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Approaching Full Capacity in the Emergency Department
an information paper

Emergency department (ED) crowding occurs when demand outstrips supply. While this is a symptom of system-wide healthcare problem caused by increased patient volumes, staff shortages, insufficient beds, and poor flow systems, processes can be implemented that mitigate the detrimental effects that ED crowding produces. By decreasing ED lengths of stay, patients who need admission, as well as those that are "treat and release," will have a shorter time to hospital admission or discharge. The shorter time to disposition will result in optimized use of the limited resources available in most EDs.

Many bottlenecks exist in the emergency care system. These occur in the pre-hospital setting, the ED, and in the hospital itself. In the hospital setting, for example, inefficient triage systems, prolonged radiology and laboratory turnaround times, and insufficient/non-flexible staffing, all lead to inefficient operations and patient queuing. There are numerous resources and articles that provide specific information about crowding and how different hospitals have dealt with these issues with varying success. (See crowding resources on www.acep.org)

The purpose of this paper is to provide ideas for the development of facility-specific full capacity protocols with the specific aim to differentiate between improving throughput processes generally and identifying indicators to alert managers that full capacity is imminent so all or a potion of the protocols can be implemented to address the immediate situation. To determine thresholds, the facility will need to develop a dashboard of indicators that address specific issues [eg, number of patients pending medical screening examination (MSE), number of admitted patients boarding in the ED, time on diversion, etc.] Each section of the paper addresses a specific service area and can be a resource as data and processes are reviewed and hospital-wide protocols are developed.

Integrating ED & EMS Systems

For many patients, emergency medical service (EMS) serves as the first contact with emergency medical care systems. Unlike patients who arrive by their own means, the flow of EMS arrivals can, in some situations, be somewhat controlled. Some hospitals at full capacity can go on a form of EMS diversion to limit patient inflow. Several other strategies can be assessed that may affect local and regional distribution of EMS patient flow and, in turn, minimize diversion status.

Strategies for improving EMS flow to emergency care:

Diversion
Internal criteria must be setup to define a situation when a facility is placed on diversion status. In order to determine the criteria, the different diversion types must be defined. A review of the literature and numerous diversion policies revealed that the following types of diversions are most frequently implemented:

- Total Diversion – Facility taking no EMS units. This designation implies that all internal crowding controls are at maximum execution
- ED Diversion – ED taking no EMS units, but hospital still accepting direct admits and other transfers that bypass the ED
- Trauma Diversion – Hospital taking no new trauma patients or transfers
- Facility Critical Care Diversion – Facility has no more ICU beds available for patients who may need an ICU level of care
- ED Critical Care Diversion – The ED is not able to manage safely a patient requiring resuscitation

Successful diversion practices clearly define the criteria necessary to go on diversion status (which is still optional once criteria are met). Diversion policies should be communicated to local hospitals, EMS agencies, and regional command centers well *before* implementation. This will minimize confusion as to what type of patients can and cannot be accepted during the crisis period. It should be recognized that diversion is used when there is failure of internal crowding mechanisms to adequately control patient volume, and should only be used as a last resort. Automatic time limits can be attached to each diversion subtype, allowing for minimal total time in redirection status.

Prediction and Flow of EMS Services
In their article, "Internet-accessible Emergency Department Workload Information Reduces Ambulance Diversion" published in a recent issue of *Prehospital Emergency Care* (July/September 2005;9(3):285-291), an Australian group studied the feasibility of preemptive ambulance diversion based on a real-time internet based dashboard that displayed the metrics of each hospital involved. There were two major observations made during this study. The first is that the total time on diversion was reduced. The second phenomenon was that the flow of patients shifted from urban facilities to suburban facilities.

This shift in flow of patients has several implications including the additional distance that EMS providers must travel to reach the new receiving facility. However, EMS providers may welcome the diversion despite the distance since they may have a quicker turnaround time. Several studies have shown that EMS providers have significantly prolonged turnaround times at facilities at or on diversion status and this places the EMS unit out of service during this delay.

A recent study from the University of Louisville (*Prehospital Emergency Care*. July/September 2005;9(3):322-325) found that EMS providers performed well when predicting those patients who would not need a critical care bed (NPV 96.2% at 95% CI). If it is known ahead of time that a patient will likely not need a critical care bed, then they can still go to a facility that is near or at capacity for patients requiring intensive care.

