. 2018;199:115-122. doi:10.1016/j.socscimed.2017.05.037
10. HIPAA for Professionals. US Department of Health and Human Services. Accessed September 4, 2020. https://www.hhs.gov/hipaa/for-professionals/index.html
11. Wanted: better data on police shootings to reduce mistrust between the police and the communities they serve. Nature. 2019;573(7772):5.
12. "Promoting Accountability." Transforming The System. Accessed September 29, 2020. https://transformingthesystem.org/criminal-justice-policy-solutions/create-fair-and-effective-policing-practices/promoting-accountability/

Background

Background was not developed because the resolution was received late.

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: Donald M. Yealy, MD, FACEP
Chair, Sepsis Task Force

Date: October 15, 2020

Subj: Sepsis Task Force Report

Recommendation

That the Board of Directors approve the document *"Early Care of Adults with Suspected Sepsis in the Emergency Department and Prehospital Environment: A Consensus-Based Task Force Report"* (Attachment A).

Background

Sepsis is associated with over 850,000 annual emergency department (ED) visits in the United States. Up to 80% of hospitalized sepsis patients receive initial care in the ED and most hospitalized patients (86%) assigned a sepsis diagnosis have it present on admission. This makes sepsis and septic shock one of the highest mortality conditions initially treated in the ED.

Public health and policy efforts have sought to reduce the morbidity and mortality associated with sepsis and septic shock through state regulations mandating care, public reporting of hospital performance, the creation of national learning networks, and patient-facing public awareness campaigns. However, variation exists between regions and hospitals, suggesting a lack of standardized clinical treatment pathways and modification of guideline-based recommendations based on the individual patient and local capabilities.

To address the opportunities for improvement in the emergency care of patients with sepsis in acute, early care settings, ACEP leadership called for the assembly of a multispecialty task force. The task force sought to identify the key elements of early sepsis care, identify areas of concern among current practice guidelines and mandates, suggest practical consensus-based approaches, and offer insights to aid future efforts in the ED management of sepsis and in the creation of any new guidelines or mandates. The task force did not seek to develop a comprehensive or competing guideline.

In March 2019, then ACEP President Dr. Vidor Friedman appointed a core workgroup consisting of Donald Yealy, Frances Balamuth, Alan Jones, Nicholas Mohr, Wesley Self, Nathan Shapiro, and Arjun Venkatesh (coordinated by ACEP staff liaison Travis Schulz). To ensure the inclusion of diverse opinions and perspectives, a multispecialty review panel was recruited from stakeholder medical specialty societies to discuss the workgroup's recommendations during a face-to-face meeting at ACEP Headquarters.

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

In October 2019, the multispecialty review panel met at ACEP Headquarters to review an early draft of the recommendations. Eighteen attendees representing 14 medical specialty societies attended the meeting in person or via conference call. In attendance were members representing the American Academy of Emergency Medicine, American Board of Emergency Medicine, American College of Chest Physicians, American College of Osteopathic Emergency Physicians, American Osteopathic Board of Emergency Medicine, Association of Academic Chairs of Emergency Medicine, Council of Emergency Medicine Residency Directors, Emergency Nurses Association, Emergency Medicine Residents' Association, Infectious Diseases Society of American, National Association of EMS Physicians, Society for Academic Emergency Medicine, Society of Critical Care Medicine, and the Society of Hospital Medicine.

From November 2019 through February 2020, the core task force workgroup revised the draft recommendations based on feedback from the meeting. From March through July 2020, a series of revised drafts were circulated among members of the multispecialty review panel. Reviewers were encouraged to share the recommendations with their sponsoring medical specialty society. All feedback from reviewers and specialty societies was reviewed by the workgroup and considered for incorporation into the attached draft.

Prior Board Action

None

Fiscal Impact

Budgeted task force and staff resources for development and distribution of the report.

Early Care of Adults with Suspected Sepsis in the Emergency Department and Prehospital Environment: A Consensus-Based Task Force Report
This DRAFT is EMBARGOED – Not for Distribution
September 30, 2020

From the American College of Emergency Physicians Sepsis Task Force:

Donald M. Yealy, MD
Nicholas M. Mohr, MD, MS
Nathan I. Shapiro, MD
Arjun Venkatesh, MD, MBA
Alan E. Jones, MD
Frances Balamuth, MD, PhD
Wesley H. Self, MD, MPH

Members of the American College of Emergency Physicians Multispecialty Sepsis Review Panel reviewed the drafts after initial composition and offered input:

Jennifer Alexband, DO
Michael Benham, MD
David A. Farcy, MD
Marianne Gausche-Hill, MD
Sean Hickey, MD
Ryan C. Jacobsen, MD
Chadwick Miller, MD
Michael Puskarich, MD
Chanu Rhee, MD, MPH
Lisa Shieh, MD, PhD
Elizabeth Tedesco, DNP, RN, CEN, PHRN
Julie Winkle Mayglothling, MD
Christopher Zabbo, DO
Jerry Zimmerman, MD, PhD

INTRODUCTION

Sepsis is the leading cause of hospital death in the United States (US)[1] and is associated with over 850,000 annual emergency department (ED) visits.[2] Despite advances in care, patients with serious infection continue to have a high inpatient mortality, reaching 20% or more in some settings. This makes sepsis and septic shock one of the highest mortality conditions treated in the ED. Additionally, many survivors never fully recover, instead developing either chronic critical illness or suffering from Post-Intensive Care Syndrome.[3,4]

Public health and policy efforts seek to reduce the morbidity and mortality associated with sepsis and septic shock through state regulations mandating care, public reporting of hospital performance, the creation of national learning networks, and patient-facing public awareness campaigns.[5-8] Despite these efforts, poor outcomes remain common. Risk-adjusted mortality varies between regions and hospitals, suggesting that non-standard clinical treatment pathways leave opportunities to improve.[9,10]

Sepsis care may be most consequential during the earliest phase of treatment. Most hospitalized sepsis patients (86%) are diagnosed on admission, and up to 80% receive initial care in the ED.[2,11] Furthermore, over 75% of ED sepsis patients are treated by emergency medical services (EMS) providers in the prehospital environment.[12,13] Thus, pre- and in-hospital emergency care is key in identifying sepsis and initiating early care for those with life-threatening infection.

Many aspects of emergency sepsis care—recognition, prompt and adequate antibiotic therapy, and circulatory support with fluids and vasopressors for those with septic shock—have an evidence base guiding actions that improve outcomes. Given the inherent difficulty in establishing the early diagnosis of sepsis any guidance must recognize care elements that impact the timeliness and outcomes of care. Aspects that challenge early care include competing ED diagnoses and care; varying levels of evidence for sepsis recommendations; and treating patients with unnecessary therapy when they ultimately have non-sepsis diagnoses.

Recent policy efforts intensified the scrutiny placed on clinicians, hospitals, and health systems that deliver sepsis care. In July 2018, the US Centers for Medicare and Medicaid Services (CMS) began public reporting of a national sepsis bundle quality measure, commonly referred to as SEP-1. Early data demonstrated that only half of sepsis patients nationally received the full CMS-recommended bundle for emergency and hospital care.[7,14] This finding is unsurprising since clinicians often adjust adherence to guideline-based recommendations based on individual patients and their local capabilities. The Surviving Sepsis Campaign offers recommendations on comprehensive sepsis care.[15] These efforts support better care and outcomes, but they also raised concerns by those in acute care settings because they applied to undifferentiated patients before the diagnosis of sepsis could be confirmed.[16]

To address controversies and opportunities for improvement in the emergency care for patients with sepsis in acute, early care settings, the American College of Emergency Physicians (ACEP) convened a multispecialty task force in 2019. We sought to identify key elements of early sepsis care and to offer insights to aid future efforts and suggest practical consensus-based approaches to certain parts of ED sepsis management. The group did not intend to create a new or comprehensive set of ED sepsis care guidelines. To ensure the inclusion of diverse opinions and perspectives, ACEP engaged a broad array of experts with the goal of maximizing the consensus of task force recommendations across many audiences. Task Force members reviewed existing guidelines, evidence, and medical professional society recommendations; then, a writing committee crafted sections based on an October 2019 in-person

meeting of the Task Force. The consolidated document was shared over 6 months with the full panel for revision and approval.

We summarize the task force's assessment of current knowledge and recommendations in this report. We use a format that addresses common steps in the initial emergency care of adults with suspected sepsis. We focused this work on adult sepsis diagnosis and management given recent collaborative pediatric sepsis care guidelines.[17] The task force product and recommendations are not created to define a practice standard; we intend to inform the physician judgment at the bedside and to help future guideline development by noting areas of concern.

RECOGNIZING SEPSIS AND SEPTIC SHOCK IN THE FIRST MINUTES TO HOURS OF CARE

Principles of Sepsis Recognition

Key Points / Recommendations:

(1) Sepsis is a confirmed or suspected infection with new or worsening organ dysfunction and dysregulated host response to infection; it is not defined by a single datum or finding.

- *Septic shock exists in a subset of sepsis patients with circulatory dysfunction, and it confers higher mortality.*
- *Septic shock—like sepsis—has a spectrum of disease, ranging from hypotension alone to hypotension requiring vasopressor support with an elevated blood lactate after initial sepsis resuscitation (Sepsis-3 definition). All patients with impaired cardiovascular function from sepsis are best managed with early detection and prompt treatment, similar to those meeting more severe presentations of septic shock.*

(2) Any guideline or care pathway/bundle must accommodate the reality that sepsis and septic shock detection can be difficult. Sepsis clinical findings overlap with many other conditions and often require extended time and effort to detect. Therefore, guidance is most applicable when the diagnosis of sepsis is established rather than simply considered as one of multiple potential causes of illness.

- *The differential diagnosis of patients with sepsis is often broad, and accurate diagnosis of sepsis may require advanced or repeated testing and observation to distinguish it from other causes of acute illness.*

Recognizing sepsis early is challenging given the overlapping findings that exist in those with sepsis and other acute illnesses. Sepsis is a clinical diagnosis based on a dysregulated response to an infection. Over the last three decades, definitions of sepsis from international consensus groups have evolved (Table 1).[18-20] Consistent with the current consensus nomenclature, we considered the definition of sepsis to be an infection with new or worsening organ dysfunction; a specific pathogen does not need to be identified for a patient to have sepsis.

Septic shock is a severe form of sepsis with cardiovascular dysfunction, usually manifested as hypotension. Recent consensus definition efforts (Sepsis-3)[20] narrowed the definition of septic shock to those with hypotension requiring vasopressor therapy *plus* an elevated blood lactate (2 mmol/L or above) after initial resuscitation (see later discussion) to identify a subgroup at very high risk of mortality. Previous definitions used broader inclusions for defining septic shock, including those with hypotension alone.

We acknowledge that sepsis and septic shock exist on a continuum, and patients with infection-induced cardiovascular failure benefit from prompt recognition and care no matter what current term defines their status. We also recognize that patients with infection-induced hypotension are an important population in the prehospital and ED settings, as vital signs alone are harbingers of the need for time-sensitive care, even if these patients fail to meet the Sepsis-3 definition of septic shock. A singular episode of hypotension portends a worse outcome, underscoring the need for an inclusive early approach to identifying patients at higher risk of death or harm from sepsis.[21]

No single test accurately and reliably establishes a diagnosis of sepsis. While some patients present with overt findings of sepsis, many have vague symptoms or exam features that overlap with other conditions (eg, tachycardia, tachypnea, laboratory changes, and other findings). Sepsis can be difficult to recognize in the immunocompromised, neonates, the elderly, and those presenting very early in the course of illness when intact or robust compensatory responses may shroud overt signs.

The differential diagnosis of both sepsis and septic shock includes other etiologies of organ dysfunction, many of which require different care. By way of example, 20 to 40% of patients with *suspected* sepsis in the ED are ultimately diagnosed with a noninfectious sepsis mimic, such as pulmonary embolism, cardiogenic shock, or overdose.[22-24] These patients with sepsis mimics rarely benefit from all aspects of sepsis-directed care. Anchoring on a diagnosis of sepsis early in the illness course can result in missed or delayed diagnosis and treatment of the true etiology of acute illness.

The care of those with sepsis should be surveilled for impact to identify best practices as well as opportunities for improvement. Sepsis outcomes worsen with care delays, but giving sepsis specific care when sepsis doesn't exist may not offer benefit and can risk harm, though the latter is not routinely assessed (that is, final sepsis diagnosis drives assessment of impact). Further complicating surveillance are initiatives that utilize the easily available time of ED arrival as the starting point for sepsis care, which both ignores sepsis mimics and creates quality benchmarks of limited clinical validity. As a result, the Surviving Sepsis Campaign proposed bundle measurement methodology from defining quality measures based on the easily identified *time of ED arrival,* to the more difficult to track but more relevant *time of sepsis diagnosis*.

Many medical professional organizations have generated definitions and guidelines for sepsis care after assessing evidence. We support a new paradigm of defining sepsis and septic shock terms and care steps for use across all care settings and clinicians of different specialties, done best with meaningful contribution by all key stakeholders.

Early Screening/Detection of Those with Sepsis

Key Points / Recommendations:

(1) Standardized early sepsis screening tools may improve sepsis recognition and care. However, there is no validated evidence-based tool or strategy to reliably accomplish this goal in the ED or prehospital setting.

Many performance improvement programs aim to improve early sepsis recognition through systematic screening in the electronic health record. Presently, there are no early screening systems that are demonstrably effective for this critical task. Many screening methods tailor activities to the needs and capabilities of individual

hospitals or health systems rather than broadly identifying those in need of sepsis-related interventions. While some early sepsis screening tools improved timelines of care, insight into reliability and patient-focused outcomes are lacking. This question creates uncertainty regarding whether the key feature leading to care improvement is use of a specific screening tool, the inclusion of healthier patients in the sepsis denominator, or whether simply the general act of performing quality improvement activities increases recognition of sepsis.[25] It is incumbent upon clinicians to understand which elements of screening lead to improved outcomes and embrace those that are best supported.

INITIAL CARE STEPS IN THE EMERGENCY DEPARTMENT AND THE PREHOSPITAL ENVIRONMENT

Principles of Early Sepsis Management

Key Points / Recommendations:

(1) History and physical exam may help to detect infection and organ dysfunction.

(2) Once sepsis is recognized, prompt action to treat infection and reverse or prevent hypotension and hypoperfusion is important. However, time thresholds for care must be based on distinguishing sepsis from other clinical entities.

- *Accruing evidence of infection, organ dysfunction, and hypotension or hypoperfusion requires longitudinal observation, meaning thresholds based on searchable administrative times alone may not be feasible.*

We agree that prompt evaluation and management of patients with suspected sepsis in the prehospital setting and ED is key. While current evidence supports that sepsis care is time-sensitive, our review identified a variety of elements that may impact how rapidly the diagnosis of sepsis can be established, especially when presenting signs and symptoms suggest alternate diagnoses. Accordingly, we offer readily deployable and early action for patient care while sepsis is being discerned from other competing diagnoses (Table 2). Once the diagnosis of sepsis exists, current guidelines offer thresholds for time-based action to support optimal care.

Many with sepsis have relative or absolute hypovolemia. A variety of management strategies help address plasma volume expansion and other resuscitative actions in those with sepsis and septic shock. One such resuscitation strategy by Rivers et al,[26] is termed *Early Goal Directed Therapy* (EGDT), which delineates an algorithmic approach to the recognition and management of patients with sepsis and either hypotension or elevated lactate; it did not study all with sepsis. EGDT relied upon central venous pressure (CVP), mean arterial pressure (MAP), central venous oxygen saturation (ScVO2), and hematocrit to guide resuscitation. That seminal trial showed that early recognition and resuscitation improved outcomes, and 3 large multicenter trials spanning from 2008 to 2014 comparing EGDT versus usual care did not demonstrate improved outcomes with EGDT.[27-29] It is important to note that the latter trials employed non-algorithmic but still early recognition and resuscitation patterns adopted in the interim as “usual care”. Therefore, the key aspects of EGDT—early recognition and prompt resuscitation—are now foundational to septic shock care.

PreHospital Care

Key Points / Recommendations:

(1) Emergency medical services (EMS) providers can expedite sepsis care through a focused history and obtaining corroborating data prior to transport.

(2) Selecting and rapidly transporting sepsis patients to an ED capable of providing needed early sepsis care is an important factor in prehospital sepsis care.

(3) Prehospital antibiotic therapy has potential to improve outcomes, but it is not currently supported by data and cannot yet be recommended for routine use

In the prehospital setting, a key priority is rapidly transporting patients with potential sepsis to a site able to provide the care needed. Obtaining a focused history from the patient, family members, care givers, and others immediately available at the time of patient transport can aid in identifying the cause and severity of illness. EMS providers should communicate this history to ED personnel during care transitions to ensure timely sepsis diagnosis and therapy. Obtaining other field diagnostic testing is currently of unproven benefit and is not commonly available. While giving antibiotics during this very early care interval has theoretic benefit to those with sepsis, the accurate identification of the best patients to receive this therapy is hard, and the current data do not support a clear benefit of this approach.[30] Future research assessing prehospital diagnostics and interventions may alter recommendations for field care.

Evaluation for Source of Infection

Key Points / Recommendations:

(1) We recommend obtaining blood cultures in the ED without delaying care in those with sepsis.

(2) In those without an identified source of infection, we recommend obtaining a chest x-ray and urinalysis (with urine culture if urinalysis is suggestive of infection) in the ED.

(3) We recommend sampling possible infection sources based on medical history, symptoms, and physical examination findings (eg, cerebrospinal fluid, peritoneal fluid, wounds).

(4) Targeted computed tomography based on clinical suspicion is preferred to routine whole-body imaging.

In the ED, evaluation for source of infection should include a history and physical exam, with review of available and relevant medical records. If a source is not identified with initial exam and testing, we recommend that providers reassess and focus attention on areas of potential cryptic infection that can be difficult to fully examine, including the genitourinary region, perianal region, and sites of medical devices and indwelling catheters.[31]

Although sending samples for culture does not affect initial treatment, isolation of a pathogen from samples collected in the ED prior to antibiotics can provide source confirmation and enhance appropriate antibiotic tailoring, since post-antibiotic cultures have substantially lower yields.[32-34] We recommend collecting blood cultures as early as feasible and before administration of antibiotics, unless culture collection will delay antibiotic administration. Two sets of blood cultures (1 aerobic bottle and 1 anaerobic bottles in each set) obtained from separate sites over a short time period is common practice, using techniques to minimize the risk of contamination.[35,36] In patients with a suspected infection of an indwelling vascular catheter, collecting one set of blood cultures from the catheter in

addition to peripheral blood cultures (with time-to-positivity testing) is one strategy to aid diagnosis of a catheter-related bloodstream infection.

Pneumonia and urinary tract infection are the two most common infectious sources in sepsis.[31] Therefore, absent a clear alternative source, we recommend chest imaging (usually with chest x-ray) and urinalysis (with subsequent urine culture) in the appropriate clinical circumstances. Additional testing for sources of infection is based on history and exam. For patients presenting with respiratory symptoms when local influenza or Severe Acute Respiratory Syndrome CoronaVirus-2 (SARS-CoV-2) is prevalent, many choose molecular viral testing (eg, reverse transcriptase polymerase chain reaction, RT-PCR) of a nasopharyngeal or respiratory specimen in any with respiratory symptoms, fever, or other symptoms of this infection.[37]

In patients with suspected infection *and* signs of clinical instability (eg, hypotension), we recommend starting antibiotic therapy promptly after blood cultures are drawn. Often this means that some culture specimens, such as urine, cerebrospinal fluid, or synovial fluid follow an initial dose of antibiotics in the ED.

Computed tomography (CT) may detect other infectious sources.[38-40] We advocate for targeted use of CT based on likely sources of infection after a clinical assessment rather than untargeted "whole-body" CT. Early ED identification of a culprit infection source also supports rapid source control for abscess, intestinal perforation, infected medical prosthesis, or necrotizing soft tissue infection.

Severity Assessment

Key Points / Recommendations:

(1) We recommend clinicians use multiple clinical and laboratory findings to detect sepsis and guide care.

