

# Maryland Patient Safety Center Emergency Department Collaborative

## Improvement Guide

The Maryland Patient Safety Center (MPSC) Emergency Department (ED) Collaborative includes hospitals throughout the state of Maryland. Twenty-nine multidisciplinary teams representing more than half of the hospitals in the state are working toward achieving a broad spectrum of ambitious goals geared toward ensuring that the sickest ED patients get the care they need quickly and that all patients are cared for in a timely manner with the smallest possible exposure to preventable healthcare-associated harm.

As a starting point, the Collaborative teams have begun to implement a series of change strategies that have been recommended in the scientific literature or reported as successful by other hospitals. These strategies are included in this guide.

**The MPSC encourage others to share and use these resources.**

**Please contact us directly with stories, contributions, requests for additional support, or questions for the team.**

### MPSC ED Collaborative Team

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## Goals for the MPSC ED Collaborative

1. **Building more coordinated ED teams:** As measured using the Agency for Healthcare Research and Quality Hospital Survey on Patient Safety Culture, teams are targeting at least one key domain and aiming for a 50% improvement in the next year.
2. **Decreasing the number of patients who get ED-acquired bloodstream infections:** The goal is to eliminate bloodstream infections resulting from emergency department treatment procedures.
3. **Getting intravenous (IV) antibiotics treatment to seriously ill patients quickly:** The first tier of this goal is timely administration of IV antibiotics for patients with pneumonia, with a goal of 100% for eligible patients. The second tier is administration of all IV antibiotics within the time window designated by the ED team as ideal care.
4. **Making sure that getting the best care to very sick patients quickly does not result in longer stays and more inconvenience for less seriously ill patients.** Using a variety of ED length of stay (LOS) measures, the aim is to achieve the clinical goals of the Collaborative without increasing the overall ED LOS. Many aspects of emergency care flow are being addressed and measured because of their relationship to the overall effectiveness, safety and efficiency of the ED's systems of care.

## Interventions and Measures

Tables 1 through 5 summarize the recommended interventions and optional measures linked to the collaborative goals. The tables are organized by clinical topic and include:

- Elimination of central line bloodstream infections
- Time to antibiotic administration for patients with pneumonia
- Time to broad-spectrum antibiotics for patients with sepsis
- Time to treatment for patients with acute myocardial infarction
- Additional interventions to improve patient throughput

The interventions listed in each table are organized as follows in the patient flow process:

- Door to care provider
- Care provider to disposition
- Disposition to discharge

The tables also list tools and resources that will aid you in achieving success in these areas.

Pneumonia Care Components			
Flow Process	Interventions	Measures	Tools and References (Located in Resource Binder)
Door to Care Provider	<p>Use triage algorithm to flag patients in your Target Group to a bed.</p> <p>Document on ED tracking board the arrival time and antibiotic administration time of all patients presenting to the ED with pneumonia. This provides staff with real time feedback on the compliance with the goal of administering treatment in 4 hours.</p> <p>Document on ED tracking board arrival time and planned antibiotic administration time of any patient in the waiting room suspected of having pneumonia.</p>		<ul style="list-style-type: none"> <li>Pneumonia Indicator Logic Brochure</li> <li>Fact Sheet for Nurses: Antibiotic Timing and Selection</li> </ul>