The implementation of a regional preemptive distribution system must be assessed for each specific locality and with consideration of the feasibility of staffing and financing. EMS training and performance on predicting patient disposition should also be locally assessed and continually monitored. Despite the advantages noted by the Australians in the article referenced above, long-distance redistribution should be kept to a minimum by the regional command entity. This regional command entity need to have clearly defined parameters for diversion and the diversion subtypes preferably with a standardized formula that can me used to calculate saturation in all the catchment facilities.

EMS access to Direct Admit Holding Area/Express Admissions Unit
Direct admissions, many times, still come through the ED due to lack of bed availability. If a facility has an express admissions unit or admission holding area, then EMS and inter-facility transfers can be directed there instead of the ED, possibly decreasing ED crowding. However this mechanism requires that the admission unit is aggressive in the work up of these individuals so that their adjusted length of stay in the hospital is reduced. A longer length of stay for inpatients further compounds the boarding problem that plagues EDs.

Facility Metrics to Anticipate EMS Diversion
Individual crowding climates and bottlenecks are different for each locality. Local metrics that predict ambulance diversion can be identified and monitored to anticipate the need for diversion and focus facility resources to prevent this need. This information can be communicated to a regional command center if a redistribution system exists and also to local EMS agencies to aid them in choosing the best facility based on each individual patient's need.

Triage

ED patient flow begins at triage. Patient assessment must be rapid and accurate in order to help prevent a bottleneck. Triage, performed by a nurse, traditionally includes completing a lengthy triage nursing assessment form. In the face of ED crowding, this comprehensive triage approach is problematic. Many EDs have sped up the process by using bedside registration and a brief triage process, but that works only so long as beds are available. Joseph Twanmoh, MD, FACEP, of Maryland, has described "triage bypass." In this system, if the patient arrives with what appears to be a minor complaint, the patient is immediately taken to a fast track area. Vital signs are not taken until the patient is in the treatment area. If the patient is found to be sicker than originally thought, the patient is moved back to the main ED. "Being quickly assessed in a treatment bed is better than sitting in a waiting room not receiving any care." Once all beds are full in both the main ED as well as fast track, a computer system is used to track patients waiting to see doctors, and they can still be moved into a bed that opens up if the patient has not yet been triaged. The tracking system allows the nurse to put a patient into an empty bed without waiting for triage to be done. Every patient placed into a bed from the waiting room is one less patient that the triage nurse must assess, thus saving the triage nurse time, making the waiting room less crowded, and allowing patients to be evaluated, treated, and discharged sooner.

In this system, if a bed becomes empty because the nurse is transporting a patient to their hospital room, there is a backup nurse, or the charge nurse, who quickly brings another patient back to the bed rather than waiting for the nurse to return.

Another method to speed along the triage process is to add personnel to triage as soon as a certain number of people are pending triage, or if patients are waiting more than thirty minutes to be triaged. If another nurse cannot be added, add on a paramedic or a nurse practitioner to help with triage. If triage is the main bottleneck, consider a rapid triage with additional data being collected later in the process. Also, protocols for certain diagnoses can be implemented in triage, which may help speed along evaluation and treatment.

Thom Mayer, MD, FACEP, of Virginia, describes the "Team, Triage and Treatment," or "T3" approach. Dr. Mayer found that over 30 percent of ED patients never need a room at all. Their injuries are such that they may be evaluated and treated in triage before they ever get into a room. The "team" part of T3 consists of an emergency physician, an emergency nurse, a scribe, a registrar, and a technician. The five-member team works together to begin an ED patient's evaluation and treatment at the point-of-contact in triage. This program was begun with a grant, and was used from 10:00 am to 8:00 pm. It may be thought to be too expensive for many EDs to implement on a daily basis for many hours, but a variation may help some EDs for short periods of time to address a bottleneck situation.