(2) We recommend initially measuring blood lactate in the ED (venous or arterial) and repeating lactate measurement after initial resuscitation only if elevated above 4 mmol/L or if there is suspicion of clinical deterioration.

(3) After noting whether hypotension is present, no scoring system accurately stratifies individual sepsis patient risk at the earliest stages of care. We recommend assessment of sepsis severity through identifying acute organ dysfunction; collecting data needed to calculate the Sequential Organ Failure Assessment (SOFA) score is one reasonable systematic approach.

Lactate

Blood lactate is not a specific diagnostic test for sepsis and elevations can exist for many reasons.[41] Nonetheless, lactate elevations correlate with a higher risk of short-term mortality.[20,42] We endorse the use of venous lactate specimens because this approximates arterial lactate values, is supported by most sepsis literature, and facilitates more timely sampling.

Convenient thresholds used to note abnormal elevation in blood lactate are >2.0 mmol/L (evidence of cellular dysfunction) and >4.0 mmol/L (evidence of more severe cellular dysfunction).[20,43,44] Just as increasing lactate concentration correlates with worsening clinical status and increased risk of death, declining lactate levels with resuscitation are favorable indicators.[41,45]

We agree that obtaining an initial lactate level aids in characterizing sepsis patients, but routinely repeating measurement in a patient who is clinically improving is not beneficial unless the initial lactate level was at least 4

mmol/L. The optimal timing to define changes in lactate that indicate meaningful improvement is not known, but a common practice includes measuring lactate in 2-hour intervals, with a 10% relative decline in lactate between measurements indicating improvement.[45]

SOFA Score

The Sequential Organ Failure Assessment (SOFA) scoring system organizes and classifies sepsis-associated organ dysfunction. Like many similar tools, the trajectory of the SOFA score has more prognostic and therapeutic utility than a singular measurement.[20,46] Using the SOFA system to characterize sepsis severity also facilitates serial assessments and communication across providers by supplying a shared nomenclature.

The SOFA score assesses dysfunction across 6 organ systems—respiratory, coagulation, liver, cardiovascular, central nervous system, and renal—with a score for each system ranging from 0 (no dysfunction) to 4 (most severe dysfunction) (Table 3). The total SOFA score is the sum of the component scores for each of the 6 systems, resulting in a range from 0 (no dysfunction) to 24 (most severe dysfunction).

We recommend testing to assess organ function, which also allows SOFA scoring. Collecting SOFA score data (Table 3) entails an assessment of oxygenation, complete blood count with platelet count, liver function tests with serum total bilirubin concentration, blood pressure and need for vasopressors, Glasgow Coma Scale score, and a basic chemistry panel with serum creatinine concentration. Using the original SOFA criteria, scoring respiratory system dysfunction depends on availability of a PaO2 value to calculate a PaO2/FiO2 ratio. We do not advocate performing an arterial blood gas only to obtain PaO2 for the purposes of calculating a respiratory SOFA score. Patients with a change in SOFA score of ≥2 points compared to pre-illness baseline have life-threatening organ dysfunction and an inhospital mortality risk ≥10%.[20,47]

We recommend adaptations of the SOFA score to make it more feasible for ED assessment (Table 3). In Table 3, we included pulse oximetry (SpO2) values on specific oxygen flow rates that approximate PaO2/FiO2 thresholds in the original SOFA scoring system.[48] SpO2 and supplemental oxygen flow rate do not precisely correlate with PaO2 and FiO2, however, these parameters can provide an estimate for the severity of respiratory dysfunction that is much more feasible in common ED practice. Another option is the modified SOFA (mSOFA), tested in the ED.[49,50]

The "quick SOFA" (qSOFA) scoring tool sought to simplify the key aspects of SOFA scoring for identification of patients at highest risk for poor outcomes. Drawn from ED and hospitalized patients, the qSOFA score identifies infected patients at higher risk of death if 2 or more of the following features are present: respiratory rate of ≥22/min, altered mental status, and systolic blood pressure ≤100 mm Hg.[20] ED-based validation studies show that qSOFA is a less sensitive and more specific for short-term mortality than the 2001 SIRS criteria.[19] Screening with qSOFA is potentially useful for identifying patients at the highest risk for clinical deterioration and need for intensive care but is not sensitive enough to be used as the sole strategy for sepsis screening. It also was not intended to *identify* patients with infection, as it was developed to assess outcomes in patients already diagnosed with infection. Only one in three patients who are qSOFA-positive on admission has infection, and one in six has sepsis. The qSOFA score also has low sensitivity for identifying suspected infection and sepsis, and its prognostic significance is not specific to infection. More sensitive and specific tools for sepsis screening and risk stratification are needed.[51]

Based on the absence of a single optimal screening method to accurately capture those with sepsis, we think clinicians should employ multiple complementary approaches to identify those with infection accompanied by organ dysfunction to aid care.

Intravenous Fluid and Timing of Vasopressors

Key Points / Recommendations:

(1) We recommend delivering an IV fluid bolus during initial management of patients who have hypotension or findings of hypoperfusion absent signs of fluid overload.

- *We do not recommend a prespecified volume or body mass-adjusted volume of fluid for all patients, though we recognize many patients benefit from 30 cc/kg of crystalloid. We believe patient response is the best indicator of the appropriateness of fluid resuscitation volume, rather than a prespecified volume.*
- *We do not recommend a specific minimum fluid amount before starting vasopressor support.*
  i. *Vasopressor support may be coupled with plasma volume expansion to prevent cardiovascular collapse in those with severe hypotension or life-threatening hypoperfusion without requiring that a fluid administration threshold be reached prior to vasopressor initiation.*
- *We recommend serial exams using more than one bedside tool to assess the adequacy of resuscitation, with no one approach demonstrated as superior to alternative approaches.*

(2) We recommend balanced crystalloid solutions (Ringer's solution or Plasmalyte) as the primary resuscitation fluid in sepsis, especially if volumes >1 L are used.

- *Saline infusions can create hyperchloremic metabolic acidosis and may impair renal performance in commonly prescribed resuscitative doses.*

Fluid Volume and Concurrent Titration of Vasopressors

Despite the widespread use of IV fluids for the management of sepsis, there remains controversy regarding the volume and rate of fluid administration.[52] For the past two decades, large mean volumes of IV fluid (eg, >3000 to 5000 mL) have been common in the care of ED patients with sepsis, especially those with septic shock.[53] While IV fluid loading can optimize cardiac pre-load, recent data suggest that the effects of a fluid bolus on hemodynamics are often transient—an observation that may find some explanation in the well-described capillary leak observed with life-threatening infection.[54,55] Recognition of secondary abdominal compartment syndrome and combined outcomes such as the major adverse kidney event (MAKE) assessment show excessive fluid administration can worsen clinical outcomes.[56-58] Determining how much fluid a given patient needs to abrogate hypovolemia remains a vexing issue. While so doing, one must vigilantly monitor for unintended fluid overload during resuscitation. Furthermore, certain clinical entities may degrade the elasticity of the cardiopulmonary system, as described during the SARS-CoV-2 pandemic, establishing additional concerns regarding fluid prescription titration.[59]

Many trials have used body-mass-based IV fluid dosing (20 or 30 cc/Kg) to guide initial fluid resuscitation, but rigorous clinical trials of different volumes of IV fluids are challenging to conduct because of variation in comorbidities, time of presentation, and prevalence of obesity. Practical issues limit the feasibility of body-mass based

dosing, including poor estimates of body mass and unit does of 500 mL and 1000 mL, which makes for natural break-points to asses for clinical response. Finally, sepsis patients treated in observational studies with the largest volumes of IV fluid had less favorable outcomes; raising the question of whether large and continued boluses of fluid improve clinical outcomes.[58,60-63]

We do not believe data to support a singular body-mass based volume for all or most patients, though we recognize many will receive and respond to certain targets like 30 mL/kg. We believe any new guidelines should incorporate titration and response assessment along with defined aliquots, including body-mass based, to optimally improve care. However, some patients will need more than the current guideline-suggested volume, while others may need less or volume administered at a different rate. These different patient elements require bedside reevaluation during the course of resuscitation. Administration of an initial volume of 500 to 1000 mL of crystalloid is a common and reasonable practice as it affords the opportunity to gauge the patient's response to the bolus, does not establish an endpoint for fluid therapy, and provides early insight into the need for concomitant vasopressor support.

The assessment of fluid status and fluid responsiveness is commonly desired to guide care. Table 4 highlights methods currently available to clinicians to help with volume status assessment.[64,65] None of these methods is clearly superior to the others at improving sepsis survival as they are only some of the tools available to the bedside clinician to manage sepsis patients. In practice, using multiple tools to guide therapy is preferred.

In addition to simple volume assessment maneuvers, quantitative methods to predict which patients will respond favorably to a fluid bolus ("fluid responsiveness") exist. These methods include measuring collapsibility of the inferior vena cava with bedside ultrasound, directly measuring stroke volume in response to a fluid bolus, and measuring the change in stroke volume or cardiac output in response to a passive leg raise (Table 4).[64-68] While these methods are physiologically rational, clinical outcome data are insufficient at this time to support a recommendation for their use.

Fluid Type

The two major categories of resuscitation fluids are isotonic crystalloids and colloids (Figure 1). Extravascular leakage of fluid is a physiologic hallmark of sepsis. Infusion of large volumes of crystalloid can contribute to extravascular leakage (edema), which potentially interferes with cellular function, including in the kidneys, liver, heart and lungs.[54,69,70] The use of colloids is based on the theory that higher weight molecules limit extravascular leakage and increase long-term intravascular volume.[71] Colloids have properties that *potentially* make them a better choice for sepsis resuscitation than crystalloids, but sepsis physiology leads to increased capillary permeability, limiting the physiologic benefit in disease. Clinical outcome data have not consistently demonstrated superiority of colloids compared with crystalloids.[72-75] The lack of established benefit and the higher cost of colloids lead to a task force recommendation for crystalloid solutions over colloids for initial volume expansion in sepsis.

Among crystalloids, the primary choices are saline (0.9% sodium chloride or "normal saline") and balanced crystalloids.[71] Saline contains a supra-physiologic concentration of chloride (154 mmol/L), which can lead to hyperchloremic metabolic acidosis and may increase renal inflammation and impair renal perfusion.[76,77] Balanced crystalloids have a more physiologic electrolyte composition and include lactated Ringer's solution (chloride concentration 109 mmol/L), Plasmalyte (chloride concentration 98 mmol/L) and Normosol-R (chloride concentration 98 mmol/L).[71] Recent data suggest fluid resuscitation with balanced crystalloids leads to improved patient outcomes

compared with saline among a general ED population, those who are critically ill, and those with sepsis.[78-80] Data supporting sepsis patient resuscitation using balanced crystalloids over saline is largely based on single-center trials.[78-80] The results of ongoing multicenter trials will more fully characterize the comparative effects of balanced crystalloids and saline, but we believe that current evidence coupled with known risks of saline is sufficient to favor the use of balanced crystalloids for those with sepsis.[81]

Vasopressors

Key Points / Recommendations:

(1) We recommend norepinephrine as the first-line vasopressor for patients with septic shock.

(2) We recommend titrating vasopressors to maintain mean arterial pressure (MAP) ≥65 mm Hg in most patients.

(3) Early vasopressor use can be administered through a well secured non-distal peripheral IV catheter.

Norepinephrine is the preferred first-line agent for patients with septic shock.[82,83] We recommend initiating vasopressor therapy with titration of norepinephrine as the sole initial vasopressor. Adding vasopressin (0.03 to 0.04 U/min) is a reasonable approach to reduce norepinephrine requirements and decrease complications, especially at high doses.[83,84] In patients with ongoing hypotension despite high doses of norepinephrine, or in patients with echocardiographic evidence of myocardial depression, epinephrine is a second-line vasopressor and inotropic agent.[85,86]

We recommend titrating vasopressors to maintain MAP ≥65 mm Hg unless the patient has baseline hypertension and evidence of hypoperfusion with MAP>65.[87,88] Consider titration of vasopressors to achieve improvement in markers of organ perfusion (urine output, lactate) as an approach to management of patients with baseline hypertension.

Central venous access was historically required before initiating vasopressor therapy in many sites. This practice impacts early sepsis care by delaying the initiation of vasopressor infusion therapy which may increase large-volume fluid administration while awaiting catheter placement, evaluation and clearance for use. Current limited data suggest that early use of peripheral norepinephrine administration through large-bore peripheral IV catheters for short intervals with appropriate monitoring is safe during resuscitation.[89-93]

Antimicrobials

Key Points / Recommendations:

(1) We recommend early antibiotics once sepsis is diagnosed. The strongest recommendation for initial intravenous antibiotics is reserved for a suspected diagnosis of septic shock—that is, patients with infection and any hypotension or hypoperfusion.

- *While shorter time to antibiotics is preferred, the evidence does not support a clear time interval recommendation within which a first dose of antibiotics must be administered.*
- *Emerging data will help address the impact of the timing of subsequent doses, especially for patients who remain in the ED due to the lack of an appropriate inpatient bed.*
- *Antivirals are less clearly time sensitive in the earliest phases of disease.*

(2) For sepsis patients without an identified pathogen, we recommend initiation of broad-spectrum antibiotics with activity against gram-negative and gram-positive bacteria according to local susceptibility patterns.

Antimicrobials: General Principles

Most sepsis patients receive initial doses of antimicrobials in the ED prior to the availability of culture results. In general, clinicians should base the initial selection of antimicrobials on the most likely and most harmful potential pathogens rather than selection targeted at a specific pathogen, unless the clinical presentation directs such a focused approach. Narrow-spectrum therapy is uncommon and not be anticipated in usual practice. Clinicians should treat patients with broad spectrum antibacterial agents, with additional coverage for influenza or fungal infections in specific patients, both of which have been characterized in guidelines or consensus documents that may be further informed and adjusted by local patient population appropriate antibiogram data.[37,94-103]

Timing of Antibiotics

While some data suggest earlier antibiotics are associated with better survival,[5,104-107] other data suggest that small variation in the timing of a first dose of antibiotics is not associated with mortality differences.[30,108,109] Guidelines often outline time-based approaches to drive earlier action—for example, "we recommend antibiotics by 1 hour". We agree that once the diagnosis of sepsis is established, rapid and comprehensive therapy—not just antibiotic administration—is optimal. But the current data do not recommend a singular time target to be declared that clearly improves outcomes for all. In those with the most severe form of sepsis—septic shock—the data and collective experience support a shorter time window; otherwise, the time/outcome relationship is less clear.[110,111]

Viruses

Viral infections, such as those cause by influenza and SARS-CoV-2, can cause sepsis. Specific treatment recommendations for these viral infections are beyond the scope of this effort. Antiviral therapy can be initiated in the ED though no timing threshold data exist.

Fungi

Fungi can trigger sepsis, and the most common cause of fungal sepsis is *Candida*. Risk factors for invasive *Candida* infection include: prior invasive *Candida* infection, current *Candida* colonization, total parenteral nutrition, recent major abdominal surgery, recent exposure to broad-spectrum antibiotics, recent prolonged hospitalization, acute necrotizing pancreatitis, neutropenia, chronic corticosteroid use, and chronic indwelling vascular catheters.[95] In patients with risk of fungal sepsis, antifungal therapy with activity for likely pathogens should be initiated in the ED.[112,113]

<u>Infection Source Control</u>

Key Points / Recommendations:

(1) We recommend early identification of infections requiring source control, and we recommend early consultation and procedural intervention to control infection sources.

(2) No specific timing threshold for achieving source control exists currently.

When infections are suspected that have an easily removable source (eg, indwelling vascular access catheter, soft tissue abscess), early action is appropriate. Focal sources of infection should prompt consultation by procedural specialists for source control, including: tunneled vascular catheters, hemodialysis lines, vascular ports, implanted devices, infected ureteral stones, biliary ductal obstruction with cholangitis, deep space or body cavity abscesses, intestinal perforation or obstruction with ischemia, necrotizing soft tissue infection, and complications of infections such as that related to *C difficile* colitis.[114] Source control should not delay the initiation of resuscitation and antibiotics, recognizing that resuscitation and source control often need to occur concurrently.

TITRATION OF CARE

Titration of care after initial resuscitation is relevant to emergency care providers, especially when sepsis patients board in the ED awaiting inpatient bed availability or interfacility transfer.

Ongoing fluid administration

Key Points / Recommendations:

(1) Fluid administration after an initial bolus should be based on serial assessments of the patient and response to therapy.

(2) No singular assessment approach is superior, and we recommend using multiple assessments including basic vital signs and physical examination methods (a clinical evaluation) and/or more advanced physiologic measurements (quantitative evaluation) at multiple time intervals.

(3) If using a quantitative resuscitation approach, we recommend dynamic measures over static measures.

Up to 50% of patients with septic shock fail to increase cardiac output in response to fluid administration by, and when fluid loading does lead to increased cardiac output, the response is often transient.[54,65,115-118] Identifying patients who respond to fluids is one way to tailor an appropriate volume of fluid administration. Septic shock can present as a combination of preload-dependent, distributive, and cardiogenic shock, and all patients with ongoing hypotension or elevated lactate after initial fluid resuscitation need repeat hemodynamic assessment.

Since no specific method of hemodynamic assessment in treating sepsis patients is clearly superior in altering survival, we present two approaches: (1) a *clinical evaluation*, which focuses on basic assessment techniques that are widely available in emergency care settings; and (2) a *quantitative evaluation*, which uses more advanced assessment methods with equipment and expertise that may not be available in all emergency care settings. Both clinical and quantitative evaluations are reasonable approaches for monitoring and serial assessment. Using either method, a key principle is that sepsis assessment should use multiple parameters iteratively to guide therapy.

Clinical Evaluation

The clinical evaluation uses changes in vital signs and the physical exam to assess response to care. While vital signs (eg, blood pressure and heart rate) and physical examination findings are poorly sensitive markers when

taken alone, changes in these parameters are often important indicators to guide therapy. Patients who improve with the initial bolus of fluid are candidates for subsequent fluid boluses, using aliquots (such as, 500 to 1000 mL) followed by repeat serial clinical examinations to evaluate response to fluid administration and evidence of volume overload (Table 4). Clinicians may assess peripheral perfusion (eg, capillary refill), which in one trial performed similarly to lactate clearance in identifying adequacy of fluid resuscitation and selecting fluid resuscitation volumes.[119]

Quantitative Evaluation

Quantitative measures of cardiovascular function assess physiologic changes in response to fluid administration. Current data do not support improved survival with any specific quantitative evaluation, but quantitative methods add insight to those titrating shock therapy. The term *quantitative evaluation* encompasses both static and dynamic measures of volume status. Static measures (eg, central venous pressure) are typically pressures or volumes measured in isolation, while dynamic measures evaluate physiologic changes in response to a fluid bolus, passive leg raise, or respiratory variation. We recommend using dynamic measures over static measures because dynamic measures are stronger predictors of a patient's clinical response to fluid administration.[120]

Many dynamic measures exist, including pulse pressure variation, stroke volume variation, passive leg raise measurement with continuous stroke volume or cardiac output measurement, inferior vena cava collapsibility on ultrasound, and the aortic valve velocity time integral.[64,65,121-126] At this time, no data exist to demonstrate that specific dynamic measures are associated with survival more than others.

Vascular Access and Invasive Monitoring

Key Points / Recommendations:

(1) Vasopressor administration through peripheral intravenous or intraosseous catheters that are monitored for signs of good functioning is acceptable for short-term use.

(2) Invasive hemodynamic devices, including central venous and arterial catheters, may aid but are not routinely needed in early sepsis care.

Septic shock patients may have vasopressor therapy initiated through large, well-functioning peripheral intravenous catheters or intraosseous catheters without delay for central venous access. Monitor peripheral catheters used for vasopressor therapy frequently for signs of malfunction or extravasation and obtain central venous access if access challenges exist or if prolonged therapy is anticipated.[90,91,127]

During the early period of resuscitation, non-invasive blood pressure measurement is reasonable, especially if blood pressure normalizes with fluid or vasopressor administration.[128-131] Patients with poor or unreliable blood pressure measurements by non-invasive blood pressure cuffs may benefit from arterial catheter placement for blood pressure monitoring and titration of therapy.