Clinical Topic

Time Period in Patient Flow Process

Interventions for Change

Recommended Measures

Tools and Resources

**Table 1: Elimination of Catheter-Related Bloodstream Infections**

<b>Central Line Bundle Components</b>			
<ul style="list-style-type: none"> <li>• Hand hygiene</li> <li>• Maximal barrier precautions: a sterile gown, gloves, mask, and hat and a large drape for the patient</li> <li>• 2% chlorhexidine skin antisepsis</li> <li>• Optimal catheter site selection, with avoidance of the femoral site</li> <li>• Line identification with a RED sticker if placed under less-than-sterile conditions, indicating need for timely line reinsertion. Lines are identified with a GREEN sticker when placed in the ED using maximum sterile barriers.</li> </ul>			
<b>Flow Process</b>	<b>Interventions To Achieve Central Line Bundle Care Components</b>	<b>Measures</b>	<b>Tools and References (Located in Resource Binder)</b>
<b>Door to Care Provider</b>	<p>Identify early patients likely to require a central line.</p> <p>Post signs at the entry and exits to the patient room as reminders about practicing proper hand hygiene.</p> <p>Initiate a campaign using posters that include photos of celebrated hospital physicians and employees recommending hand hygiene.</p> <p>Make readily available standardized central line insertion equipment located on a cart for mobile access.</p> <p>Develop standard operating procedures for tray distribution to ensure that ED and inpatient nursing units receive trays with sterile garb.</p> <p>Include chlorhexidine antisepsis kits in carts or in grab bags storing central line equipment.</p> <p>Keep soap and alcohol-based hand hygiene dispensers prominently placed and make universal precautions equipment, such as gloves, only available near hand sanitation equipment.</p>		

<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>Care Provider to Disposition</b></p>	<p>Implement Central Line Bundle (described on previous page).</p> <p>Use Central Line Procedure Checklist to record time and date of line placement for recordkeeping purposes and evaluation by staff to aid in decision making.</p> <p>Empower nurses or someone other than the individual inserting the line to enforce use of a Central Line Procedure Checklist to ensure that all processes related to central line placement are executed for each placement.</p> <p>Conduct a time-out before inserting the line to verify the correct (1) patient, (2) procedure, (3) location, and (4) staff.</p> <p>When caring for central lines, appropriate times for hand hygiene include:</p> <ul style="list-style-type: none"> <li>• Before and after palpating catheter insertion sites</li> <li>• Before and after inserting, replacing, accessing, repairing, or dressing an intravascular catheter</li> <li>• When hands are obviously soiled or if contamination is suspected</li> <li>• Before and after invasive procedures</li> <li>• Between patients</li> <li>• Before donning and after doffing gloves</li> <li>• After using the bathroom</li> </ul>	<p><b>Process Measures:</b></p> <ul style="list-style-type: none"> <li>• Central Line Bundle compliance</li> <li>• Total number of central lines placed by type (i.e., femoral, subclavian, internal jugular)</li> <li>• Total number of central lines inserted in ED</li> <li>• Number of central lines inserted that were compliant with Central Line Bundle</li> </ul>	<ul style="list-style-type: none"> <li>• Central Line Procedural Checklist</li> <li>• Central Line Insertion Checklist, Virginia Mason</li> <li>• Evolving a Culture of Patient Safety: Lessons From Elimination of CLABS.</li> </ul>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>Disposition to Discharge</b></p>	<p>Attach RED tags to central lines that were inserted NOT according to the Central Line Bundle as well as femoral lines that need to be removed.</p> <p>Attach GREEN tags to central lines inserted using the Central Line Bundle.</p> <p>Add information regarding the red or green tag to your hand-off script so that receiving team understands what the tag means and what it needs to do.</p>	<p><b>Process Measures:</b></p> <ul style="list-style-type: none"> <li>• Number of patients with central lines with red or green tags</li> </ul> <p><b>Outcome Measures:</b></p> <ul style="list-style-type: none"> <li>• Central line catheter-related bloodstream infection rate per 1,000 central line days</li> <li>• Days since last catheter-related bloodstream infection linked to ED central line insertion</li> <li>• Percentage of ED-attributable central line infections</li> </ul>	

## Evidence

1. Berenholtz SM, Pronovost PJ, Lipsett PA, et al. Eliminating catheter-related bloodstream infections in the intensive care unit. *Crit Care Med* 2004; 32:2014–20.
2. Pronovost PJ, Wu AW, Sexton JB. Acute decompensation after removing a central line: Practical approaches to increasing safety in the intensive care unit. *Ann Intern Med* 2004; 140:1025–33.
3. Raad II, Hohn DC, Gilbreath BJ, et al. Prevention of central venous catheter- related infections by using maximal sterile barrier precautions during insertion. *Infect Control Hosp Epidemiol* 1994; 15(4 Pt 1):213–38.