The rapid medical evaluation (RME) plan has been described by several groups. In this model an emergency physician or midlevel provider is stationed in triage to rapidly see every patient who enters, spending about 2 minutes with each patient. The triage provider can send the patient straight to the main ED if a critical condition exists, and that patient will be seen by another ED physician immediately. For the less acute patients, the triage provider will write orders for studies such as CT scans, ultrasounds, and lab work, and initiate treatment such as pain meds, IV fluids, and IV antibiotics. Those patients will go into a "mid-care" area, which has comfortable chairs and some stretchers. In the "mid-care" area, orders are initiated, and patients stay until results are returned or a bed becomes available. The patient then is sent into the main ED for evaluation and usually a quick discharge or admission decision from the main ED physicians. Minor fast-track patients are discharged from triage by the triage provider after tests are completed and the results reviewed. The goal of the triage doctor is to discharge the majority of the low acuity patients directly out of the triage area, thereby having an extremely fast track.

A real advantage of this system is that all patients are seen by a physician, so if a patient decides to leave early, they have not "left without being seen," which can have medicolegal consequences. The appropriate level of ED visit can be billed for the services provided even if the patient leaves before tests are done or before completion of their evaluation.

From Presentation to Provider

1. The national time metrics of "arrival to bed" and "bed to physician greeting" are of critical importance in the low acuity patients. By shortening these intervals several objectives may be accomplished; decompress an overcrowded department by rapidly discharging patients that do not need to be admitted; increased patient satisfaction; lower "left without being seen" rates; and increased staff satisfaction. (Other national time metrics are "physician greeting to disposition" and "disposition to leaving." These are important metrics for the more ill and boarded patients.)

Mechanisms used throughout EDs to decrease the time from patient presentation to being seen by a physician or midlevel provider include:

Immediate bed assignment
When there is bed availability, newly arriving patients bypass the triage area and are immediately bedded so that registration, RN assessment and MD evaluation can occur nearly simultaneously. Communication between the triage nurse and the charge nurse must be effective for this intervention to work optimally, so the triage nurse knows which beds are available. Useful communication tools include two-way radios, television monitors or hand-held phones.[1]

Five level triage
By moving from a three- to a five-level triage scale, it becomes easier to assess what complexity of patient is waiting to be seen. This mechanism may trigger a **virtual** fast track. That is, if there are only a few level one to three patients to be seen but several patients with levels four or five waiting to be seen, a second provider can be assigned to the lesser acuity patients. The assigned provider and charge nurse can then determine an available area to see fast track patients (ie, an available examination room, stretcher, chair or hallway).

Standing orders or protocols
Standard order sets for commonly seen conditions can be created so ancillary testing can be initiated at triage prior to the patient being seen by a physician. There are several computer based iterations of diagnosis specific order sets, and these will become more popular as electronic physician order entry becomes commonplace. Triage based order sets allow blood tests and "preps" to be started at triage. Ideally, a delay from patient arrival to physician greet would trigger the necessary testing which could be completed and a decision for disposition would be made earlier.

Bedside registration
Bedside registration makes charts available without the delay of having a patient or patient's family member go to ED registration, wait in line, and then provide the necessary information prior to being evaluated by a clinician. To be practical, additional equipment would be necessary (ie, laptops, additional printers and card generators). Several studies have shown that bedside registration can "lead to statistically significant and practically meaningful improvement in total length of stay,"[2] as well as decrease the rate of departmental "left without treatment" patients.[3]

Patient tracking systems/Informatics technology
ED tracking and information management systems can include integrated interfaces between the ED computer system and the hospital computer systems resulting in immediate retrieval of medical record numbers based on patient name and date of birth. This process would eliminate the need for full registration to generate a medical record number.[4] Tracking systems can also monitor interval times so identification and monitoring of bottlenecks is easily accomplished. Tracking systems can provide real-time ED patient data, capture time and volume data as well as provide detailed ED operational data. "We can't fix what we can't measure." Interfaces with laboratory and radiology information systems can make the retrieval of information necessary for patient disposition available with the click of the mouse.

Patient/physician assignments
Assigning patients to physician-led teams in a predetermined sequence has been shown to "improve workload management, communications, and care coordination resulting in safer and more effective care."[5] By assigning patients to specific teams, greater ownership of the patients waiting to be seen is accomplished.