Subsequent Doses of Antibiotics

Key Points / Recommendations:

(1) Patients who remain in the ED for prolonged periods must have subsequent doses of antibiotics administered according to the optimal dosing schedule for each medication.

For patients remaining in the ED for prolonged periods, second and subsequent doses of antibiotics are important to optimize the antimicrobial effect. These doses must be scheduled and administered regardless of where the patient is located. Delays in follow-up antibiotics are associated with worse outcomes, and EDs must ensure safe transitions and ongoing dosing.[132]

Adjunctive Early Sepsis Therapies

Key Points / Recommendations:

(1) ***Routine*** *corticosteroid therapy does not benefit sepsis patients unless there is concomitant adrenal insufficiency or the patient is on high-dose corticosteroid therapy for comorbid disease management prior to the onset of sepsis.*

(2) Other adjuncts including angiotensin II (or analogues), vitamin C, vitamin D, and thiamine—alone or in combination—lack strong evidence supporting benefit and are not recommended.

Patients with sepsis who have been chronically taking corticosteroid therapy,[133] or who have pre-existing adrenal insufficiency should receive stress-dose hydrocortisone (50 to 100 mg IV). However, outside selected sepsis patients, routine corticosteroid use has been controversial. An early randomized trial showed improved survival in patients with poor adrenal response ("relative adrenal insufficiency") and very high illness severity.[134] Subsequent trials have shown varying results, with most recent evidence suggesting corticosteroid therapy may speed resolution of shock and shorten intensive care unit and hospital length-of-stay. Recent meta-analyses have come to varying conclusions on the impact of steroids on mortality, and some now recommended its use.[135-142] We believe that steroids may have a role in patients with hypotension resistant to vasopressor therapy but that is uncertain; otherwise, the current data do not support routine use outside of adrenal failure or suppression or to treat another condition (eg, immune-modulated respiratory failure.)

Other sepsis adjuncts, such as combination therapy with vitamin C, thiamine, and hydrocortisone, as well as novel therapeutics such as angiotensin-II have insufficient evidence to recommend incorporation into routine ED practice.[58,143-145]

Role of Inter-Hospital Transfer, Inpatient Boarding and Care Transitions in Sepsis Management

Key Points / Recommendations:

(1) ED boarding (defined as prolonged care awaiting inpatient transfer) presents additional risk for sepsis patients. If local facilities do not have the capabilities to promptly care for critically ill patients, we recommend transfer of sepsis patients from the initial ED to an accepting facility with capabilities for managing these patients.

(2) Each institution should develop a plan that defines explicit accountability of who to care for sepsis patients receiving prolonged ED care.

Some facilities do not have the capability to manage patients with complex infections or organ failure syndromes.[146,147] In those centers, prompt recognition and identification for inter-hospital transfer is key and may parallel existing injury-related care transfer approaches. Because of the importance of early antimicrobial therapy and resuscitation, delivery of antibiotics, IV fluids, and/or vasopressors should be started prior to transfer and as noted earlier. Some high-performing regional sepsis networks include collaboration with referral centers, providing feedback about patient outcomes and screening for subsequent inpatient transfers.

Inpatient boarding (eg, prolonged ED care while awaiting inpatient bed availability) is linked to increased mortality in observational studies of patients with severe infection.[106,148-154] Hypothesized reasons for worse outcomes include delayed administration of subsequent doses of antibiotics, limited monitoring resulting in delayed recognition in changes in patient status, high patient-to-nurse ratios, and provider focus on new patient evaluation.[151,155] To optimize outcomes, we advise prioritizing septic shock patients for early inpatient bed availability due to increase resource and time demands in care management. Furthermore, hospitals should develop systems to provide the needed care for patients with sepsis who remain in an ED while awaiting an inpatient bed.[155] During periods of boarding, some facilities incorporate procedures whereby inpatient physician or nurse teams assume care of admitted patients in the ED. These procedures should be clearly delineated so that all members of the care team understand who is responsible and accountable for care. Other facilities have dedicated spaces for critical care management, while others, as noted earlier, have dedicated spaces, teams and supplies. During transitions of care between hospitals, treatment units, or providers, we recommend timely provider-to-provider and nurse-to-nurse communication and the use of standardized care transition protocols.

RELATED CONTROVERSIES

Key Points / Recommendations:

(1) We support recommendations and quality assessment tools required by government or regulatory bodies as an important way to improve the outcomes of those with sepsis, and we believe these should be based on the best available evidence and should undergo regular reevaluation.

(2) The creation of recommendations, guidelines, and quality assessment tools must include input from all relevant stakeholders engaged at each phase of care and must incorporate assessment of impact on both targeted patients and on others receiving care.

Quality Metrics

Guidelines for sepsis care include standardized recommendations, such as the Severe Sepsis and Septic Shock (SEP-1) quality reporting measure within the National Hospital Inpatient Quality Reporting program,[156] and the Surviving Sepsis Campaign Guidelines. We recognize that these and other efforts raise awareness and performance and potentially improve outcomes. It is also key to recognize that some clinical realities trigger situation-dependent decision making that is requisite for management of the ED sepsis patient. Instead, those decisions may reflect unique patient physiology or response to therapy that requires rapid readjustment. When faced with such clinical challenges, bedside clinicians should not be penalized for responding to patient response to therapy.

When seeking to improve sepsis care, the input of experts with emergency care backgrounds is essential alongside that of other experts to ensure that the important early steps align with knowledge and capabilities of the emergency care system. Those creating recommendations, guidelines or quality metrics should reach to this pool of partners to optimize the applicability of what is considered to be optimal and feasible care.

Sepsis Care in Constrained Settings

We focused on care settings with advanced emergency and critical care medicine capabilities, including close hemodynamic monitoring, administration of vasopressors, and mechanical ventilation. We recognize that resource constrained settings place practical limitations on the care options available; care must be modified in those settings. For example, recent clinical trials in settings where different patient and pathogen patterns exist and where advanced critical care capabilities are uncommon suggest lower volumes of IV fluid administration may lead to better patient outcomes.[56,57] Sepsis remains a leading cause of death in the world, especially in the very young and very old and resource limited settings. Improving care in these settings must be distinct in composition from highly resourced hospitals in the United States.

CONCLUSION

Our multidisciplinary task force identified opportunities to improve recommendations, guidance and quality metrics for early sepsis care. The recommendations within this document seek to foster the next set of improvements for a leading cause of mortality. We identified many specific content and process opportunities where research and collaboration could advance care, health and outcomes. These include clear opportunities to guide fluid, vasopressor and antibiotic therapy, and thoughts on ancillary care and future guideline development. Optimal future sepsis recommendations will rely upon a collaborative multiple stakeholder engagement approach to evaluating current processes, designing iterative improvements, and discovering new knowledge in the quest to conquer sepsis.

TABLES

Table 1. Evolution of sepsis definitions.

	First Consensus Definitions (1991)[18]	***Second Consensus Definitions (2001)***[19]	***Third Consensus Definitions (2016)***[20]
Infection	Pathology caused by invasion of normally sterile environment by pathogenic microorganisms	No change	Not defined
Sepsis	Inflammatory response from infection with the systemic inflammatory response syndrome (SIRS) criteria proposed to define an inflammatory response	Suspected or confirmed infection with ≥2 SIRS criteria, defined as below: - Temperature of >38^{0}C or <36^{0}C - Heart Rate >90 beats per minute - Respiratory Rate >20 breaths per minute or PaO2 <32 mmHg - White blood cell count >12000 or <4000 cells/mm^3 or >10% band neutrophils	Organ dysfunction (defined by increase in SOFA score by 2 or more points) caused by dysregulated response to infection with a threat to survival
Severe Sepsis	Sepsis associated with organ dysfunction	Sepsis with organ dysfunction, defined as any of the following: - Hypotension - lactate 2 mmol/L or greater - international normalized ratio >1.5 - creatinine >2.1 mg/dL or urine output <0.5 mL/kg/hr - platelet count <110,000/L - oxygen saturation <90%	Eliminated (now redundant with "sepsis")
Septic Shock	Sepsis with concurrent hypotension despite adequate fluid resuscitation plus perfusion abnormalities, such as elevated lactate, low urine output or altered mental status	Sepsis with concurrent hypotension despite adequate fluid resuscitation	Sepsis with vasopressors required to maintain MAP >65 mmHg and lactate >2 mmol/L after fluid resuscitation

Table 2. Key principles in the initial management of patients with suspected sepsis in the prehospital setting and emergency department.

Topic	Prehospital	Emergency Department
Evaluation for source of infection	Obtain historical elements of when the patient became ill and time course of symptoms.	Focused history and physical exam. Recommended testing includes bacterial and viral specimens for culture or analysis, urinalysis, chest x-ray, and selective cross-sectional imaging as directed by presenting signs, symptoms, and the results of other diagnostic tests.
Severity assessment	Obtain vital signs. Administer supplemental oxygen to maintain SpO2 ≥92%.	Assess for organ dysfunction via physical exam and laboratory assessment. Recommended evaluation for most patients includes blood lactate, complete blood count with differential, chemistry panel, liver function tests, mental status assessment, cardiovascular assessment (heart rate, blood pressure), and respiratory assessment (rate, work of breathing, SpO2). Administer supplemental oxygen to maintain ≥92%).
Treatment and prevention of hypotension	Establish whether hypotension is present, typically defined as a MAP <65 mm Hg or SBP <90-100.	Use IV fluids and/or vasopressors to resolve hypotension/hypoperfusion.
Intravenous fluid	We recommend using a bolus of isotonic crystalloid (a balanced crystalloid solution is preferred) in patients with a systolic blood pressure <100 mm Hg and without signs of fluid overload. An initial administration of 500 mL to 1000 mL of isotonic crystalloid is an acceptable, common approach.	Current data do not identify a specific fluid volume that optimizes patient outcomes. In patients with SBP <100 mm Hg, MAP <65 mm Hg, or with other signs of hypoperfusion and without signs of fluid overload, initial administration of 500 mL to 2000 mL (or up to approximately 30 mL/kg) of isotonic crystalloid is an acceptable, common approach. Frequent assessments of fluid status and assessment of the hemodynamic response to fluid administration should guide whether additional fluid is given. Balanced crystalloid solutions are the preferred type of fluid.
Vasopressors	Insufficient data are available to make a recommendation about administration of prehospital vasopressors.	The timing of vasopressor use – after how much volume and based on what response – is not evidence based. Many initiate a vasopressor infusion (norepinephrine recommended as first-line therapy) for profound shock or persistent hypotension after initial IV fluid delivery. Earlier vasopressor use before completing a set volume of fluid administration may be an acceptable alternative. Vasopressors may be administered by peripheral intravenous line or intraosseous line without central venous access. Titrate vasopressors to maintain MAP ≥65 mm Hg.
Antibiotics	Insufficient data are available to make a recommendation about administration of prehospital antibiotics.	While we recommend prompt administration of antibiotics in the ED, we reserve very short time thresholds for those with infection and shock, and note there are insufficient data to recommend a specific time threshold for administration of antibiotics. In a patient without a confirmed source of infection, broad spectrum antibiotics with activity against gram-negative and gram-positive bacteria according to local antibiotic susceptibility should be administered. Patients with identified source of infection (eg, pneumonia, UTI) may have therapy targeted according to source-specific guidelines.
Infection Source Control	No specific action.	Remove accessible temporary devices that appear infected (e.g., temporary urinary and vascular catheters). Consult surgical and/or procedural specialists for evaluation of patients with infectious sources potentially amenable to procedural source control (e.g., abscess, necrotizing soft tissue infection, toxic megacolon).

Table 3. The Sequential Organ Failure Assessment (SOFA) scoring system modified for use in the ED. Modified from Singer et al[20] and Vincent et al[46]

System (measurement)	Score 0	1	2	3	4	Recommended action in ED
Respiratory						
PaO2/FiO2 ratio	≥400	300 to 399	200 to 299 or <200 without invasive or non-invasive ventilation	100 to 199 with invasive or non-invasive ventilation	<100 with invasive or non-invasive ventilation	Assess SpO2 without supplemental oxygen if feasible. Apply oxygen to maintain SpO2 ≥92%. Note SpO2 and oxygen delivery once SpO2 has stabilized at ≥92%.
Approximate SpO_2 & oxygen delivery						
Without invasive or non-invasive ventilation	SpO2 ≥97% on room air	SpO2 92% to 96% on room air	Supplemental O2 to maintain SpO2 ≥92%	n/a	n/a	
With invasive or non-invasive ventilation	SpO2 97% to 100%		SpO2 92% to 96% on FiO2=0.3	FiO2 0.31 to 0.69 to maintain SpO_2 ≥92%	FiO2 ≥0.7 to maintain SpO2 ≥92%	
Coagulation						
Platelets ($10^3/\mu L$)	≥150	100 to 149	50 to 99	20 to 49	<20	Obtain CBC with platelet count.
Liver						
Total bilirubin (mg/dL)	<1.2	1.2 to 1.9	2.0 to 5.9	6.0 to 11.9	>12.0	Obtain liver function tests with total bilirubin concentration.
Cardiovascular						
MAP & vasopressor use	MAP ≥70 without vasopressors	MAP <70 without vasopressors	Dopamine <5 or dobutamine any dose	Dopamine 5.1 to 15, or epinephrine ≤0.1, or norepinephrine ≤0.1	Dopamine >15, or epinephrine >0.1, or norepinephrine >0.1	Assess initial MAP. Initiate fluid resuscitation. Administer vasopressors as needed to maintain MAP ≥65 mm HG.
Central nervous system						
Glasgow Coma Scale	15	13 to 14	10 to 12	6 to 9	<6	Note highest Glasgow Coma Scale in ED (after resuscitation).
Renal						
Serum creatinine (mg/dL)	<1.2	1.2 to 1.9	3.0 to 3.4	3.5 to 4.9	≥5.0	Obtain chemistry panel with creatinine concentration.

Table 4. Signs that can assist clinicians with evaluating patient volume status.	
Clinical Signs of Hypoperfusion	**Clinical Signs of Fluid Overload**
SBP <100 mm Hg (or less than baseline SBP for patients with baseline SBP <100 mm Hg)[20]	Development of pulmonary crackles with fluid administration
MAP <65 mm Hg (or less than baseline MAP for patients with baseline MAP <65 mm Hg)	Increased jugular venous distension with fluid administration
Heart rate >110 /minute	Increased work of breathing with fluid administration
Shock index (heart rate / SBP) >1.0	Increased hypoxemia with fluid administration
Elevated serum lactate	Chest x-ray signs of pulmonary edema
Peripheral capillary refill time >3 seconds[119]	Ultrasound signs consistent with pulmonary edema (eg, B-lines)
Depressed mental status	
Decreased urine output (<0.5 mL/kg/hour)	

FIGURES

Figure 1. Major types of intravenous fluid available for resuscitation. We recommend balanced crystalloid solutions as the primary fluid type for resuscitation in sepsis. We do not recommend using colloids.

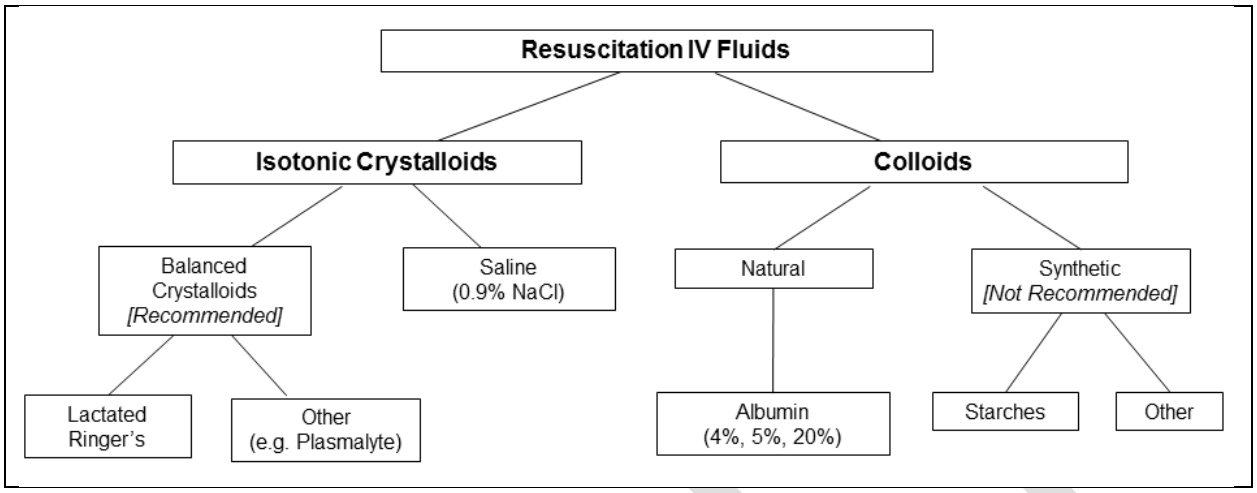


Figure 2. Organizations involved in the development of the recommendations

Organizations that participated and endorsed the recommendations

- American College of Emergency Physicians
- American Academy of Emergency Medicine
- American College of Osteopathic Emergency Physicians
- American Osteopathic Board of Emergency Medicine
- Association of Academic Chairs of Emergency Medicine
- Council of Emergency Medicine Residency Directors
- Emergency Medicine Residents' Association
- Emergency Nurses Association
- National Association of EMS Physicians
- Society for Academic Emergency Medicine
- Society of Hospital Medicine

Organizations that participated and provided input on the recommendations

- American College of Emergency Physicians
- American Academy of Emergency Medicine
- American Board of Emergency Medicine
- American College of Chest Physicians
- American College of Osteopathic Emergency Physicians
- American Osteopathic Board of Emergency Medicine
- American Thoracic Society
- Association of Academic Chairs of Emergency Medicine
- Council of Emergency Medicine Residency Directors
- Emergency Medicine Residents' Association
- Emergency Nurses Association
- Infectious Diseases Society of America
- National Association of EMS Physicians
- Society for Academic Emergency Medicine
- Society for Hospital Medicine
- Society of Critical Care Medicine

REFERENCES

1. Rhee C, Jones TM, Hamad Y, Pande A, Varon J, O'Brien C, Anderson DJ, Warren DK, Dantes RB, Epstein L, Klompas M; Centers for Disease Control and Prevention (CDC) Prevention Epicenters Program. Prevalence, underlying causes, and preventability of sepsis-associated mortality in US acute care hospitals. *JAMA Netw Open*. 2019;2:e187571.

2. Wang HE, Jones AR, Donnelly JP. Revised national estimates of emergency department visits for sepsis in the United States. *Crit Care Med*. 2017;45:1443-1449.

3. Gaieski DF, Edwards JM, Kallan MJ, Carr BG. Benchmarking the incidence and mortality of severe sepsis in the United States. *Crit Care Med*. 2013;41:1167-1174.

4. Wang HE, Szychowski JM, Griffin R, et al. Long-term mortality after community-acquired sepsis: a longitudinal population-based cohort study. *BMJ Open*. 2014;4:e004283.

5. Seymour CW, Gesten F, Prescott HC, et al. Time to treatment and mortality during mandated emergency care for sepsis. *N Engl J Med*. 2017;376:2235-2244.

6. Motzkus CA, Lilly CM. Accountability for sepsis treatment: The SEP-1 Core Measure. *Chest*. 2017;151:955-957.

7. Venkatesh AK, Slesinger T, Whittle J, et al. Preliminary performance on the new CMS sepsis-1 national quality measure: early insights from the Emergency Quality Network (E-QUAL). *Ann Emerg Med*. 2018;71:10-15.

8. Centers for Disease Control and Prevention. Sepsis. Available at: https://www.cdc.gov/sepsis/index.html. Accessed February 11, 2020.

9. Hatfield KM, Dantes RB, Baggs J, et al. Assessing variability in hospital-level mortality among U.S. Medicare beneficiaries with hospitalizations for severe sepsis and septic shock. *Crit Care Med*. 2018;46:1753-1760.

10. Walkey AJ, Shi.e.h MS, Liu VX, et al. Mortality measures to profile hospital performance for patients with septic shock. *Crit Care Med*. 2018;46:1247-1254.