**Table 2: Time to Antibiotic Administration for Patients With Pneumonia**

Pneumonia Care Components			
<ul style="list-style-type: none"> <li>Initial antibiotic received within 4 hours of hospital arrival (intravenous [IV], intramuscular [IM], oral [PO], or nasogastric)</li> <li>Appropriate initial antibiotic selection for community-acquired pneumonia (CAP) in immunocompetent patients</li> <li>Blood cultures performed before initial antibiotic dose</li> <li>Oxygenation assessment (e.g., pulse oximetry or ABGs)</li> </ul>			
Flow Process	Interventions To Achieve Pneumonia Care Components	Measures	Tools and References (Located in Resource Binder)
Door to Care Provider	<p>Use triage algorithm to flag patients in your target group to a bed.</p> <p>Document on ED tracking board the arrival time and antibiotic administration time of all patients presenting to the ED with pneumonia. This provides staff with real-time feedback on the compliance with the goal of administering treatment in 4 hours.</p> <p>Document on ED tracking board the arrival time and planned antibiotic administration time of any patient in the waiting room suspected of having pneumonia.</p>		<ul style="list-style-type: none"> <li>Pneumonia Indicator Logic Brochure</li> <li>Fact Sheet for Nurses: Antibiotic Timing and Selection</li> </ul>

<p style="text-align: center;"><b>Care Provider to Disposition</b></p>	<p>Implement a protocol for patients with difficult IV access (i.e., PO antibiotics, IM antibiotics) to be given for any patient requiring more than 30 minutes active effort to obtain IV access.</p> <p>Make antibiotics readily available in the ED.</p> <p>Improve workflow by using automated preprinted orders for lab staff to ensure timely lab reporting.</p> <p>Develop a process by which patients receive PO or IM antibiotics if IV access cannot be obtained for the initial dose.</p> <p>Include standardized pulse oximetry on preprinted orders for assessment treatment of patients with pneumonia.</p> <p>Use “pull system” protocol for physician notification when specimens are ready for interpretation.</p> <p>Include on a care protocol reminder to obtain blood cultures before antibiotic administration.</p> <p>Include “time drawn for blood cultures” blank on log-in sheet in the lab.</p> <p>Add automated reminder to computerized medical record documentation.</p> <p>Include list of appropriate antibiotics on standard evidence-based preprinted order sets.</p> <p>Provide physicians with pocket cards listing appropriate antibiotics.</p>	<p><b>Process Measure:</b></p> <ul style="list-style-type: none"> <li>Percentage of patients who receive the initial antibiotic dose within the first 4 hours after hospital arrival</li> </ul>	<ul style="list-style-type: none"> <li>Adult Community-Acquired Pneumonia (CAP) Order Bundle</li> </ul>
<p style="text-align: center;"><b>Disposition to Discharge</b></p>			

## Evidence

1. Benenson R, Magalski A, Cavanaugh S, Williams E. Effects of a pneumonia clinical pathway on time to antibiotic treatment, length of stay, and mortality. *Acad Emer Med* 1999 Dec; 6(12).
2. Fine MJ, Hough LF, Medsger AR, Li YH, Ricci EM, et al. The hospital admission decision for patients with community-acquired pneumonia. Results from the Pneumonia Patient Outcomes Research Team cohort study. *Arch Intern Med* 1997; 15:36–44.
3. Gleason PP, Meehan, TP, Fine JM, et al. Associations between initial antimicrobial regimens and medical outcomes for elderly patients with pneumonia. *Arch Intern Med* 1999; 159:2562–72.
4. Kahn KL, Rogers WH, Rubenstein LV, et al. Measuring quality of care with explicit process criteria before and after implementation of the DRG-based prospective payment system. *JAMA* 1990; 264:1969–73.
5. McGarvey RN, Harper JJ. Pneumonia mortality reduction and quality improvement in a community hospital. *Qual Rev Bull* 1993; 19:124–73.
6. Meehan TP, Fine MJ, Krumholz HM, et al. Quality of care, process, and outcomes in elderly patients with pneumonia. *JAMA* 1997; 278:2080–4.