Implementation of a dedicated fast track area
Once a significant number of "non-urgent" patients present to an ED, it may become cost-effective as well as time-effective to treat these patients in a separate area such as a fast track. Since almost all of these patients will be "treat and release" patients, the space required can be fairly small as long as turnaround times (TATs) are short. A Canadian study demonstrated that a fast track system for low acuity patients decreased the length of stay for these patients as well as decreased the number of patients who left without being seen.[6]

Some of the methods described in this section could be implemented to improve patient flow in general, while others may be more effective when implemented as part of a full capacity protocol. Such protocols might include a physician in triage that is initiated when "x" number of patients are awaiting triage or a "short term fast track" staffed by the charge nurse and a physician that is triggered when "x" number of level four and five patients awaiting medical screening exams.

Integrating ED & Clinical Laboratory Systems

Laboratory systems are critical to providing quality emergency care. Many patients who come to an ED will have some laboratory testing performed such as blood or urine testing. Prolonged turnaround times for lab result reporting can lead to long lengths of stay and contribute to ED crowding. Improving this turnaround time is key to reducing the length of stay.

Strategies for improving laboratory turnaround times

▪ **Transportation of laboratory specimens**
Many facilities still rely on manual transportation of specimens to a lab which results in batching of specimens and delays in performing and obtaining the results of tests. EDs have employed mechanical systems such as pneumatic tube transport systems to send specimens to the lab in a timely fashion. This method has been shown to decrease laboratory TATs for non contiguous laboratories.

▪ **Labeling of laboratory specimens**
Most EDs share a central lab with the rest of the hospital. It is difficult for lab technicians to distinguish the "stat" specimen from a routine specimen. It is important for the emergency leadership to have a dialogue with the laboratory leadership on how to help expedite emergency specimen TAT. One way to

do this is to have ED specimens labeled differently or put in a different (easily identifiable) bag when sent to the lab so that the lab techs can properly prioritize which specimens to run first.

- **Reporting of laboratory results**

Lab results must be reported electronically and prior lab results available in the system as well for clinical comparison. Advanced IT reporting systems exist that alert clinicians when lab results are available or if a critical result exists. Critical lab results (as defined by the hospital leadership) must be verbally reported to a clinician involved in the patient's care in a timely fashion (as defined by hospital policy) with read-back of results with patient name (a log of this must also be kept). Faster and more efficient reporting of results helps to decrease overall patient length of stay (LOS). Technology, such as the T-System EV currently exists that reports test results directly to the electronic physician medical record.

- **QA of laboratory TAT**

It is mandatory that certain high volume laboratory tests are continuously monitored from "order entry" to "resulted." It is important for emergency and lab leaders to routinely follow these lab TATs as they impact not only on LOS but on quality of care. Outlier cases should be investigated and root cause analyses done and corrective plans instituted in a rapid cycle fashion to optimize efficiency and patient safety.

- **Outsourcing/In-sourcing/Point-of-care (POC) testing**

A more controversial movement among EDs is the outsourcing of lab services to an outside/nearby laboratory vendor. There are always considerations about service, TAT and quality assurance (QA) to consider when this is undertaken. Another strategy employed by some EDs is bedside point-of-care testing. This is routinely done for urinalysis and pregnancy tests at many EDs, but a number of EDs have now added bedside testing for things such as blood gas, cardiac markers, d-dimer, etc. There are obvious quality/in-servicing and regulatory [such as the Clinical Laboratory Improvement Amendments (CLIA)] issues in addition to cost issues. One needs to do a cost-benefit analysis prior to embarking on this route. Another variation seen at a few large EDs is that of on-site, ED-based stat labs. Once again, to justify the expense, a cost-benefit analysis must be done.

Many of the above strategies are used to improve patient flow in general and not necessarily used in response to a full capacity protocol. If your dashboard indicators of capacity pinpoint a specific problem, area protocols can be developed to address them specifically. TAT for specific labs and procedures should be consistently monitored to ensure that systems are performing at maximum efficiency. Lab tests that can be consistently monitored for TATs are chemistries, CBS, urinalysis, pregnancy tests, and cardiac enzymes.

Emergency Radiology

The ED is the largest user of radiographic resources. This usage affects both ED and inpatient flow. Slowed inpatient flow and discharge capability further hinders the ED's efficiency secondary to bed availability. Therefore, radiographic testing is often a rate-limiting step in the management of ED patients.