11. Rhee C, Dantes R, Epstein L, et al. Incidence and trends of sepsis in US hospitals using clinical vs claims data, 2009-2014. *JAMA*. 2017;318:1241-1249.

12. Wang HE, Weaver MD, Shapiro NI, et al. Opportunities for emergency medical services care of sepsis. *Resuscitation*. 2010;81:193-197.

13. Femling J, Weiss S, Hauswald E, et al. EMS patients and walk-in patients presenting with severe sepsis: differences in management and outcome. *South Med J*. 2014;107:751-756.

14. Barbash IJ, Davis B, Kahn JM. National performance on the Medicare SEP-1 Sepsis Quality Measure. *Crit Care Med*. 2019;47:1026-1032.

15. Rhodes A, Evans LE, Alhazzani W, et al. Surviving Sepsis Campaign: International Guidelines for Management of Sepsis and Septic Shock: 2016. *Crit Care Med*. 2017;45:486-552.

16. American College of Emergency Physicians. Sepsis: ACEP Statement on SSC Hour-1 Bundle. Available at: https://www.acep.org/by-medical-focus/sepsis/. Accessed June 4, 2020.

17. Weiss SL, Peters MJ, Alhazzani W, et al. Surviving Sepsis Campaign international guidelines for the management of septic shock and sepsis-associated organ dysfunction in children. *Pediatr Crit Care Med*. 2020;21:e52-e106.

18. Bone RC, Sprung CL, Sibbald WJ. Definitions for sepsis and organ failure. *Crit Care Med*. 1992;20:724-726.

19. Levy MM, Fink MP, Marhsall JC, et al. 2001 SCCM/ESICM/ACCP/ATS/SIS International Sepsis Definitions Conference. *Intensive Care Med*. 2003;29:530-538.

20. Singer M, Deutschman CS, Seymour CW, et al. The third international consensus definitions for sepsis and septic shock (Sepsis-3). *JAMA*. 2016;15:801-810.

21. Marchick MR, Kline JA, Jones AE. The significance of non-sustained hypotension in emergency department patients with sepsis. *Intensive Care Med*. 2009;35:1261-1264.

22. Heffner AC, Horton JM, Marchick MR, et al. Etiology of illness in patients with severe sepsis admitted to the hospital from the emergency department. *Clin Infect Dis*. 2010;50:814-820.

23. Klein Klouwenberg PM, Cremer OL, van Vught LA, et al. Likelihood of infection in patients with presumed sepsis at the time of the intensive care unit admission: a cohort study. *Crit Care*. 2015;19:319.

24. Burston J, Adhikari S, Hayen A, et al. A role for antimicrobial stewardship in clinical sepsis pathways: a prospective interventional study. *Infect Control Hosp Epidemiol*. 2017;38:1032-1038.

25. Rhee C, Klompas M. Sepsis trends: increasing incidence and decreasing mortality, or changing denominator? *J Thorac Dis*. 2020;12(Suppl 1):S89-S100.

26. Rivers E, Nguyen B, Havstad S, et al. Early goal-directed therapy in the treatment of severe sepsis and septic shock. *N Engl J Med*. 2001;345:1368-1377.

27. ProCESS Investigators, Yealy DM, Kellum JA, et al. A randomized trial of protocol-based care for early septic shock. *N Engl J Med*. 2014;370:1683-1693.

28. Mouncey PR, Osborn TM, Power GS, et al. Trial of early, goal-directed resuscitation for septic shock. *N Engl J Med*. 2015;372:1301-1311.

29. ARISE Investigators, ANZICS Clinical Trials Group, Peake SL, et al. Goal-directed resuscitation for patients with early septic shock. *N Engl J Med*. 2014;371:1496-1506.

30. Alam N, Oskam E, Stassen PM, et al. Prehospital antibiotics in the ambulance for sepsis: a multicentre, open label, randomized trial. *Lancet Respir Med*. 2018;6:40-50.

31. Mayr FB, Yende S, Linde-Zwirble WT, et al. Infection rate and acute organ dysfunction risk as explanations for racial differences in severe sepsis. *JAMA*. 2010;303:2495-2503.

32. Garnacho-Montero J, Gutiérrez-Pizarraya A, Escoresca-Ortega A, et al. De-escalation of empirical therapy is associated with lower mortality in patients with severe sepsis and septic shock. *Intensive Care Med*. 2014;40:32-40.

33. Dellit TH, Owens RC, McGowan JE, et al. Infectious Diseases Society of America and the Society for Healthcare Epidemiology ProCESS of America guidelines for developing an institutional program to enhance antimicrobial stewardship. *Clin Infect Dis*. 2007;44:159-177.

34. Cheng MP, Stenstrom R, Paquette K, et al. Blood culture results before and after antimicrobial administration. *Ann Intern Med*. 2020;172:440-441.

35. Baron EJ, Miller JM, Weinstein MP, et al. A guide to utilization of the microbiology laboratory for diagnosis of infectious diseases: 2013 recommendations by the Infectious Diseases Society of America (IDSA) and the American Society for Microbiology (ASM)(a). *Clin Infect Dis*. 2013;57:e22-121.

36. Self WH, Speroff T, Grijalva CG, et al. Reducing blood culture contamination in the emergency department: an interrupted time series quality improvement study. *Acad Emerg Med*. 2013;20:89-97.

37. Uyeki TM, Bernstein HH, Bradley JS, et al. Clinical practice guidelines by the Infectious Diseases Society of America: 2018 update on diagnosis, treatment, chemoprophylaxis, andiInstitutional outbreak management of seasonal influenzaa. *Clin Infect Dis*. 2019;68:895-902.

38. Upchurch CP, Grijalva CG, Wunderink RG, et al. Community-acquired pneumonia visualized on CT scans but not chest radiographs: pathogens, severity, and clinical outcomes. *Chest*. 2018;153:601-610.

39. Claessens Y-E, Debray M-P, Tubach F, et al. Early chest computed tomography scan to assist diagnosis and guide treatment decision for suspected community-acquired pneumonia. *Am J Respir Crit Care Med*. 2015;192:974-982.

40. Emmi V, Sganga G. Clinical diagnosis of intra-abdominal infections. *J Chemother*. 2009;21 Suppl 1:12-18.

41. Kraut JA, Madias NE. Lactic acidosis. *N Engl J Med*. 2014;371:2309-2319.

42. Shankar-Hari M, Phillips GS, Levy ML, et al. Developing a new definition and assessing new clinical criteria for septic shock: for the third international consensus definitions for sepsis and septic shock (Sepsis-3). *JAMA*. 2016;315:775-787.

43. Khosravani H, Shahpori R, Stelfox HT, Kirkpatrick AW, Laupland KB. Occurrence and adverse effect on outcome of hyperlactatemia in the critically ill. *Crit Care*. 2009;13:R90.

44. Shapiro NI, Howell MD, Talmor D, et al. Serum lactate as a predictor of mortality in emergency department patients with infection. *Ann Emerg Med*. 2005;45:524-528.

45. Jones AE, Shapiro NI, Trzeciak S, et al. Lactate clearance vs central venous oxygen saturation as goals of early sepsis therapy: a randomized clinical trial. *JAMA*. 2010;303:739-746.

46 Vincent JL, Moreno R, Takala J, et al. The SOFA (Sepsis-related Organ Failure Assessment) score to describe organ dysfunction/failure. On behalf of the Working Group on Sepsis-Related Problems of the European Society of Intensive Care Medicine. *Intensive Care Medicine*. 1996;22:707-710.

47. Seymour CW, Liu VX, Iwashyna TJ, et al. Assessment of clinical criteria for sepsis: for the Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3). *JAMA*. 2016;315:762-774.

48 Brown SM, Duggal A, Hou PC, et al. Nonlinear imputation of PaO2/FIO2 from SpO2/FIO2 among mechanically ventilated patients in the ICU: a prospective, observational study. *Critical Care Medicine*. 2017;45:1317-1324.

49. Grissom CK, Brown SM, Kuttler KG, et al. A modified sequential organ failure assessment score for critical care triage. *Disaster Med Public Health Prep*. 2010;4:277-284.

50. Raymond NJ, Nguyen M, Allmark S, et al. Modified sequential organ failure assessment sepsis score in an emergency department setting: Retrospective assessment of prognostic value. *Emerg Med Australas*. 2019;31:339-346.

51. Anand V, Zhang Z, Kadri SS, et al. Epidemiology of quick sequential organ failure assessment criteria in undifferentiated patients and association with suspected infection and sepsis. *Chest*. 2019;156:289-297.

52. Self WH, Semler MW, Bellomo R, et al. Liberal versus restrictive intravenous fluid therapy for early septic shock: rationale for a randomized trial. *Ann Emerg Med*. 2018;72:457-466.

53. Nguyen HB, Jaehne AK, Jayaprakash N, et al. Early goal-directed therapy in severe sepsis and septic shock: insights and comparisons to ProCESS, ProMISe, and ARISE. *Crit Care*. 2016;20:160.

54. Glassford NJ, Eastwood GM, Bellomo R. Physiological changes after fluid bolus therapy in sepsis: a systematic review of contemporary data. *Crit Care*. 2014;18:696.

55. Nunes TSO, Ladeira RT, Bafi AT, de Azevedo LCP, Machado FR, Freitas FGR. Duration of hemodynamic effects of crystalloids in patients with circulatory shock after initial resuscitation. *Ann Intensive Care*. 2014;4:25.

56. Maitland K, Kiguli S, Opoka RO, et al. Mortality after fluid bolus in African children with severe infection. *N Engl J Med*. 2011;364:2483-2495.

57. Andrews B, Semler MW, Muchemwa L, et al. Effect of an early resuscitation protocol on in-hospital mortality among adults with sepsis and hypotension: a randomized clinical trial. *JAMA*. 2017;318:1233-1240.

58. Marik PE, Linde-Zwirble WT, Bittner EA, Sahatjian J, Hansell D. Fluid administration in severe sepsis and septic shock, patterns and outcomes: an analysis of a large national database. *Intensive Care Med*. 2017;43:625-632.

59. Kazory A, Ronco C, McCullough PA. SARS-CoV-2 (COVID-19) and intravascular volume management strategies in the critically ill. *Proc (Bayl Univ Med Cent)*. 2020;0:1-6.

60. Boyd JH, Forbes J, Nakada T, Walley KR, Russell JA. Fluid resuscitation in septic shock: a positive fluid balance and elevated central venous pressure are associated with increased mortality. *Crit Care Med*. 2011;39:259-65.

61. Micek ST, McEvoy C, McKenzi.e. M, Hampton N, Doherty JA, Kollef MH. Fluid balance and cardiac function in septic shock as predictors of hospital mortality. *Crit Care*. 2013;17:R246.

62. Acheampong A, Vincent J-L. A positive fluid balance is an independent prognostic factor in patients with sepsis. *Crit Care*. 2015;19:251.

63. Sakr Y, Rubatto Birri PN, Kotfis K, et al. Higher fluid balance increases the risk of death from sepsis: results from a large international audit. *Crit Care Med*. 2017;45:386-394.

64. Monnet X, Marik P, Teboul J-L. Passive leg raising for predicting fluid responsiveness: a systematic review and meta-analysis. *Intensive Care Med*. 2016;42:1935-1947.

65. Bentzer P, Gri.e.sdale DE, Boyd J, MacLean K, Sirounis D, Ayas NT. Will this hemodynamically unstable patient respond to a bolus of intravenous fluids? *JAMA*. 2016;316:1298-1309.

66. Muller L, Bobbia X, Toumi M, et al. Respiratory variations of inferior vena cava diameter to predict fluid responsiveness in spontaneously breathing patients with acute circulatory failure: need for a cautious use. *Crit Care*. 2012;16:R188.

67. Lanspa MJ, Grissom CK, Hirshberg EL, Jones JP, Brown SM. Applying dynamic parameters to predict hemodynamic response to volume expansion in spontaneously breathing patients with septic shock. *Shock*. 2013;39:155-160.

68. Latham HE, Bengtson CD, Satterwhite L, et al. Stroke volume guided resuscitation in severe sepsis and septic shock improves outcomes. *J Crit Care*. 2017;42:42-46.

69. Maitland K, George EC, Evans JA, et al. Exploring mechanisms of excess mortality with early fluid resuscitation: insights from the FEAST trial. *BMC Med*. 2013;11:68.

70. Marik PE. Iatrogenic salt water drowning and the hazards of a high central venous pressure. *Ann Intensive Care*. 2014;4:21.

71. Myburgh JA, Mythen MG. Resuscitation fluids. *N Engl J Med*. 2013;369:1243-1251.

72. Perner A, Haase N, Guttormsen AB, et al. Hydroxyethyl starch 130/0.42 versus Ringer's acetate in severe sepsis. *N Engl J Med*. 2012;367:124-134.

73. Caironi P, Tognoni G, Masson S, et al. Albumin replacement in patients with severe sepsis or septic shock. *N Engl J Med*. 2014;370:1412-1421.

74. Finfer S, Bellomo R, Boyce N, et al. A comparison of albumin and saline for fluid resuscitation in the intensive care unit. *N Engl J Med*. 2004;350:2247-2256.

75. Jiang L, Jiang S, Zhang M, Zheng Z, Ma Y. Albumin versus other fluids for fluid resuscitation in patients with sepsis: a meta-analysis. *PLoS ONE*. 2014;9:e114666.

76. Wilcox CS. Regulation of renal blood flow by plasma chloride. *J Clin Invest*. 1983;71:726-735.

77. Zhou F, Peng Z-Y, Bishop JV, Cove ME, Singbartl K, Kellum JA. Effects of fluid resuscitation with 0.9% saline versus a balanced electrolyte solution on acute kidney injury in a rat model of sepsis*. *Crit Care Med*. 2014;42:e270-278.

78. Self WH, Semler MW, Wanderer JP, et al. Balanced crystalloids versus saline in noncritically ill adults. *N Engl J Med*. 2018;378:819-828.

79. Semler MW, Self WH, Wanderer JP, et al. Balanced crystalloids versus saline in critically ill adults. *N Engl J Med*. 2018;378:829-839.

80. Brown RM, Wang L, Coston TD, et al. Balanced crystalloids versus saline in sepsis: a secondary analysis of the SMART clinical trial. *Am J Respir Crit Care Med*. 2019;1487-1495.

81. Young PJ. Balanced crystalloids or 0.9% saline in sepsis: beyond reasonable doubt? *Am J Respir Crit Care Med*. 2019;200:1456-1458.

82. Avni T, Lador A, Lev S, Leibovici L, Paul M, Grossman A. Vasopressors for the treatment of septic shock: systematic review and meta-analysis. *PLoS ONE*. 2015;10:e0129305.

83. Russell JA, Walley KR, Singer J, et al. Vasopressin versus norepinephrine infusion in patients with septic shock. *N Engl J Med*. 2008;358:877-887.

84. McIntyre WF, Um KJ, Alhazzani W, et al. Association of vasopressin plus catecholamine vasopressors vs catecholamines alone with atrial fibrillation in patients with distributive shock: a systematic review and meta-analysis. *JAMA*. 2018;319:1889-1900.

85. Annane D, Vignon P, Renault A, et al. Norepinephrine plus dobutamine versus epinephrine alone for management of septic shock: a randomised trial. *Lancet*. 2007;370:676-684.

86. Myburgh JA, Higgins A, Jovanovska A, et al. A comparison of epinephrine and norepinephrine in critically ill patients. *Intensive Care Med*. 2008;34:2226-2234.

87. Asfar P, Meziani F, Hamel J-F, et al. High versus low blood-pressure target in patients with septic shock. *N Engl J Med*. 2014;370:1583-1593.

88. Lamontagne F, Meade MO, Hébert PC, et al. Higher versus lower blood pressure targets for vasopressor therapy in shock: a multicentre pilot randomized controlled trial. *Intensive Care Med*. 2016;42:542-550.

89. Permpikul C, Tongyoo S, Viarasilpa T, Trainarongsakul T, Chakorn T, Udompanturak S. Early use of norepinephrine in septic shock resuscitation (CENSER). A randomized trial. *Am J Respir Crit Care Med*. 2019;199:1097-1105.

90. Cardenas-Garcia J, Schaub KF, Belchikov YG, Narasimhan M, Koenig SJ, Mayo PH. Safety of peripheral intravenous administration of vasoactive medication. *J Hosp Med*. 2015;10:581-585.

91. Loubani OM, Green RS. A systematic review of extravasation and local tissue injury from administration of vasopressors through peripheral intravenous catheters and central venous catheters. *J Crit Care*. 2015;30:653.e9-17.

92. Lewis T, Merchan C, Altshuler D, Papadopoulos J. Safety of the peripheral administration of vasopressor agents. *J Intensive Care Med*. 2019;34:26-33.

93. Delaney A, Finnis M, Bellomo R, et al. Initiation of vasopressor infusions via peripheral versus central access in patients with early septic shock: A retrospective cohort study. *Emerg Med Australas*. 2020;32:210-219.

94. Tunkel AR, Hartman BJ, Kaplan SL, et al. Practice guidelines for the management of bacterial meningitis. *Clin Infect Dis*. 2004;39:1267-1284.

95. Pappas PG, Kauffman CA, Andes DR, et al. Clinical practice guideline for the management of Candidiasis: 2016 update by the Infectious Diseases Society of America. *Clin Infect Dis*. 2016;62:e1-50.

96. Hooton TM, Bradley SF, Cardenas DD, et al. Diagnosis, prevention, and treatment of catheter-associated urinary tract infection in adults: 2009 international clinical practice guidelines from the Infectious Diseases Society of America. *Clin Infect Dis*. 2010;50:625-663.

97. Metlay JP, Waterer GW, Long AC, et al. Diagnosis and treatment of adults with community-acquired pneumonia. An official clinical practice guideline of the American Thoracic Society and Infectious Diseases Society of America. *Am J Respir Crit Care Med*. 2019;200:e45–67.

98. Lipsky BA, Berendt AR, Cornia PB, et al. 2012 Infectious Diseases Society of America clinical practice guideline for the diagnosis and treatment of diabetic foot infections. *Clin Infect Dis*. 2012;54:e132-173.

99. Baddour LM, Wilson WR, Bayer AS, et al. Infective endocarditis in adults: diagnosis, antimicrobial therapy, and management of complications: a scientific statement for healthcare professionals from the American Heart Association. *Circulation*. 2015;132:1435-1486.

100. Solomkin JS, Mazuski JE, Bradley JS, et al. Diagnosis and management of complicated intra-abdominal infection in adults and children: guidelines by the Surgical Infection Society and the Infectious Diseases Society of America. *Clin Infect Dis*. 2010;50:133-164.

101. Liu C, Bayer A, Cosgrove SE, et al. Clinical practice guidelines by the Infectious Diseases Society of America for the treatment of methicillin-resistant Staphylococcus aureus infections in adults and children. *Clin Infect Dis*. 2011;52:e18-55.

102. Stevens DL, Bisno AL, Chambers HF, et al. Practice guidelines for the diagnosis and management of skin and soft tissue infections: 2014 update by the Infectious Diseases Society of America. *Clin Infect Dis*. 2014;59:e10-52.

103. Gupta K, Hooton TM, Naber KG, et al. International clinical practice guidelines for the treatment of acute uncomplicated cystitis and pyelonephritis in women: A 2010 update by the Infectious Diseases Society of America and the European Society for Microbiology and Infectious Diseases. *Clin Infect Dis*. 2011;52:e103-120.

104. Kumar A, Roberts D, Wood KE, et al. Duration of hypotension before initiation of effective antimicrobial therapy is the critical determinant of survival in human septic shock. *Crit Care Med*. 2006;34:1589-1596.

105. Ferrer R, Martin-Loeches I, Phillips G, et al. Empiric antibiotic treatment reduces mortality in severe sepsis and septic shock from the first hour: results from a guideline-based performance improvement program. *Crit Care Med*. 2014;42:1749-1755.

106. Peltan ID, Brown SM, Bledsoe JR, et al. ED door-to-antibiotic time and long-term mortality in sepsis. *Chest*. 2019;155:938-946.

107. Liu VX, Fi.e.lding-Singh V, Greene JD, et al. The timing of early antibiotics and hospital mortality in sepsis. *Am J Respir Crit Care Med*. 2017;196:856-863.

108. Sterling SA, Miller WR, Pryor J, Puskarich MA, Jones AE. The impact of timing of antibiotics on outcomes in severe sepsis and septic shock: a systematic review and meta-analysis. *Crit Care Med*. 2015;43:1907-1915.

109. Hranjec T, Rosenberger LH, Swenson B, et al. Aggressive versus conservative initiation of antimicrobial treatment in critically ill surgical patients with suspected intensive-care-unit-acquired infection: a quasi-experimental, before and after observational cohort study. *Lancet Infect Dis*. 2012;12:774-780.

110. Rhee C, Strich JR, Klompas M, et al. SEP-1 has brought much needed attention to improving sepsis care…but now is the time to improve SEP-1. *Crit Care Med*. 2020;48:779-782.

111. Weinberger J, Rhee C, Klompas M. A critical analysis of the literature on time-to-antibiotics in suspected sepsis. *J Infect Dis*. 2020;222(Supplement 2);S110-S118.

112. Garey KW, Rege M, Pai MP, et al. Time to initiation of fluconazole therapy impacts mortality in patients with candidemia: a multi-institutional study. *Clin Infect Dis*. 2006;43:25-31.

113. Morrell M, Fraser VJ, Kollef MH. Delaying the empiric treatment of candida bloodstream infection until positive blood culture results are obtained: a potential risk factor for hospital mortality. *Antimicrob Agents Chemother*. 2005;49:3640-3645.

114. Jimenez MF, Marshall JC, International Sepsis Forum. Source control in the management of sepsis. *Intensive Care Med*. 2001;27 Suppl 1:S49-62.

115. Michard F, Teboul JL. Predicting fluid responsiveness in ICU patients: a critical analysis of the evidence. *Chest*. 2002;121:2000-2008.

116. Lanspa MJ, Brown SM, Hirshberg EL, et al. Central venous pressure and shock index predict lack of hemodynamic response to volume expansion in septic shock: a prospective, observational study. *J Critical Care*. 2012;27:609-615.

117. Osman D, Ridel C, Ray P, et al. Cardiac filling pressures are not appropriate to predict hemodynamic response to volume challenge. *Crit Care Med*. 2007;35:64-68.

118. Marik PE, Cavallazzi R, Vasu T, et al. Dynamic changes in arterial waveform derived variables and fluid responsiveness in mechanically ventilated patients: a systematic review of the literature. *Crit Care Med*. 2009;37:2642-2647.

119. Hernández G, Ospina-Tascón GA, Damiani LP, et al. Effect of a resuscitation strategy targeting peripheral perfusion status vs serum lactate levels on 28-day mortality among patients with septic shock: the ANDROMEDA-SHOCK randomized clinical trial. *JAMA* 2019;321:654–64.

120. Bednarczyk JM, Fridfinnson JA, Kumar A, et al. Incorporating dynamic assessment of fluid responsiveness into goal-directed therapy: a systematic review and meta-analysis. *Crit Care Med.* 2017;45:1538-1545.

121. Yang X, Du B. Does pulse pressure variation predict fluid responsiveness in critically ill patients? A systematic review and meta-analysis. *Crit Care*. 2014;18:650.

122. Cherpanath TG, Hirsch A, Geerts BF, et al. Predicting fluid responsiveness by passive leg raising: a systematic review and meta-analysis of 23 clinical trials. *Crit Care Med*. 2016;44:981-991.

123. Joosten A, Desebbe O, Suehiro K, et al. Accuracy and precision of non-invasive cardiac output monitoring devices in perioperative medicine: a systematic review and meta-analysis. *Br J Anaesth*. 2017;118:298-310.

124. Zhang Z, Xu X, Ye S, et al. Ultrasonographic measurement of the respiratory variation in the inferior vena cava diameter is predictive of fluid responsiveness in critically ill patients: systematic review and meta-analysis. *Ultrasound Med Biol*. 2014;40:845-853.

125. Huang H, Shen Q, Liu Y, et al. Value of variation index of inferior vena cava diameter in predicting fluid responsiveness in patients with circulatory shock receiving mechanical ventilation: a systematic review and meta-analysis. *Crit Care*. 2018;22:204.

126. Orso D, Paoli I, Piani T, et al. Accuracy of ultrasonographic measurements of inferior vena cava to determine fluid responsiveness: a systematic review and meta-analysis. *J Intensive Care Med*. 2020;35:354-363.

127. Medlej K, Kazzi AA, El Hajj Chehade A, et al. Complications from administration of vasopressors through peripheral venous catheters: an observational study. *J Emerg Med*. 2018;54:47-53.

128. Wax DB, Lin HM, Leibowitz AB. Invasive and concomitant noninvasive intraoperative blood pressure monitoring: observed differences in measurements and associated therapeutic interventions. *Anesthesiology*. 2011;115:973-978.

129. Ribezzo S, Spina E, Di Bartolomeo S, et al. Noninvasive techniques for blood pressure measurement are not a reliable alternative to direct measurement: a randomized crossover trial in ICU. *ScientificWorldJournal*. 2014;2014:353628.

130. Riley LE, Chen GJ, Latham HE. Comparison of noninvasive blood pressure monitoring with invasive arterial pressure monitoring in medical ICU patients with septic shock. *Blood Press Monit*. 2017;22:202-207.

131. Lakhal K, Macq C, Ehrmann S, Boulain T, et al. Noninvasive monitoring of blood pressure in the critically ill: reliability according to the cuff site (arm, thigh, or ankle). *Crit Care Med*. 2012;40:1207-1213.

132. Leisman D, Huang V, Zhou Q, et al. Delayed second dose antibiotics for patients admitted from the emergency department with sepsis: prevalence, risk factors, and outcomes. *Crit Care Med*. 2017;45:956-965.

133. Broersen LH, Pereira AM, Jørgensen JOL, et al. Adrenal insufficiency in corticosteroids use: systematic review and meta-analysis. *J Clin Endocrinol Metab*. 2015;100:2171-2180.

134. Annane D, Sebille V, Charpentier C, et al. Effect of treatment with low doses of hydrocortisone and fludrocortisone on mortality in patients with septic shock. *JAMA*. 2002;288:862-871.

135. Sprung CL, Annane D, Keh D, et al. Hydrocortisone therapy for patients with septic shock. *N Engl J Med*. 2008;358:111-124.

136. Annane D, Bellissant E, Bollaert PE, et al. Corticosteroids for treating sepsis. *Cochrane Database of Syst Rev*. 2015;12:CD002243.

137. Rochwerg B, Oczkowski SJ, Siemieniuk RAC, et al. Corticosteroids in sepsis: an updated systematic review and meta-analysis. *Crit Care Med*. 2018;46:1411-1420.

138. Lamontagne F, Rochwerg B, Lytvyn L, et al. Corticosteroid therapy for sepsis: a clinical practice guideline. *BMJ*. 2018;362:k3284.

139. Annane D, Renault A, Brun-Buisson C, et al. Hydrocortisone plus fludrocortisone for adults with septic shock. *N Engl J Med*. 2018;378:809-818.

140. Venkatesh B, Finfer S, Cohen J, et al. Adjunctive glucocorticoid therapy in patients with septic shock. *N Engl J Med*. 2018;378:797-808.

141. Fang F, Zhang Y, Tang J, et al. Association of corticosteroids treatment with outcomes in adult patients with sepsis: a systematic review and meta-analysis. *JAMA Intern Med*. 2019;179:213-223.

142. Yao YY, Lin LL, Gu HY, et al. Are corticosteroids beneficial for sepsis and septic shock? Based on pooling analysis of 16 studies. *Front Pharmacol*. 2019;10:714.

143. Khanna A, English SW, Wang XS, et al. Angiotensin II for the treatment of vasodilatory shock. *N Engl J Med*. 2017;377:419-430.

144. Fowler AA 3rd, Truwit JD, Hite RD, et al. Effect of vitamin C infusion on organ failure and biomarkers of inflammation and vascular injury in patients with sepsis and severe acute respiratory failure: the CITRIS-ALI randomized clinical trial. *JAMA*. 2019;322:1261-1270.

145. Fujii T, Luethi N, Young PJ, et al. Effect of vitamin C, hydrocortisone, and thiamine vs hydrocortisone alone on time alive and free of vasopressor support among patients with septic shock: the VITAMINS randomized clinical trial. *JAMA*. 2020;323:423-431.

146. Gaieski DF, Edwards JM, Kallan MJ, et al. The relationship between hospital volume and mortality in severe sepsis. *Am J Respir Crit Care Med*. 2014;190:665-674.

147. Kocher KE, Haggins AN, Sabbatini AK, et al. Emergency department hospitalization volume and mortality in the United States. *Ann Emerg Med*. 2014;64:446-457.e6.

148. Chalfin DB, Trzeciak S, Likourezos A, et al. Impact of delayed transfer of critically ill patients from the emergency department to the intensive care unit. *Crit Care Med*. 2007;35:1477-83.

149. Al-Qahtani S, Alsultan A, Haddad S, et al. The association of duration of boarding in the emergency room and the outcome of patients admitted to the intensive care unit. *BMC Emerg Med*. 2017;17:34.

150. Zhang Z, Bokhari F, Guo Y, et al. Prolonged length of stay in the emergency department and increased risk of hospital mortality in patients with sepsis requiring ICU admission. *Emerg Med J*. 2019;36:82-87.

151. Gaieski DF, Agarwal AK, Mikkelsen ME, et al. The impact of ED crowding on early interventions and mortality in patients with severe sepsis. *Am J Emerg Med*. 2017;35:953-960.

152. Guttmann A, Schull MJ, Vermeulen MJ, et al. Association between waiting times and short term mortality and hospital admission after departure from emergency department: population based cohort study from Ontario, Canada. *BMJ*. 2011;342:d2983.

153. Morley C, Unwin M, Peterson GM, et al. Emergency department crowding: a systematic review of causes, consequences and solutions. *PloS One*. 2018;13:e0203316.

154. Singer AJ, Thode HC Jr, Viccellio P, et al. The association between length of emergency department boarding and mortality. *Acad Emerg Med*. 2011;18:1324-1329.

155. Mohr NM, Wessman BT, Bassin B, et al. Boarding of critically ill patients in the emergency department. *Crit Care Med*. 2020;48:1180-1187.

156. United States Department of Health & Human Services, Centers for Medicare & Medicaid Services. Hospital Inpatient Specifications Manuals. Available at: https://www.qualitynet.org/inpatient/specifications-manuals. Accessed June 5, 2020.

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: Michael Wadman, MD, FACEP
Chair, Rural Emergency Care Task Force

Jeffrey Goodloe, MD, FACEP
Board Liaison, Rural Emergency Care Task Force

Date: October 17, 2020

Subj: Rural Emergency Care Task Force

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

Recommendation

That the Board of Directors file the report of the Rural Emergency Care Task Force and determine the recommendations for implementation (Attachment A).

Background

An objective of the ACEP Strategic Plan calls for the College to "develop and implement solutions for workforce issues that promote and sustain quality and patient safety." Three specific tactics related to rural care are included in the Strategic Plan:

- Promote and provide training for emergency care clinicians who practice in rural and remote areas.
- Explore development of a rural acute care fellowship.
- Work with other stakeholders to encourage and support opportunities for EM residents to receive training in rural areas.

The Rural Emergency Care Task Force (RECTF) was appointed by ACEP President William Jaquis, MD, MSHQS, FACEP, in January 2020. The objectives assigned to the task force are outlined in the report and reflect the tactics in the Strategic Plan. The report provides an overview of the current state of rural emergency care related to workforce, resources, and education in addition to recommendations to address identified barriers.

Attachment A is the RECTF report with recommendations.

Prior Board Action

June 2015, accepted for information the Rural Emergency Medicine Task Force report..

June 2014, discussed the proposal from the Rural Emergency Medicine Section to support the Rural Emergency Medicine Education (REME) Program. Appointed a Rural Emergency Medicine Task Force.

October 2008, Substitute Resolution 19(08) Second Rural Workforce Task Force, referred to the Board. The intent of the resolution was met by the Future of EM Summit.

September 2003, accepted the report of the Rural Emergency Medicine Summit.

Fiscal Impact

Variable, depending on the recommendations the Board decides to implement. Many of the recommendations can be accomplished with budgeted staff time.

ACEP Rural Emergency Care Task Force 2020
Report to the ACEP Board of Directors
October 2020

Task Force Members: Carlos A. Camargo, Jr., MD, DrPH, FACEP (EM Workforce Section); John Cullen, MD (AAFP Board President); Scott Findley, MD (Telemedicine Section); Deborah Fletcher, MD, FACEP (EM Workforce Section); Melissa Fleegler, MD, FACEP; Jeffrey Goodloe, MD, FACEP (ACEP Board Liaison); Melanie Gibbons Hallman, DNP, CRNP, CEN, FNP, ACNP, ENP-C, TCRN, FAEN (AAENP); Stephen Jameson, MD, FACEP (Rural Section President); Lee Morrisette, PA-C (SEMPA); Diane Rimple, MD (CORD); Christopher Sampson, MD, FACEP (Academic Affairs Committee); Tracy Sanson, MD, FACEP (Locum Tenens Section); Michael C. Wadman, MD, FACEP (Chair); Brandon Wilkinson, DO (EMRA)

Executive Summary

The 2020 Rural Emergency Care Task Force, convened by the ACEP Board of Directors, began work in June 2020 and continued over the next four months addressing the assigned objectives using the listed methods and yielding recommendations as follows:

1. *Objective:* Review the data from the ongoing workforce study. Review the data regarding recent closure of rural hospitals. Provide an assessment and recommendations on the current and projected workforce.
   Methods: Review of current workforce study; original data analyses.
   Assessment: Current understaffing of rural emergency departments (ED) is likely to worsen and restricting this assessment to emergency medicine (EM) residency trained, EM board certified emergency physicians (EPs) provides a far worse situation and forecast. More rural EDs are closing than opening.

   Goals: **Support physicians, physician assistants (PA), and nurse practitioners (NP) currently staffing rural EDs, acknowledging prior training is often limited in formal EM, through EM-focused professional development activities. Develop strategies to avoid further rural ED closures.**

   Suggested ACEP actions:
   a. **Develop a recommended knowledge and experience base for non-EM board certified physicians who are working in rural areas. This should not be confused as a substitute for board certification. Require a period of mentorship with an EM board certified physician via telemedicine.**
   b. **Develop a recommended knowledge and experience base for PAs and NPs who are working in rural areas. Require a period of mentorship with an EM board certified physician via telemedicine.**
   c. **Work with the American Hospital Association and other specialty organizations to provide support for rural hospitals and practitioners.**

2. *Objective:* Review the outcomes of residency training programs with specific rural emphasis and make recommendations on ways to increase the number of board-certified EPs practicing in rural areas.
   Methods: Program director (PD) survey, structured interviews.

Assessment: Majority of PDs reported educational benefit of rural rotations. Rural rotations provide a bridge between academic training and community practice. Barriers to offering rural rotations during residency training include financing, housing, and supervision.

Goals: **Reduce barriers involving the credentials of a 'supervising physician' with the Accreditation Council for Graduate Medical Education (ACGME) Review Committee-Emergency Medicine (RC-EM). Enhance knowledge of rural training through collaboration with national groups. Establish loan repayment for EM residency graduates practicing in rural areas. Promote rural EM residency tracks.**

***Suggested ACEP actions*:**

a. Meet with RC-EM to discuss rural ED rotations and current barriers to these experiences.
b. Collaborate with CORD and EMRA to increase the options for rural ED rotations.
c. Highlight rural EM through ACEP Now articles.

3. *Objective:* Perform a needs assessment of our rural members, including equipment (eg, video laryngoscopes, ultrasound, etc.), consultation, education (physician, nursing, etc.), and policies.
Methods: Survey of ACEP Rural Emergency Medicine Section, American Academy of Emergency Nurse Practitioners (AAENP), and Society of Emergency Medicine Physician Assistants (SEMPA).
Assessment: Most rural sites report adequate equipment to provide care, and most required ACLS, ATLS, and PALS. Few rural sites required additional education or onboarding activities to address EM knowledge or procedural skills training.

Goals: **Develop a model onboarding for PAs and NPs practicing without EM board certified EP presence in rural EDs, to include EM specific knowledge and procedural skills training. Facilitate the utilization of telemedicine in rural sites to enable supervision by EM board certified physicians for initial onboarding supervision of PAs and NPs, as well as ongoing telemedicine availability.**

Suggested ACEP actions:

a. The Board of Directors should discuss the role of ACEP in driving improved quality of care in rural hospitals.
b. Create a document that outlines the recommended on-boarding for PAs and NPs in settings without EM board certified EPs, which would include specific knowledge and skills competency, as well as recommendations for supervision by EM board certified EPs.
c. Create a policy that advocates that hospitals without EM board certified physician coverage should have telemedicine availability for consultation.

4. *Objective:* Provide several models of successful rural care practices.
Methods: Review of several models of rural ED practice by expert panel. Discussions with rural ACEP members.
Assessment: Mayo and TeamHealth onboarding practices reviewed and summarized. Alternative programs for non-EM board certified physicians and PAs/NPs requiring additional EM knowledge and procedural skills training leading to other credentials and Certificates of Added Qualification (CAQs) reviewed. Review of low volume EDs to better understand challenges of staffing these sites.

Goal: Highlight institutions that have quality rural care practices such as the **Mayo model**

Suggested ACEP actions:

a. Conduct a study of low volume frontier ED practices to understand and address unique challenges of these sites (staffing, inpatient care).

b. Create ACEP Now articles and other communication devices to promote best practices.

5. *Objective:* Make recommendations on opportunities to improve rural emergency care including accreditation programs, incentives, and policies.
   Methods: Review and opinion of expert panel. Discussions with rural members.
   Assessment: Many rural EDs staffed by non-EM board-certified physicians, PAs, and NPs lack oversight/supervision by EM board certified physicians.

   Goals: **Develop a model onboarding curriculum for PAs and NPs practicing without EM board certified EP presence in rural EDs, to include EM specific didactic knowledge and procedural skills training. Encourage rural EDs to utilize telemedicine supervision by EM board-certified EPs for initial onboarding and supervision of PAs and NPs, as well as ongoing availability of telemedicine supervision and support.**

   Suggested ACEP action:
   a. As above, create a document with ACEP recommendations for onboarding and ongoing telemedicine supervision and support.

We would ask that the Board consider devoting some time at their retreat to discuss this paper and its recommendations, and specifically what ACEP can do to improve the quality of care provided in rural settings, and, where appropriate, add tactics to the strategic plan to develop appropriate programs.

Background

Rural emergency medicine (EM) represents a wide spectrum of clinical practice, often characterized by annual patient census, remoteness of location, ED/inpatient practice mix, and variable physician/PA/NP staffing. Regardless, both rural and urban EDs see high acuity and complex patients, and this common thread represents a major challenge of working in rural EDs. With rural EDs representing 53% of all hospitals in the US and 24% of total ED patient volume[1,2], the care provided at these sites significantly affects the overall health of the US population and, as such, demands the attention of our organization. ACEP recognized the discrepancies in quality of care between urban and rural sites and past rural task force recommendations and ongoing work to encourage EM residency trained/EM board certified physicians to migrate to those rural EDs. Unfortunately, despite a 28% increase in EM residency positions over the past 10 years[3,4], we see no corresponding increase in EM residency trained or EM board certified physicians working in rural EDs.[3]

Review of summaries from previous rural task forces, specifically those from 2003 and 2015, indicates that the challenges we face today are not new. The 2020 Rural Emergency Care Task Force (RECTF) is faced with the following questions:

1. What we can do here and now to improve care for rural emergency patients? and
2. What recommendations can we make to improve rural emergency care into the future?