Unfortunately, despite pivotal positioning, little objective data exists regarding best practices. Those interested in improving their utilization patterns of emergency radiology services are encouraged to network and share the information obtained. Monitoring of specific tests such as ankle x-rays, CAT scans and ultrasound for TATs ("order entry" to "resulted") through continuous process improvement efforts may be the best way to detect changes in the system. The following represents common areas where process improvements have been cited by committee members and/or literature:

Process vs. technology

- **Process**

Existing hospital process, manpower and technology all factor into development of best-practices. Hospital-wide analysis of needs and resource availability, although challenging to perform, yield the most successful solutions.

ED-focused process maps are also critical for streamlining. Creative improvements result when little-known problem areas are illuminated. Solutions are infinite when the actual, true process is thoroughly documented and examined.

- **Triage-based orders**

A frequently cited opportunity for improvement is triage-based ordering (See standing orders). X-ray results often determine the disposition of a patient. Hospitals have successfully integrated algorithms enabling triage nurses or mid-level providers to facilitate early acquisition of tests. When films are obtained prior to MD examination, the number of face-to-face interactions per patient is potentially reduced without jeopardizing quality of care.

- **Customized algorithms** (orthopedic, portable chest x-rays)

These are easily designed to fit facility requirements. Disposition of critical or immobile patients can also be hastened in triage through the early summons of portable radiographic equipment. Trauma centers have utilized early mobilization techniques for years. By applying an early-notification system to unstable, immobile or severely deconditioned patients, triage is well-placed to facilitate patient flow.

- **Transportation**

Dedicated ED transportation employees are ideal. Utilization of family members or guests for the transportation of stable patients is of assistance and reduces the burden of transportation on skilled employees. However, this policy should be reviewed by risk management and used with common sense restrictions.

- **Location**

Many skilled-labor hours are lost transporting patients to remote radiographic suites. ED representation must be present for capital improvement projects as needs arise. Dedicated ED radiography and reading is the ideal.

- **Technology**

Radiologic technology is advancing rapidly. Large expenditures and extensive training are required for hospitals to acquire and integrate the burgeoning number of products.

- **Picture archiving communication system (PACS)**

PACS is a rapidly expanding technology allowing viewing of images from designated sites. Facilities are linked by computer network and images are viewed on computer screens.

As the system is linked electronically, applications are endless. Images can be simultaneously viewed by remote radiologists and consultants. Reports can be documented in multiple formats depending on a facility's pre-existing charting systems. Most major imaging is compatible with PACS technology.

- **Ultrasound**

Many generations of ultrasound are now available and function at varying levels within EDs across the country. As technology improves and the body of literature expands, more EPs find themselves with high-

powered imaging at their fingertips. In addition, ED ultrasound eliminates the lengthy waits often associated with tests performed in other departments/locations.

However, many EPs are slow to incorporate this technology into their practices for numerous reasons: initial capital expenditure for hardware, costly and time-consuming education for untrained EPs, documentation/reimbursement issues, liability concerns and basic resistance to change.

Therefore, ultrasound is an efficient tool for EDs who have made its availability a priority. Significant training is required for its integration into organizations that are ultrasound-naïve.

- **Digital radiography (DR)**

One of the most recent additions to high-powered, efficient ED radiography is DR. DR allows incredibly rapid capture and display of images. Newer scanners can obtain entire body scans in seconds, making them ideal for screening purposes.

These scanners have found a niche in trauma centers, where conventional portable imaging of multi-extremity trauma is resource intensive. Digital radiography allows more rapid disposition of mass-casualty victims. The body of literature is starting to accumulate, but more research and experience is necessary to determine the cost-effectiveness of this technology. Digital radiology requires PACS capabilities for its use.

- **Teleradiology**

Although controversial within the American College of Radiology, teleradiology continues to gain acceptance in EDs nationwide. Teleradiology offers the convenience of service-minded radiologists who provide timely study readings around-the-clock. Despite their increasing market share, reimbursement and credentialing issues abound with these services. PACS capabilities are required.

Nursing Interventions

In the ED, nursing is often in a key position to identify and initiate the ED response to a crowding crisis through collaboration with the ED physician staff.