The 2020 RECTF used the following prioritization of guiding principles in completing our work and making recommendations to the ACEP Board of Directors:

1. Patient care and patient safety
2. Physician/PA/NP needs and interests
3. Medical facility needs and interests

With quality patient care as our guiding principle, we recommend that ACEP should:

1. **Determine how to better support EPs currently working in in rural EDs, acknowledging a spectrum of residency training and board certification status.**
2. **Collaborate with hospitals and other healthcare systems to develop strategies to avoid further rural ED closures, including ongoing support of the Critical Access Hospital (CAH) program.**
3. **Further study small, low volume rural EDs, based on annual patient census and location, to better address specifics unique to rural care delivery.**
4. **Encourage EM residencies to incorporate rural EM practice into their clinical curricula, working with ACGME and RC-EM to reduce accreditation barriers PDs cite as currently limiting rural training opportunities.**
5. **Investigate mid-career EP practice preferences with an objective to identify and educate how rural practice may meet many such preferences.**
6. **Collaborate with other national organizations, such as the American Academy of Family Physicians (AAFP), to address needs of non-EM residency trained, non-EM board certified physicians working in rural EDs, specifically through EM-focused professional development resources, promoting additional education and ongoing support from EM board certified EPs via telemedicine.**
7. **Collaborate with other national organizations (such as SEMPA and AAENP) to address needs of PAs and NPs working in rural EDs, specifically through EM-focused professional development resources, promoting additional education and supervised clinical experience before beginning any work in an ED without the presence of a EM board-certified EP, followed by ongoing telemedicine support from EM board certified EPs.**

Our hope is to have key stakeholder organizations join ACEP in support of these recommendations to improve rural emergency care.

Objective 1: Review the data from the ongoing workforce study. Review the data regarding recent closure of rural hospitals. Provide as assessment and recommendations on the current and projected workforce

Dr. Carlos Camargo, chaired this workgroup.

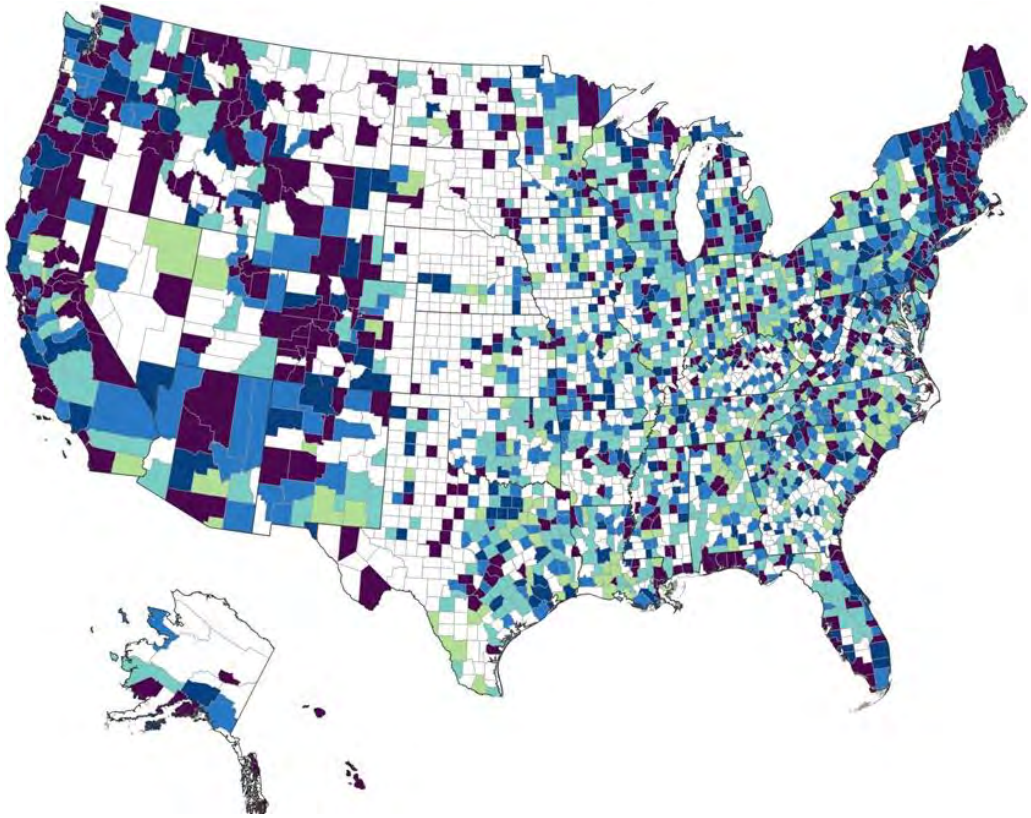
Objective 1 workgroup members met with Dr Catherine Marco, chair of the ACEP Emergency Physician Workforce Task Force; reviewed the relevant rural emergency care literature; and performed original research to fill identified knowledge gaps. A brief summary of our findings is provided here.

Rural Emergency Physician Workforce

The recent workforce publication by Bennett et al[3] provided highly relevant data. Briefly, the authors analyzed the 2020 American Medical Association Physician Masterfile dataset to identify all 48,835 clinically active EPs in the US. Of these EPs, 81% were EM residency trained or EM board-certified; the most common alternate training pathways for EPs were family medicine (33%), internal medicine (24%), or surgery (12%).

Based on the county-based Urban Influence Codes[4], the vast majority of US EPs were in urban areas (92%), while 2,730 (6%) were in large rural areas and 1,197 (2%) were in small rural areas. Figure 1 shows the EP density per 100,000 population by county; panel A shows all EPs, while panel B shows EM residency trained or EM board certified EPs. Urban EPs were younger (median age 50 years) than those in large rural areas (median age 58 years) or small rural areas (median age 62 years); the interquartile range for small rural areas was 51 to 68 years (ie, one-quarter of small rural area EPs are 68 years old or older.

A



B

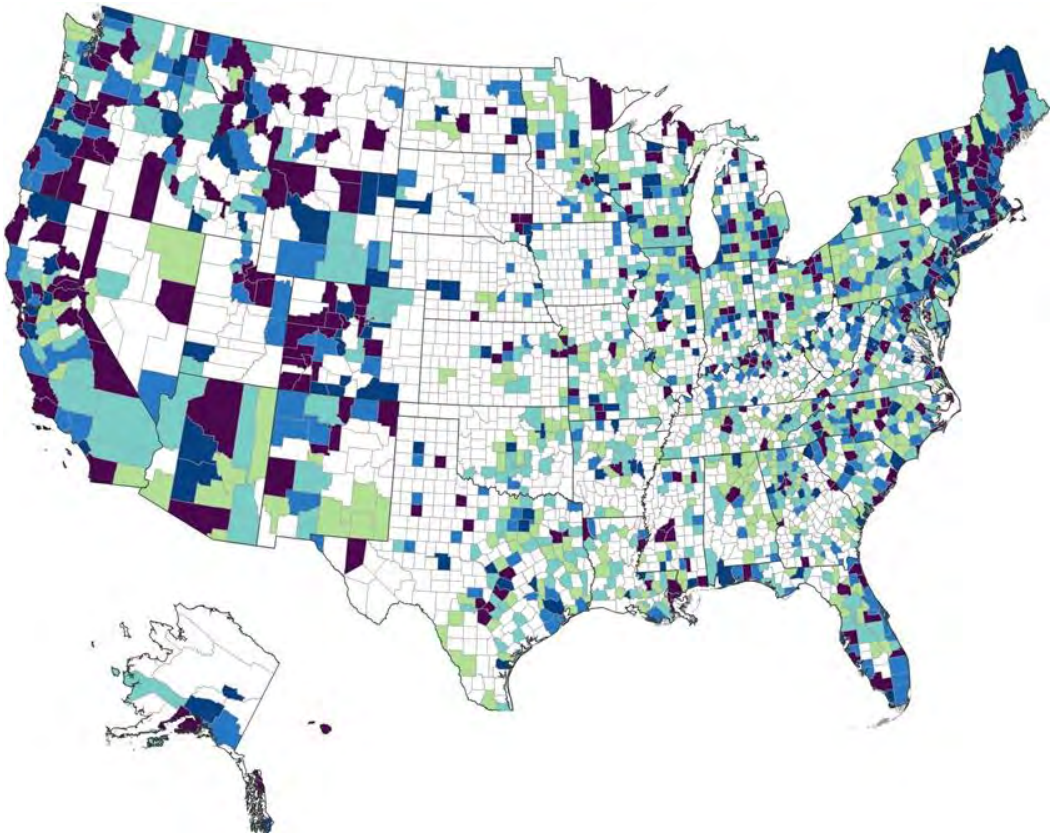


Figure 1: Emergency physician density per 100,000 population by county. A, All emergency physicians. B, Emergency medicine–trained or emergency medicine board-certified emergency physicians. Three hundred fifty-eight emergency physicians (1%) had missing county-level population data and could not be classified.[3]

Compared with a comparable study on 2008 EP workforce[1], the total number of clinically active EPs has increased by 9,774 (Figure 1A); however, per 100,000 population in 2020, EP density has decreased in both large rural (-0.4) and small rural (-3.7) areas (Figure 1B).

Rural Hospital Closures

The popular press often reports on the closure of individual rural EDs, but current national data are lacking. Accordingly, the committee undertook original research to better understand recent trends in rural ED openings and closures. Briefly, the National ED Inventory (NEDI)-USA database contains basic information about all non-federal, non-specialty US EDs open 24 hours per day, 7 days per week, and 365 days per year.[5] Per NEDI-USA, there were 1,899 rural EDs open in 2018, with rural defined using the county-based Urban Influence Codes.[2] Rural EDs comprised 34% of all 5,514 US EDs in 2018.

Between 2002 and 2018, there were 82 rural ED openings and 137 rural ED closures, with a net loss of 55 rural EDs over the 17 years. Figure 2 shows the net number of rural ED closures and openings per year, with an early surplus (2004-2005) and consistent deficits in the years since.

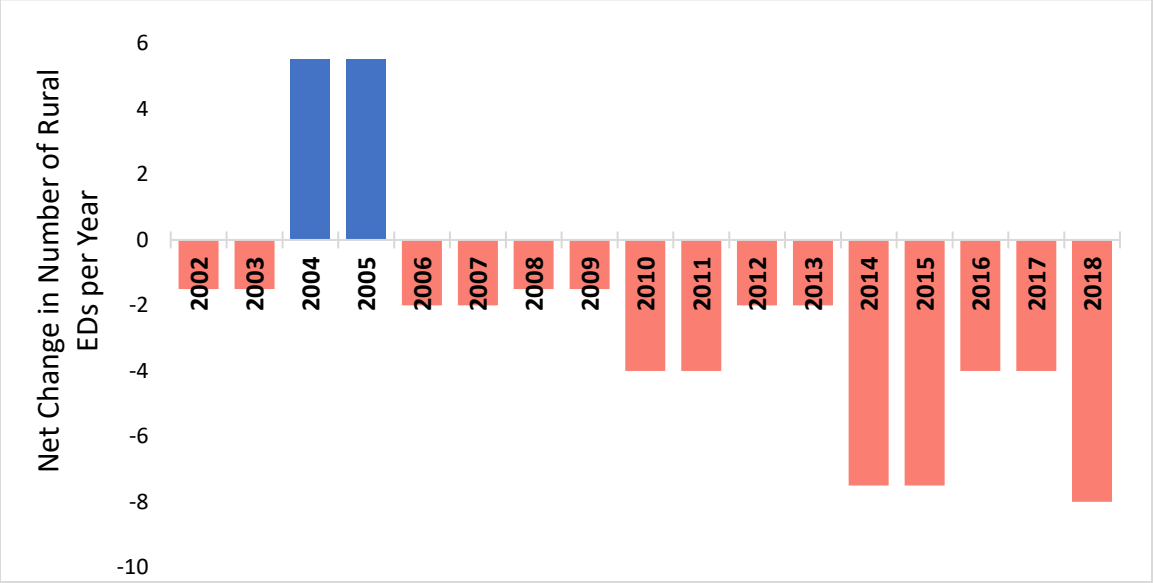


Figure 2: Net number of rural ED closures and openings per year between 2001-2018. *Reprinted from EMNet/NEDI website with permission.*[5]

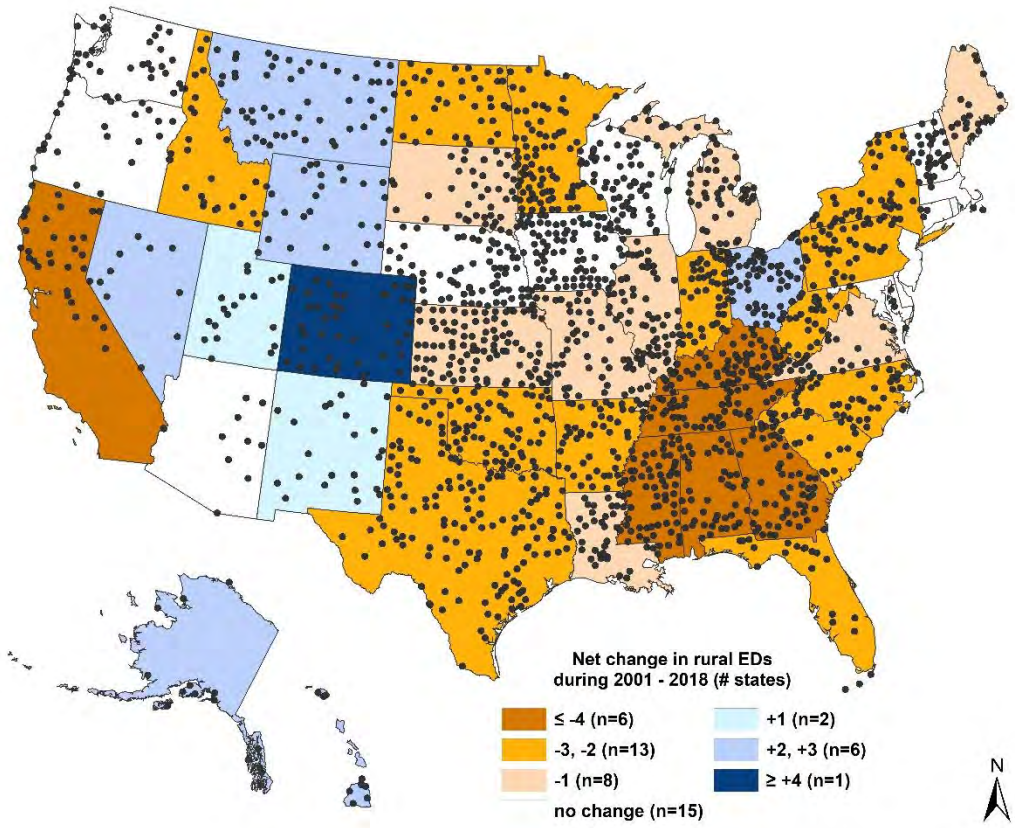


Figure 3: Location of rural EDs in 2018, with state specific summary of net gain or loss of rural EDs since 2001. *Reprinted from EMNet/NEDI website with permission.*[5]

The change in the number of rural US EDs also varied by state. Figure 3 shows the location of rural EDs in 2018, and shading indicates which states had gained, lost, or retained the same number of rural EDs in 2018 versus in 2001. The overall trend is a net loss of rural EDs.

Assessment and Recommendations for Rural Workforce

Based on the best available evidence, current understaffing of rural EDs by EPs is likely to worsen in the years ahead. Restricting analyses to only those EPs with EM training or EM board certification provides an even worse situation – and forecast.

Evidence also indicates that more rural EDs are closing than opening. While the numbers are small – relative to the total of 1,899 rural EDs open in 2018 – the trends are concerning.

Taken together, we encourage ACEP to better support the EPs now working in rural EDs – regardless of their EM training or EM board-certification status – and to work with rural hospitals to develop strategies to avoid further ED closures. Ongoing support of the CAH Program should be an important part of any ACEP strategy to maintain and potentially improve access to rural emergency care.

Objective 2: Review the outcomes of residency training programs with specific rural emphasis and make recommendations on ways to increase the number of board-certified EPs practicing in rural areas.

Drs. Diane Rimple and Melissa Fleegler co-chaired this workgroup.

We believe access to rural experience during medical training is an integral component of a cohesive strategy for improving access to high quality emergency medicine care in rural communities by encouraging EM residency trained physicians to consider practicing in rural areas. Rural EM rotations may be a recruitment tool for rural hospitals to hire EM residency trained, EM board certified physicians, offer valuable clinical training that can be applied across resource-limited practice settings, and prepare trainees for a successful and rewarding transition to post-residency EM practice. We sought to determine training PDs' attitudes toward the utility of rural training experiences, the availability of rural rotations, the barriers to establishing rural rotations, and interest in a combined EM/Family Medicine (FM) residency to address the rural physician work force scarcity. A survey of EM residency PDs was performed, which was then followed by a structured survey of interested participants to further explore these topics.

The current workgroup engaged in several activities to accomplish our objective, including:

Survey in collaboration with the Council of Residency Directors in Emergency Medicine (CORD-EM)

We conducted a survey of emergency medicine residency program directors through CORD-EM to better understand the current availability of rural experiences within emergency medicine residency programs. Of 265 emergency medicine residency programs in the United States, we received feedback from 59. Survey response highlights include:

Attitudes and Availability:
- 97% of respondents felt there was benefit to offering a rural rotation separate from simply offering a second (or extra) training site for resident clinical experience, while 52% report currently offering such a rotation.
- Of the programs that currently do not offer a rural rotation (48% of respondents), 82% would offer a rural rotation if they could.

Barriers:
- The most commonly cited barrier to offering a rural rotation was financial, both covering resident salaries and providing housing and other amenities required for distant rotations.
- Nearly as many respondents reported issues arising from the ACGME's requirement that trainees be supervised by EM board eligible/board certified physicians in rural EDs.
- Additional barriers endorsed by respondents included sites being too far away to be feasible, lack of interest by residents, lack of interest by rural sites.
- 89% of programs noted that they permit their residents to moonlight. During a structured follow up interview, moonlighting is seen as a substitute for, or alternative to, structured resident rotations in rural areas.

Interest in EM/FM combined residency:
- Notably, when asked whether they would consider creating new combined EM/FM residencies (as previously put forth by the 2003 ACEP Task Force) *if there was available financial support*, 73% of respondents affirmed interest in this concept.

Narrative comments highlighted further insights such as,
- ACGME discouragement of required rotations that take residents away from their families.
- Some programs may feel that a rural rotation does not align with their residency mission and vision.
- There may be safety concerns related to some rural locations.

This survey is being followed up by structured qualitative phone interviews with residency program directors to further explore these topics. While these interviews are still ongoing, there are clear themes emerging among program directors, whether or not they have rural rotations as part of their training program.

- Rural rotations are regarded as an important opportunity to bridge the gap between academic training and community practice. They can serve a role in providing progressive responsibility and offer trainees important insight into work outside of academic hospitals.
- PDs report strong resident support for these types of training opportunities. If offered as an elective, they often progress to a required rotation due to resident enthusiasm.
- Moonlighting is seen as an alternative to formal rural rotations, particularly for programs currently unable to offer a rural rotation.
- Programs with rural rotations have a wide range of approaches to overcoming the barriers to establishing them. Each program has a slightly different experience.
    - Funding was found from the affiliated hospital or EM group, from endowments, the sponsoring institution, or the academic department.
    - Often, rural hospitals started off with few EM board eligible/board certified physicians available to supervise trainees but were able to hire more EM board certified physicians after establishing a rotation. Many of these new hires were former trainees who had rotated there.
    - Housing options are varied and can prove complicated and expensive to provide.

- When asked if they had thoughts about increasing the number of EM board certified physicians working in rural environments, economic incentives were frequently cited. Specifically, loan repayment programs were mentioned as the best means for drawing new graduates to CAHs.

Discussions with Stakeholders at the National Level

Discussions were held with the following:
- ACGME Medically Underserved Area/Population project regarding funding and administrative support for EM rural rotations.
- RC-EM CORD-EM liaison regarding alternative models of supervision for rural rotations.
- ACEP Director of Regulatory Affairs for clarification of new CMS regulations regarding funding for rotations at CAHs.
- PDs of EM/FM residency programs to discuss their perspective on training physicians focused on providing rural emergency care.

Assessment and Recommendations for Residency Education

Based on the above activities, as well as consensus discussions among committee members, this subcommittee recommends the following with respect to rural EM residency training:

- Work with the ACGME to increase opportunities for EM residents to rotate in rural practice environments by addressing existing barriers associated with ACGME requirements.
    - Engage with the RC-EM leadership around the qualifications of supervising physicians during rural ED rotations.
    - Develop innovative acute care rotations in rural environments, encompassing a spectrum of sites that may include pre-hospital, clinic, urgent care, ED, inpatient, and post-acute care settings.
    - Explore the role of telemedicine supervision and/or case review with EM residency home institutions attending physicians.

- Work with other national organizations to disseminate information around rural training.

- Create white paper recommendations for rotation best practices
- Broadcast the changes to CMS funding for rural rotations to EM residency programs.
- Cross cutting studies, presentations, and meetings with other national organizations, including CORD-EM, SAEM, EMRA, EMSA.
- Support EMRA in conducting a survey of medical students and residents that parallels the Task Force's survey of PDs regarding rural residency experiences.
- Underscore benefits of rural residency experiences and practice to trainees, including, but not limited to:
  - Urban and academic job markets with greater saturation as compared with employment opportunities in rural communities.
  - Community administrative leadership opportunities, such as emergency medical services (EMS) directorships, ED medical directorships, and other hospital leadership roles.
  - Blended academic/community jobs can serve as a recruitment tool for graduating residents.

- Work with federal governmental organizations, including the Centers for Medicare and Medicaid Services (CMS) and Indian Health Services (IHS), to establish loan repayment for EM residency graduates practicing in rural areas.

- Promote rural EM residency tracks
  - Many EM residencies offer specialized tracks for trainees, such as EMS and critical care. We propose similar development of rural EM pathways.
  - Identify funding streams for EM/FM combined residency tracks: The 2003 ACEP Task Force promoted the concept of combined EM/FM residency programs, however only two of these residencies currently exist. Our survey indicates strong interest by PDs in establishing additional programs if there is available funding to support residency positions.

Interviews with FM PDs and EM/FM PDs were less positive about the role of EM/FM graduates in increasing the rural EP workforce. Current graduates of these programs work predominantly in EDs in academic or larger community hospitals for a variety of reasons. If we embrace this model, exploring ways of aligning outcomes with mission should be undertaken.

Objective 3: Perform a needs assessment of our rural members, including equipment (eg, video laryngoscopes, ultrasound, etc.), consultation, education (physician, nursing, etc.), and policies.

Dr. Steve Jameson chaired this workgroup.

Objective 3 workgroup created a survey to address availability of critical equipment for airway management, IV access, and emergency bedside ultrasonography in these rural EDs. Additionally, the survey included physician, PA, and NP education in the use of this equipment and overall training in EM required to work at these facilities. A brief summary of the data follows here:

- Surveys targeted physicians, PAs, and NPs working in rural facilities through ACEP listserv, SEMPA, AAENP, and the CALS organization.
- A total of 371 physicians, PAs, and NPs practicing in rural EDs completed this survey.
- The vast majority of rural hospitals had video laryngoscopy, IO devices, crich trays, and a bedside ultrasound available.
- 20 – 25% of PA and NP respondents work in EDs with volumes of < 5,000 annual visits (so called Frontier rural hospitals). Physicians tend to work at higher volume rural facilities, 5, 000 – 15,000, and data suggests (and anecdotal experience suggests as well) that physicians work collaboratively with PAs and NPs at ED volumes > 15,000.
- 31% of NPs and 45% of PAs reported that they work independently in their ED (no physician on site and virtually no presence of a supervising physician)

- The majority of rural hospitals required PAs, NPs, and non-EM residency trained, non-EM board certified physicians to have ACLS, ATLS, and PALS in order to work in their EDs, but only a small minority required any additional EM training/onboarding, neither foundational knowledge-based education nor procedural/skills training.

Assessment and Recommendations for Rural ED Needs

Based on survey results, there does not seem to be a great need for advanced emergency equipment at rural hospitals, but there is certainly a lack of any standard of education. It is broadly agreed upon by members of the ACEP RECTF, informed by survey results obtained from members of ACEP, that physicians trained in primary care and surgery, and all newly graduated PAs and NPs, are not adequately trained in EM and require additional training in this field in order to safely practice in any ED. With a significant proportion of PAs and NPs working independently in rural EDs without any standard of training/onboarding, this arguably makes these rural patients our most at-risk population across the spectrum of ED patients. This workgroup found the following resources/programs to be particularly valuable for the education and onboarding of rural PAs and NPs and non-EM trained physicians:

- ACLS
- ATLS
- PALS
- CALS (Comprehensive Advanced Life Support)
- RTTDS (ACS Rural Trauma Team Development course)
- EMCT (Emergency Medicine Core Training)
- EM Boot Camp course
- An advanced airway course
- Additionally, there are specific post-graduate EM training programs and certificates of added qualification included in Objective 4 and 5 summaries.

Objectives 4 & 5: Provide several models of successful rural care practices. Make recommendations to ACEP on opportunities to improve rural emergency care including accreditation programs, incentives, and policies.

Drs. Steve Jameson and Chris Sampson chaired these workgroups, with the resulting work overlapping to a great degree and, therefore, leading to the creation of a single work product.

The gold standard for the care of ED patients is provision of care by EM residency trained and EM board-certified EPs, with board certification from the American Board of Emergency Medicine (ABEM) and the American Osteopathic Board of Emergency Medicine (AOBEM). Based on a recent workforce study,[1] however, it was found that only 8% of all EPs (not necessarily ABEM/AOBEM certified) work in rural EDs and only about 2% work in very low volume ED's. Primary care physicians typically fill this void, but increasingly we see it filled by PAs and NPs – at times working with, or under the supervision of, a physician and at times working as solo practitioners. This workgroup was asked to identify several best practices, where emergency groups, hospitals, or health systems had developed an educational program or mandatory education for physicians and PAs/NPs in an effort to better prepare them to adequately manage the population of emergency patients that present to these rural facilities. Patient safety is paramount, and when an EM residency trained, EM board certified physician cannot be present, we must advocate for improved education of our emergency care colleagues. Because the very low volume rural EDs have, arguably, the most at-risk patients, we focused our efforts on training for physicians, PAs, and NPs at these facilities. Our findings are as follows:

Models of Successful Rural Care Practices

- The Mayo system in Minnesota was found to have the most robust onboarding and monitoring process for PAs and NPs to work solo in frontier rural EDs, which often are part of the federal CAH program. The process is as follows:
  - PA/NP fellowship track to work at frontier CAH
    - 18-month program
    - Variety of clinical rotations including EM
    - EMCT (Emergency Medicine Core Training) Program
    - RSI (Rapid Sequence Intubation) course
    - Endotracheal intubations in OR
    - Ultrasound course
    - ACLS
    - CALS
    - Bridge to solo practice (supervised solo shifts)
    - Procedure/skills review with supervisor and medical director
    - Telemedicine oversight as needed at solo site
  - Non-PA/NP fellowship track to work at frontier CAH
    - Need years of experience in large volume ED – supervised
    - EMCT (Emergency Medicine Core Training) Program
    - RSI (Rapid Sequence Intubation) course
    - Endotracheal intubations in OR
    - Ultrasound course
    - ACLS
    - CALS completion
    - Bridge to solo practice (supervised solo shifts)
    - Procedure/skills review with supervisor and medical director
    - Telemedicine oversight as needed at solo site
- TeamHealth
  - Traditionally used Center for Emergency Medicine Education (CEME) Boot Camp but transitioning to EMCT Program for foundational knowledge in EM.
  - Procedural and Sim labs, lectures, and other specific training varies depending on location.
  - We were not able to get information on telemedicine oversight or a specific training path for solo practice at a frontier ED.
- Board certification in emergency medicine (BCEM) certification for primary care physicians
  - Must have finished a primary care residency
  - Must have clinical experience in EM
  - Letters of recommendation from Board certified EM physicians
  - All EM fellowship programs are 12 months
  - Letter of certificate of EM hours and good standing from fellowship director or hospital administrator
  - 10 EM critical cases write up and case discussion with verified hospital medical records sign off
  - Pass EM written board exam
  - Pass EM oral board exam
  - ATLS, ACLS, PALS
  - Continued board certification requires recertification written exam and review of EM CME every 10 years
- Certificate of Added Qualification (CAQ) tracks for NPs and PAs
  - NPs – emergency NP post graduate certification
    - https://www.aanpcert.org/certs/qualifications - three tracks:
      - APP EM fellowship

        - Approved academic emergency care program
        - Non-fellowship/academic track
    - Pass EM certification exam (CAQ exam that ACEP helped develop)
- PAs
    - https://www.sempa.org/professional-development/nccpas-caq-in-emergency-medicine/ - process of CAQ outlined here:
        - 3,000 EM clinical hours
        - Procedure competency – signed off by supervising physician
        - Valid PA-C and state license
        - Pass CAQ exam at testing center (120 multiple choice questions)
        - CME – 75 hours focused on EM in 10-year cycle

Limitations of Models Applied to Broad Spectrum of Rural EDs

The all-encompassing term 'rural ED' can mean anything from a facility with two acute care beds seeing less than five ED patients per day to rural hospitals with over 300 beds, making broad application of models problematic. Further work is needed to fully understand practice environments in hospitals that are at the lower end of the volume spectrum and identify challenges related to these facilities (See Appendix).

References

1. Ginde AA, Sullivan AF, Camargo CA Jr. National study of the emergency physician workforce, 2008. *Ann Emerg Med* 2009; 54: 349-359.
2. Sullivan AF, Richman IB, Ahn CJ, et al. A profile of U.S. emergency departments in 2001. *Ann Emerg Med* 2006; 48: 694-701.
3. Bennett CL, Sullivan AF, Ginde AA, et al. National study of the emergency physician workforce, 2020. *Ann Emerg Med* 2020; Published July 31, 2020. https://doi.org/10.1016/j.annemergmed.2020.06.039
4. U.S. Department of Agriculture: Economic Research Service. Urban Influence Codes. Available at: https://www.ers.usda.gov/data-products/urban-influence-codes.aspx. Accessed: October 1, 2020.
5. Emergency Medicine Network (EMNet) website. Available at: www.emnet-usa.org. Accessed: October 1, 2020.

Appendix

Contents:

Introduction: There are many overlapping federal programs and state programs used to identify rural healthcare facilities however, none are comprehensive and complete. The term "rural ED" can mean anything from a facility with two acute care beds, seeing less than five ED patients per day, to hospitals with over 300 acute care beds. This summary seeks to highlight practice environments at the lower end of this volume spectrum and identify challenges present in these facilities. We also attempted to identify the scope of the problem by looking at the frequency in which these environments occur.

Background Motivation Questions:

Landscape

- What are the clinical obligations at a facility that does not have the volume to support a full-time, in house ED clinician?
- How many extremely low volume facilities exist in the United States?

ED Coverage

- At what point is the emergency department able to be staffed on an as needed/ "On- call" basis?
- At what point does a dedicated ED clinician become necessary?
- At what point can that dedicated ED clinician no longer be able to perform a 24-hour shift?
- At what point can that dedicated ED clinician no longer be expected to cover floor patients?
- At what point does ED operational oversight by a EM board certified EP become ideal?

Hospital coverage

- What is the ideal frontier or small rural hospital physician coverage model?
    - Five family practitioners? Three FM and two EM providers who are willing to cross train? Three FM, one EM doc and one general surgeon all willing to cross train? Two FM, one EM doc, one general surgeon and one OB/gyn all willing to cross train?

PAs and NPs

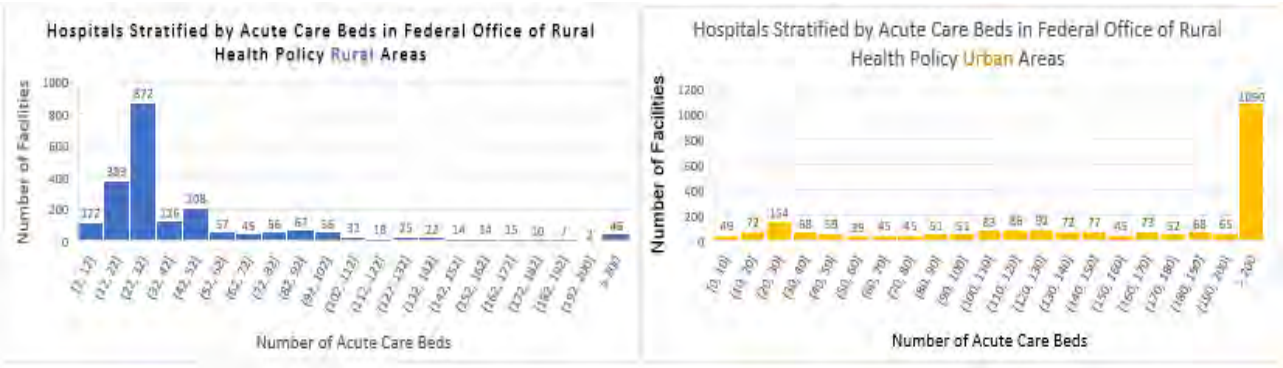
- Should PAs and NPs be working independently at rural facilities?
    - If so, in what areas are the best suited to practice? Wards, ED, Clinic, Surgery
    - In what areas would they have the best oversight?
    - If close supervision/parallel working environments (surgery) are not available, what are the best onboarding options?

Landscape of Rural Hospitals in the United States

Data Sources:

https://www.flexmonitoring.org/critical-access-hospital-locations-list

https://www.ruralhealthinfo.org/resources/types/directory

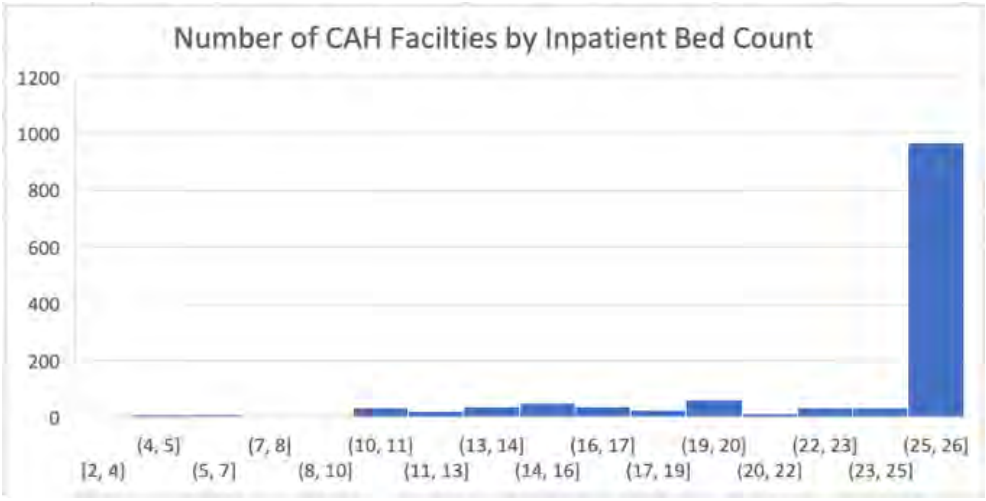


Appendix Figure 1: Comparison of rural vs. urban hospital size based on number reported acute care beds.

In 2019, there were 2,198 hospitals in Federal Office of Rural Health Policy (FORHP) designated rural areas compared to 2,459 hospitals in FORHP designated urban areas. Rural hospitals are on average much smaller than their urban counterparts with an average of 58 vs 278 acute care beds. Of the hospitals in FORHP designated rural areas, most participate in at least one of the federally designated special payment classification programs for rural facilities. CAHs represent the largest number of facilities, are the most rural, and have the lowest average acute care beds. Rural-Urban Commuting Area Codes (RUCAs) are a measure of rurality and are based on a 1.0-10.6 scale with 1 representing a metropolitan core and a 10.6 representing the most rural areas in the US.

Special Payment Classification	Number of Facilities	Average RUCA Code	Average Acute Beds	Standard Deviation
Critical Access Hospital (CAH)	1256	7.6	21.98	15.06
Indian Health Service (IHS)	25	6.8	34.44	21.62
Medicare Dependent Rural Hospital (MDH)	136	5.7	51.32	20.97
Rural Referral Center (RRC)	95	4.3	150.68	66.83
Sole Community Hospital (SCH)	368	5.2	58.47	32.64
RRC/MDH	15	4.2	83.07	21.60
SCH/RRC	114	4.4	134.70	81.88
None	284	5.2	66.43	49.72

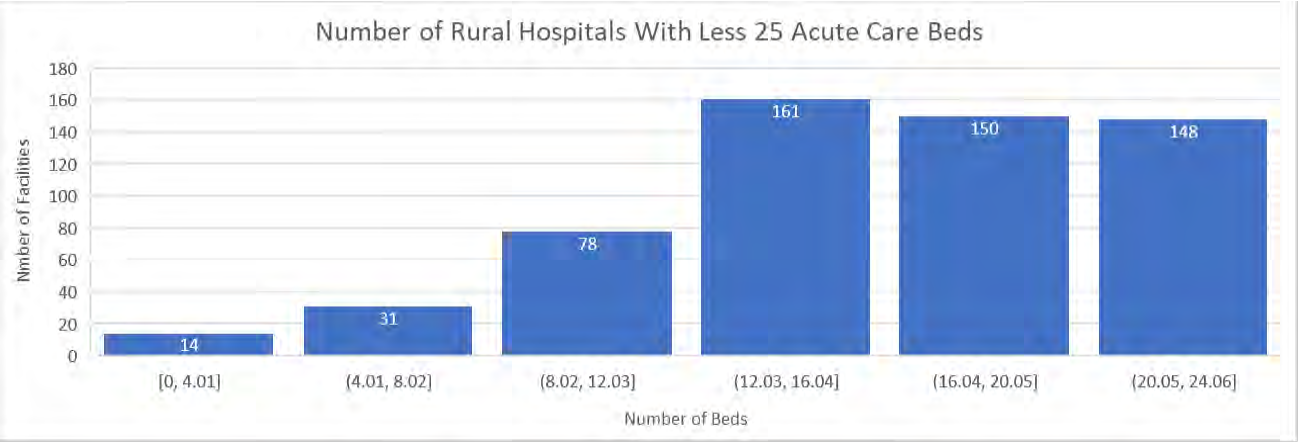
Appendix Table 1: Characteristics of hospitals in FORHP designated rural areas.



Appendix Figure 2: Number of acute care beds in all CAHs

CAH locations are scattered throughout 45 states in the US. To qualify for federal funding, a CAH must meet certain criteria, such as having no more than 25 acute care beds, maintaining an average length of stay less than 96 hours, and being located more than 35 miles from another hospital (however exceptions can be made for average travel time). National data regarding ED volumes was not available at the time of this report; however, estimates were made based on total number of acute care beds. Most CAHs are 25 bed facilities, which is the upper limit of the federally mandated number of acute care beds. This suggests these hospitals are physically larger, however, are only able to use 25 acute care beds when they restructured to obtain CAH status. Although no comprehensive annual volumes are available, the facilities with 25 acute care beds likely do not represent the extreme frontier rural facilities. Based on anecdotal experience by task force members, a review of internal West Virginia University network hospital volumes and cross-referencing available data from New Mexico, these facilities likely represent average ED volumes of greater than 10,000 visits per year.

By limiting the data to facilities with less than 25 acute care beds and removing the large number of 25 bed CAH facilities, we are likely looking at the number of true low volume, frontier hospitals in the US. The hospitals in the graph below represent 26.4% (581/2198) of rural facilities and 9.4% (9586/101122) of acute care beds in FORHP rural areas. Facilities with less than 12 beds represent 5.6% (123/2198) of rural facilities and 0.7% (760/101122) of the total acute care beds in FORHP rural areas. These facilities present significant challenges in ED care delivery but also represent an exceedingly small subset of rural hospitals.



Appendix Figure 3: Subset of hospitals in FORHP rural areas with less than 25 beds.