Department Assessment

The ED requires on-going assessment and monitoring to ensure early identification of ED crowding. The ED charge nurse often performs this on-going assessment. The following list is a sample of suggested criteria to consider when routinely assessing the ED status:

- The number of new patients arriving each hour
- The in-patient hospital bed availability and capacity
- The length of time patients are waiting to be seen by a triage nurse
- The number of staff performing triage
- The number of patients (and their triage classification) waiting to be placed into an exam room after completing triage and the length of time waiting
- The number of patients in hallway beds, chairs or on ambulance gurneys
- The workload and level of experience of the ED staff [physicians, nurses, unlicensed assistant personnel (UAP) and registration staff]
- The number of critical patients in the ED
- The volume of ED patients with pending consults/admissions, and the wait time
- The volume of ED patients awaiting diagnostic test/results and the wait time

The data gathered from this ongoing assessment should be communicated to the ED physician in charge so that a collaborative analysis of the data can be initiated.

Triggers
In addition to assessing the ED status it is important to have identified triggers to indicate a pending or actual crowding crisis. A trigger should include an indicator and a specific/objective measurement of that indicator. Many of these trigger indicators may be taken from the list of ED assessment criteria listed above. The specific measurement of each indicator however will need to be tailored to the individual institution. Some factors to consider when establishing the specific measurement of the indicators includes size of the ED/institution, availability of additional resources, type of institution, community standards, patient expectations and current literature/research/benchmark data. Some potential triggers may include:

- The length of time patients are waiting to be seen by a triage nurse exceeds ____ minutes.
- More than ___ urgent patients are waiting greater than ___ minutes to be placed into an exam room.
- More than ___ patients are boarding in the ED.
- More than ___ patients waiting greater than ___ minutes for diagnostic testing/results.
- More than ___ critically ill patients in the ED simultaneously.

In each example listed above, the blank represents the specific measurement and should be filled-in based on ED/institution ability and expectations. In addition, the ED may want to determine how many of the triggers need to be met to activate the ED full capacity protocol.

Communication
Communication is critical if an organization is to manage ED crowding proactively, concurrently and retrospectively. The ED staff must communicate with hospital administration, ED management team and other ancillary support departments at the first sign of an impending crowding crisis. Furthermore, communication/collaboration between ED nursing and ED physicians is imperative to effectively address ED crowding.

Interventions
It would be beneficial to have several pre-determined interventions for the ED staff to implement when the threshold will soon be met or actual ED crowding crisis has been identified. These interventions should be developed and agreed upon ahead of time by both the ED nursing and physician staff. Some examples of potential interventions include:

- **Triage overload**
  - Notify the ED physician
  - Open additional triage stations
  - Assign UAP (Unlicensed Assistant Personnel) to assist in triage
  - Have the bedside nurse triage all emergent patients at the bedside

- **Multiple consults**
  - Notify the ED physician
  - If multiple consults for the same service, request the service to call in a back-up team
  - Request ED physician to write admission orders*
  - Notify the house supervisor/ED management team

*While this is an option, it may not be applicable in all states or in all EDs nor should it be compulsory.

Diagnostic delays
- Review situation with ED physician to determine the necessity of pending diagnostic test prior to final disposition or to determine if patients with pending diagnostic test can be relocated to a holding area
- Notify the diagnostic/ancillary department to review situation and to prioritize pending test/results

- **Staffing shortages/Overload (nursing/ancillary/physician)**
    - Notify the House Supervisor/ED management team
    - Call in additional staff
    - Determine if there is available staff elsewhere in the hospital to assist in the ED
    - Notify administrator on call and mobilize department managers as needed

- **Multiple admissions/boarders**
    - Notify the House Supervisor/ED management team
    - Consolidate all boarders in one area of the ED
    - Request additional staff (if available) to care for boarders
    - Initiate in-patient treatment orders to ensure timely and safe care of the patient

- **Extended waiting in the ED waiting room**
    - Review situation with ED physician
    - Consider establishing an area to fast track patients
    - Request physician to order/initiate ED workup on patients in the waiting room if appropriate

Documentation

The written documentation of ED crowding and its impact is important to help ensure real time resolution and retrospective process improvements. It is important to document the protocols/interventions that worked well and those that did not work well. To facilitate documentation, a specific tool may be developed to record the department assessment/triggers, what interventions were initiated and the outcome of the interventions. This information should be trended and used in process improvement activities.