Acute Care Beds	Number of Facilities	Average RUCA Code	CAH	IHS	MDH	SCH	No Designation
Less than 5	13	7.4	77% (10/13)	0	0	0	23% (3/13)
5 to 8	31	8.1	81% (25/31)	13% (4/31)	3% (1/31)	0	3% (1/31
9 to 12	78	8.3	90% (70/78)	1% (1/78)	1% (1/78)	1% (1/78)	6% (5/78)
13 to 16	161	8.6	92% (148/161)	<1% (1/161)	2% (3/161)	2% (4/161)	3% (5/161)
17 to 20	150	8.0	93% (139/150	2% (3/150)	2% (3/150)	<1% (1/150)	3% (4/150)
21 to 24	148	7.7	89% (131/148)	< 1% (1/148)	1% (2/148)	3 % (4/148)	7% (10/148)

Appendix Table 2: Characteristics of hospitals in FORHP rural areas with less than 25 beds.

The lack of available ED volumes at these hospitals leads to uncertainty and is a significant limitation in this data. Adding this metric to future databases would be very helpful.

Typical Rural Hospital Practice Environment

Summary: Practice environments in rural EDs varies significantly depending on expected annual volume. The strategies to provide care in an extreme frontier emergency department require creative solutions and systems unique to that environment. In this setting, clinicians perform many roles outside of caring for ED patients. The following tables seek to serve as theoretical examples of practice environments as volumes increase and the role of the ED clinician becomes that of a more traditional dedicated emergency department physician. Of note, these are theoretical and were developed through discussions with task force members. Expected nighttime volumes were extrapolated from internal analysis of West Virginia University network CAH sites.

Extreme Frontier Emergency Departments
Annual volume < 2,500
Daily Volume = < 6.8 pts/24hrs
Expected volume between 12p and 7a = < .68 pts/night

Typical Site Description:	**Typical Services Available:**
5 ED beds or less Less than 15 acute care beds ED services are "on call" and may be 30-60 min away Providers continuously move between ED, outpatient clinics and inpatient services. Requires Significant cross training Level 4-5 trauma center, likely CAH	Dependent on capabilities of providers. Likely no dedicated specialists unless telemedicine or outreach clinics are available. OB care site/staff dependent

Distinguishing features	**ED provider**	**Onboarding/Training Expectation**	**% time 1.0 FTE is in the ED**	**Notes**
Volume does not support a dedicated ED provider.	No dedicated ED provider immediately available.	Site dependent and complex as a single provider must play many roles	< 25%	

Frontier Emergency Departments
Annual volume 2,500 – 5,000
Daily Volume = 6.8 – 13.7 pts/24hrs
Expected volume between 12p and 7a = .68 – 1.4 pts/night

Typical Site Description:	**Typical Services Available:**
5 ED beds or less 10-20 acute care beds ED is operations during peak hours but may be "on call" overnight. Provider may not be in the facility Providers have other responsibilities apart from ED coverage Level 4-5 trauma center, Likely CAH	Dependent on capabilities of providers. Likely no dedicated specialists unless telemedicine or outreach clinics are available. OB care site/staff dependent

Distinguishing features	**ED provider**	**Onboarding/Training Expectation**	**% time 1.0 FTE is in the ED**	**Notes**
Volumes support a dedicated ED provider during peak times	Provider is immediately available during the day but can be "on call" overnight	Site dependent and complex as a single provider must play many roles	25-50%	

Small Rural Emergency Departments
Annual volume 5,000 – 10,000
Daily Volume = 13.7 – 27.4 pts/24hrs
Expected volume between 12p and 7a = 1.4 – 2.7 pts/night

Typical Site Description:	**Typical Services Available:**
5-10 Bed Emergency department 15-25 acute care beds Possible Extended care unit Single Coverage ED with 12hr and 24hr shifts Level 4-5 trauma center, Likely CAH	Possible hospitalist coverage Possible surgical coverage OB care site/staff dependent Minimal subspecialty support unless telemedicine or outreach clinics, may have local referrals for some specialties

Distinguishing features	**ED provider**	**Onboarding/Training Expectation**	**% time 1.0 FTE is in the ED**	**Notes**
Moving towards dedicated ED staff. Single provider likely covers ED and inpatients .	Single coverage Provider is in house.	BCEM provider is ideal ED medical director. Works with interdisciplinary team. Director may also work at larger site.	75 -100 %	

Medium Rural Emergency Departments
Annual volume 10,000 – 15,000
Daily Volume = 27.4- 41 pts/24hrs
Expected volume between 12p and 7a = .2.7- 4.1 pts/night

Typical Site Description:	**Typical Services Available:**
10-15 bed ED 25 acute care beds if CAH Level 4 trauma canter Stroke Ready Facility Lower limit of a dedicated ED training site Likely CAH	Hospitalist Coverage Dedicated ED staff Surgical Coverage Some Subspecialty Support Significant outpatient services

Distinguishing features	**ED provider**	**Onboarding/Training Expectation**	**% time 1.0 FTE is in the ED**	**Notes**
Approaching limits of single coverage with no overlap or support. At 15k visits, EM physician sees the same volume of patients per year as an EM physician at a large community site.	Single coverage provider Possible APP Support	BCEM providers	100%	

Medium/Large Rural Emergency Departments
Annual volume: 15000-20000
Daily Volume = 41-55 pts/24hrs
Expected volume between 12p and 7a = 4.1-5.5 pts/night

Typical Site Description:	**Typical Services Available:**
10-15 bed ED 25 acute care beds if CAH, more if not a CAH Level 4 trauma canter Stroke Ready Facility	Hospitalist Coverage Dedicated ED staff Surgical Coverage Some Subspecialty Support

Acceptable ED training site Likely CAH			Significant outpatient services	
Distinguishing features	**ED provider**	**Onboarding/Training Expectation**	**% time 1.0 FTE is in the ED**	**Notes**
Approaching volumes where shifts overlap, fast-tracks open or APP's support in the ED	Physician overlap for peak times.	BCEM providers	100%	

Larger Rural Emergency Departments Annual volume: Over 20,000 visits Daily Volume = > 55 pts/24hrs Expected volume between 12p and 7a = > 5.5 pts/night				
Typical Site Description: 15+ beds ED 25 acute care beds if CAH, more if not a CAH Level 3 or 4 trauma center Stroke Ready Facility Likely CAH		**Typical Services Available:** Hospitalist Coverage Dedicated ED staff Surgical Coverage Some Subspecialty Support Significant outpatient services		
Distinguishing features	**ED provider**	**Onboarding/Training Expectation**	**% time 1.0 FTE is in the ED**	**Notes**
Overlapping shifts, Fast-track	Physicians and MLP. Likely single coverage overnight	BCEM providers	100%	

State Example of Rural Hospitals: Oregon
Data Source**:** https://www.ohsu.edu/oregon-office-of-rural-health/rural-and-frontier-hospitals

Summary: Oregon has 37 rural hospitals. These hospitals are stratified into three state classifications. They are also classified along federal lines as either CAHs, rural referral centers (RRC) or Sole Community Hospitals (SCH). Descriptions for both state and federal designations are listed below. Numbers are cross referenced from the website. All facilities have only one state designation. No federally qualified CAH's carry another federal designation and are limited to 25 inpatient beds by federal regulations. Many do have an attached swing bed unit. Sole community hospitals may also be rural referral centers:

State Designations
Class A (12 Hospitals): Small remote hospital that has 50 or fewer beds and is more than 30 miles from another acute inpatient care facility.

Class B (21 Hospitals): Small and rural hospital that has 50 or fewer beds and is 30 miles or less from another acute inpatient care facility.

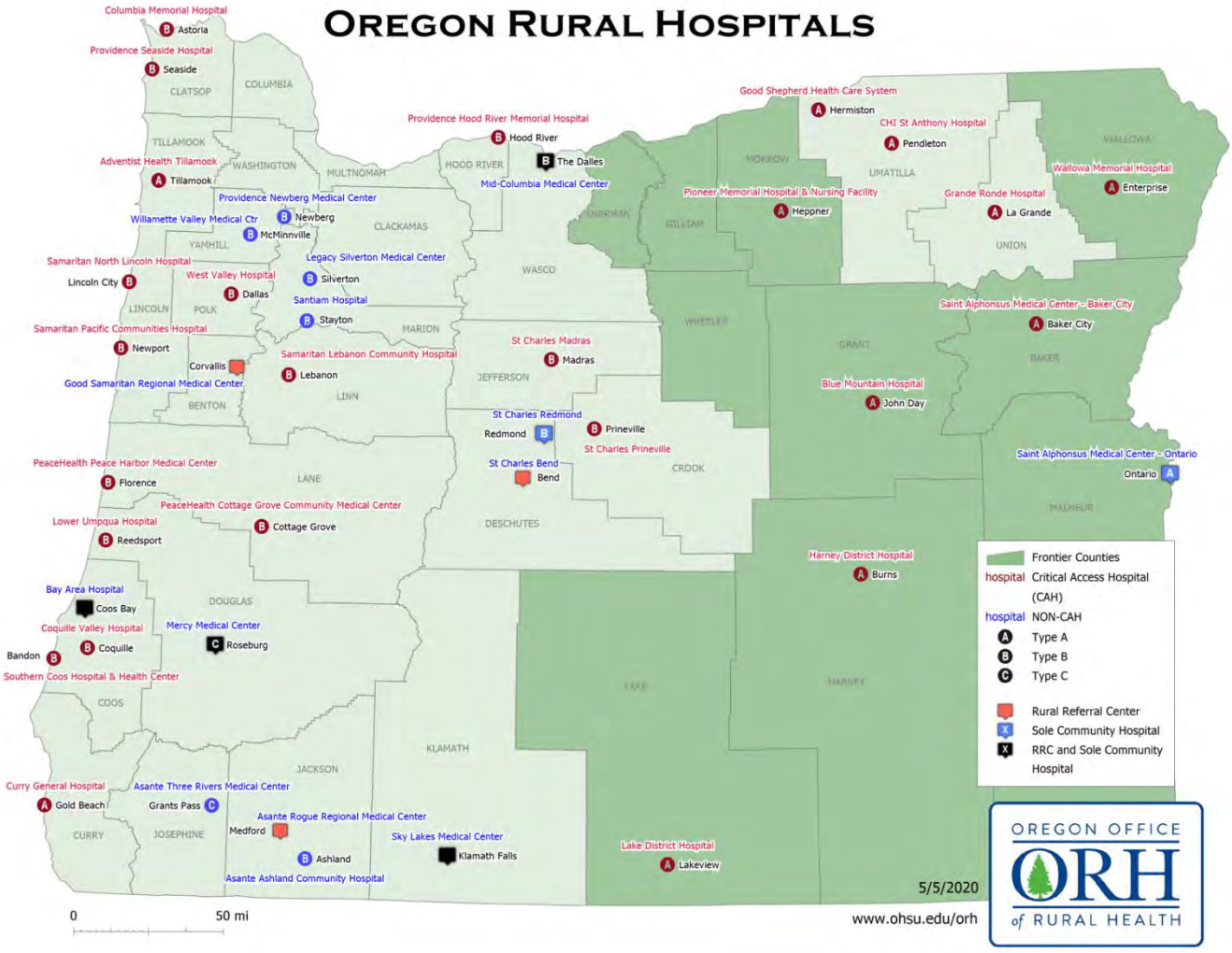
Class C (2 Hospitals): Rural hospital which has more than 50 beds but is not a referral center.

Federal Designations
Critical Access Hospital (25 Hospitals): The Medicare Rural Hospital Flexibility (Flex) Program, established by the Balanced Budget Act of 1997 (Public Law 105-33) enables certain rural hospitals to be classified as CAHs. A CAH is able to improve its financial stability through enhanced Medicare

reimbursement and reduced operating costs. In Oregon, the process of designation is coordinated by the Oregon Office of Rural Health.

Rural Referral Center (7 Hospitals): Rural Referral Centers are high-volume acute care rural hospitals that treat a large number of complicated cases. The Centers for Medicare and Medicaid Services (CMS) classifies hospitals as Rural Referral Centers. Hospitals classified as Rural Referral Centers may be eligible to participate in the 340B Drug Pricing Program if they have a disproportionate share adjustment percentage equal to or greater than 8 percent for the most recently filed Medicare cost report and meet the requirements of 42 USC 256b(a)(4)(L)(i). Rural Referral Centers may also register their outpatient clinics.

Sole Community Hospital (6 Facilities): A SCH is often the only source of hospital care for isolated rural residents. As such, the CMS classification provides payment protections in order to keep these hospitals viable. A hospital is eligible to be classified as a SCH if it meets distance requirements and is the primary source of inpatient hospital services available in a geographic area for Medicare beneficiaries.



American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: Dan Freess, MD, FACEP
Chair, Emergency Medicine Practice Committee

Alison Haddock, MD, FACEP
Board Liaison, Emergency Medicine Practice Committee

Date: October 14, 2020

Subj: Deferral of Care After Medical Screening of Emergency Department Patients

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

Recommendation

That the Board of Directors approve the revised policy statement "Deferral of Care After Medical Screening of Emergency Department Patients" with the revised title "Deferral of Care for Emergency Department Patients."(Attachment C).

Background

The Emergency Medicine Practice Committee (EMPC) was assigned an objective for the 2019-20 committee year to review the policy statement "Deferral of Care After Medical Screening of Emergency Department Patients" as part of the policy sunset review process.

The EMPC recommends the following revisions:

- Add specific reference to the physician in addition to the qualified medical provider.*
- Add language to specify that the physician or qualified medical provider* determines that completion of care or definitive care can be safely deferred, in accordance with standards adopted by the hospital to ensure patient access to an alternative setting for timely and appropriate treatment.
- Include reference to the hospital acknowledging the emergency physician's responsibility to the patient and physician autonomy to determine appropriate patient care, even if no emergency exists.

**Note: "Qualified medical provider" is the term that CMS uses when talking about the medical screening exam.*

Attachment A is the current policy statement. Attachment B is the draft revised policy statement with additions indicated by underlining and deletions indicated by strikethroughs. Attachment C is the proposed policy statement.

Prior Board Action

June 2014, approved the revised policy statement "Deferral of Care After Medical Screening of Emergency Department Patients:" revied and approved with the current title; originally approved April 2006 titled "Medical Screening of Emergency Department Patients."

Fiscal Impact

Budgeted committee and staff resources for development and distribution of policy statements.

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

POLICY STATEMENT

Approved June 2014

Deferral of Care After Medical Screening of Emergency Department Patients

Revised June 2014 with current title, January 2007

Originally approved April 2006 titled "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.

Deferral of Care ~~After Medical Screening of~~ **for** Emergency Department Patients
Draft, October 2020

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~~ **certain** circumstances**, completion of care or definitive care may appropriately be deferred and provided in a less acute alternative setting. Hospitals that choose to employ** deferral of care from the ED **must ensure that there are** ~~may be warranted, but~~ 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.~~

Deferral of care should, at a ~~M~~minimum, ~~steps prior to any deferral of care should~~ include the following:

- ~~A standardized process to ensure that all~~ **The** patient~~s presenting for medical care~~ **must** receive an appropriate medical screening examination (MSE) by a **physician or a** qualified medical provider **approved by the hospital governing body in accordance with** ~~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~~ **further**
- **The physician or qualified medical provider must determine that completion of care or definitive care can be safely deferred, in accordance with standards adopted by the hospital to ensure patient access to an alternative setting for timely and appropriate treatment; and**
- ~~The determination that the MSE identifies no emergency medical condition requiring immediate treatment in the ED, and~~ **It is determined within reasonable medical certainty** that deferral of care is not likely to result in ~~a~~ significant deterioration of ~~in~~ the patient's medical condition**, and there is no likelihood of** ~~or the unreasonable~~ exposure of the patient's family or members of the community to a communicable disease; and
- ~~The d~~**D**etermination by the hospital, in advance of any deferral of care that:
  1. at least one appropriate alternative setting and **a physician, physician assistant or nurse practitioner** ~~provider is~~**are** available such that the patient can obtain timely**, additional** evaluation and treatment**, regardless of the patient's ability to pay** ~~whether or not the patient has health insurance coverage~~; and
  2. ~~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~~.

Proviso:

Deferral of care from the ED **has** ~~can have~~ significant risks **for** ~~to~~ patients and **physicians** ~~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**s** involve**d**~~ment~~ in the development **and management** 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.

Hospitals must acknowledge ~~E~~**e**mergency physicians**'** ~~are~~ responsib~~le~~**ility** for the care of patients ~~they are treating~~ in the ED **created by the** ~~after the~~ physician-patient relationship ~~has been established, they~~ **and must honor their autonomy to determine** ~~must have the opportunity to further evaluate and complete their patients' care if they believe it is~~ appropriate **care**, even if no emergency medical condition exists.

Deferral of Care for Emergency Department Patients
Proposed Policy Statement, October 2020

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 certain circumstances, completion of care or definitive care may appropriately be deferred and provided in a less acute alternative setting. Hospitals that choose to employ deferral of care from the ED must ensure that there are strict safeguards to protect such patients and ensure that deferral of care is appropriate and safe for the patient.

Deferral of care should, at a minimum, include the following:

- The patient must receive an appropriate medical screening examination (MSE) by a physician or a qualified medical provider approved by the hospital governing body in accordance with the Emergency Medical Treatment and Labor Act (EMTALA); further
- The physician or qualified medical provider must determine that completion of care or definitive care can be safely deferred, in accordance with standards adopted by the hospital to ensure patient access to an alternative setting for timely and appropriate treatment; and
- It is determined within reasonable medical certainty that deferral of care is not likely to result in significant deterioration of the patient's medical condition, and there is no likelihood of exposure of the patient's family or members of the community to a communicable disease; and
- Determination by the hospital, in advance of any deferral of care that:
    1. at least one appropriate alternative setting and a physician, physician assistant or nurse practitioner are available such that the patient can obtain timely, additional evaluation and treatment, regardless of the patient's ability to pay; and
    2. the patient will be able to make and receive a timely appointment in this alternative setting.

Proviso:

Deferral of care from the ED has significant risks for patients and physicians. 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 emergency physicians involved in the development and management 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 as detailed in this policy are followed.

Hospitals must acknowledge emergency physicians' responsibility for the care of patients in the ED created by the physician-patient relationship and must honor their autonomy to determine appropriate care, even if no emergency medical condition exists.

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Memorandum

To: Board of Directors
Council Officers

From: Dan Freess, MD, FACEP
Chair, Emergency Medicine Practice Committee

Alison Haddock, MD, FACEP
Board Liaison, Emergency Medicine Practice Committee

Date: October 14, 2020

Subj: Emergency Physician Compensation Transparency

HEADQUARTERS
Post Office Box 619911
Dallas, Texas 75261-9911

4950 W Royal Ln
Irving, TX 75063-2524

972-550-0911
800-798-1822
www.acep.org

Recommendation

That the Board of Directors approve the policy statement "Emergency Physician Compensation Transparency" (Attachment A).

Background

The 2020 Council and the Board of Directors adopted Amended Resolution 17(19) Pay Transparency:

> RESOLVED, That ACEP develop a policy statement in favor of physician salary and benefit package equity and transparency.

The resolution was assigned to the Emergency Medicine Practice Committee (EMPC) to develop a policy statement.

Attachment A contains the proposed policy statement, "Emergency Physician Compensation Transparency."

Prior Board Action

October 2019, adopted Amended Resolution 17(19) Pay Transparency.

Fiscal Impact

Budgeted committee and staff resources for development and distribution of policy statements

Attachment A

Emergency Physician Compensation Transparency
Draft, October 2020

The American College of Emergency Physicians (ACEP) believes that emergency physician compensation can vary substantially based on employment arrangements, but physicians doing comparable work should receive comparable compensation. To that end:

- Emergency physician compensation should be based on transparent and accessible benchmarks and can reflect a mixture of inputs such as:
    - Clinical productivity, including patient volume and complexity
    - The need to provide on-site physician availability around the clock
    - The administration, supervision, and teaching requirements of a particular position
    - Academic productivity
    - Years of experience
    - Board certification status
- Compensation should be reviewed regularly for evidence that it is free of bias from a racial, gender, or other perspective.
- Emergency physicians should receive benefits packages that are commensurate with other similar practice environments within similar geographic regions.
- Emergency physicians should have access to the necessary information to make an adequate compensation assessment.