Discharge

There is a notable variation in practice that results in unnecessary delays from the time a physician or mid-level provider (MLP) makes a decision to discharge or admit a patient until the patient physically leaves the ED. There may be some overlap, but it is helpful to consider the issue for these two separate groups (discharged patients and admitted patients) because there are certainly some limiting factors that are unique to one and not the other.

Disposition Discharge
- **Issue -** Transportation: A common limiting factor to patient departure is the ability to secure safe transportation home. A family member can transport a patient home if they are unable to drive themselves, the patient lacks any accessible transportation, or ambulance transport is appropriate.
    - Strategy
        - Pre-arrange transportation at the earliest point of the evaluation when discharge is anticipated. Notification of pending discharge to care team well before discharge is expected can minimize unnecessary delays. Ensure that transportation by family is secured if patient's condition does not allow them to drive home themselves. Have taxi or public transportation vouchers pre-arranged for patients who have no other means of leaving. Work with the

ambulance transport process to have a timely response to pick up patients for transport to an extended care facility (ECF) (similar to process of inter-facility transfer for acutely ill patients) and arrange early in the evaluation.

- Develop the concept of a "Wet Shelter" to transport intoxicated patients who have been medically cleared but have no other alternative or safe transportation to home or a shelter until sober for discharge (would also decrease LOS for this population and decompress the utilization of ED beds.)

Disposition Admit
- **Issue -** Transportation**:** A recurrent limiting factor is the availability of qualified personnel to transport patients to the inpatient (IP) setting when that disposition and bed determination has been secured.
    - Strategy
    Expand the qualifications and pool of individuals who are able to transport patients and cross-train them to be able to transfer all levels of patients (except when a nurse is needed for critically ill patients). Have the transport responsibilities be a function of the ED and not a hospital-wide responsibility unless strict standards are adhered to for availability and TAT.
- **Issue** – Lack of inpatient beds is the **#1 contributor to ED overcrowding.**
    - Strategy
        1. Develop an "institutional full capacity protocol" to include trigger thresholds and interventions at various levels of full capacity (http://www.urgentmatters.org/enewsletter/volume1/issue4/P_jensen.asp
            http://www.urgentmatters.org/enewsletter/vol1_issue4/P_adopt_boarder.asp
            (*Acad Emerg Med*. 2001;8(2):185-187)
            Each hospital department would prioritize initiatives that are aimed at decompressing admitted ED–IP holds, defer scheduled admits, transfers, elective surgery, etc. A hospital in Canada dedicates 2 to 5 IP beds on patient floors for use only in the event of a full capacity trigger to respond to ED overcrowding.
        2. Develop or expand emergency observation capacity for patients currently being admitted for 24 hours or less (on average @ 20-30% of all IP admissions).
        3. Approach administration with option of utilizing IP hallway space as temporary alternative to IP capacity limits (http://www.urgentmatters.org/enewsletter/volume1/issue4/P_jensen.asp).
        4. Develop collaborations or partnerships (even financial joint ventures) with hospitalists to maximize IP efficiencies and discharge planning. For moderate-sized hospital of 500 beds, each reduction of 0.1 days in IP length of stay (LOS) overall results in an increase of 10-20 IP beds daily.
        5. Re-define IP rounding priorities to focus on discharges first and sickest patients second rather than current convention.
        6. Develop new role of a nursing team leader (no primary clinical assignment) in addition to "traditional charge nurse" whose role is focused on disposition to departure as a priority. Introduction of this concept has expanded ED capacity between 25-30% with dedicated role of RN team leader.
        7. Maximize efficiency of turnover of IP beds availability through streamlined identification of open beds, stat cleaning and turnover of IP beds via a computerized bed tracking system to prioritize ED admissions.
        8. "Bed czar" concept for single authority for early discharge of inpatients that can override primary care physician (PCP) decision when at full capacity. These patients can be placed in a separate area with multiple recliners in which the patients can wait for their rides home or to be rechecked by their PCP before they leave.

The purpose of this paper is to provide ideas for the development of facility-specific full capacity protocols. ED crowding is a symptom of multiple levels of hospital dysfunctional systems and each need to be addressed for permanent solutions. The full capacity protocol that is developed will involve a multidisciplinary team pulled from all areas of the hospital including administration, inpatient nursing, nursing leadership, lab, pharmacy, imaging, housekeeping, hospitalist, ED doctors, and ED nursing. There must be a regimented approach to its development and implementation.

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