**Table 3: Time to Broad-Spectrum Antibiotics for Patients With Sepsis**

Sepsis Resuscitation Bundle	Measures	Tools and References (Resource Binder)
<ol style="list-style-type: none"> <li>1. Serum lactate measured</li> <li>2. Blood cultures obtained before antibiotic administration</li> <li>3. From the time of presentation, broad-spectrum antibiotics administered within 3 hours for ED admissions and 1 hour for non-ED ICU admissions</li> <li>4. In the event of hypotension and/or lactate &gt; 4 mmol/L (36 mg/dl): <ul style="list-style-type: none"> <li>• Deliver an initial minimum of 20 ml/kg of crystalloid (or colloid equivalent)</li> <li>• Apply vasopressors for hypotension not responding to initial fluid resuscitation to maintain mean arterial pressure &gt; 65 mm Hg</li> </ul> </li> <li>5. In the event of persistent hypotension despite fluid resuscitation (septic shock) and/or lactate &gt; 4 mmol/L (36 mg/dl): <ul style="list-style-type: none"> <li>• Achieve central venous pressure (CVP) of &gt; 8 mm Hg</li> <li>• Achieve central venous oxygen saturation (ScvO2) of &gt; 70%</li> </ul> </li> </ol>	<p><b>Process Measures:</b></p> <ul style="list-style-type: none"> <li>• Timing of blood cultures</li> <li>• Percentage of patients who receive broad-spectrum antibiotics in 3 hours</li> <li>• CVP goal</li> <li>• ScvO2 goal</li> <li>• Reliability: Sepsis Resuscitation Bundle</li> </ul> <p><b>Outcome Measure:</b></p> <ul style="list-style-type: none"> <li>• Mortality due to severe sepsis and septic shock</li> </ul>	<ul style="list-style-type: none"> <li>• Severe Sepsis Bundles</li> <li>• Sepsis Definitions</li> <li>• Evaluation of Severe Sepsis Screening Tools</li> <li>• Severe Sepsis Quality Indicators</li> <li>• Sepsis Database Individual Chart Measurement Tool</li> <li>• Sepsis Monthly Measurement Worksheet</li> </ul>
Sepsis Management Bundle	Measures	Tools and References (Resource Binder)
<ol style="list-style-type: none"> <li>1. Low-dose steroids administered for septic shock in accordance with a standardized ICU policy</li> <li>2. Drotrecogin alfa (activated) administered in accordance with a standardized ICU policy</li> <li>3. Glucose control maintained &gt; lower limit of normal but &lt; 150 mg/dl (8.3 mmol/L)</li> <li>4. Inspiratory plateau pressures maintained &lt; 30 cm H<sub>2</sub>O for mechanically ventilated patients</li> </ol>	<p><b>Process Measures:</b></p> <ul style="list-style-type: none"> <li>• Low-dose steroid administration</li> <li>• Drotrecogin alfa (activated) administration</li> <li>• Glycemic control goal</li> <li>• Inspiratory plateau pressure goal</li> <li>• Reliability: Sepsis Management Bundle</li> </ul> <p><b>Outcome Measure:</b></p> <ul style="list-style-type: none"> <li>• Mortality due to severe sepsis and septic shock</li> </ul>	<ul style="list-style-type: none"> <li>• Severe Sepsis Bundles</li> <li>• Sepsis Definitions</li> <li>• Evaluation of Severe Sepsis Screening Tools</li> <li>• Severe Sepsis Quality Indicators</li> <li>• Sepsis Database Individual Chart Measurement Tool</li> <li>• Sepsis Monthly Measurement Worksheet</li> </ul>

## Evidence

1. 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; 288:862–71.
2. Bernard GR, Vincent JL, Laterre PF, et al. Efficacy and safety of recombinant human activated protein C for severe sepsis. *N Engl J Med* 2001; 344:699–709.
3. Dellinger RP, Carlet JM, Masur H, Gerlach H, et al. Surviving sepsis campaign guidelines for management of severe sepsis and septic shock. *Crit Care Med* 2004; 32:858-72.
4. 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; 345:1368–77.

**Note:** For purposes of implementation, sepsis treatment has been divided into two bundles with spheres of activity in the first 3 hours, then 3 to 6 hours. Generally, this is interpreted to mean “ED care” in the first 3 hours and “ICU care” in the first 6 hours. We recognize that at many sites, these patients will spend 6 or more hours in the ED; therefore, both bundles are presented. They are divided, though, into the resuscitation bundle (the first 3 hours) and the management bundle (the first 6 hours). We suggest first implementing the resuscitation bundle.

**Table 4: Time to Treatment for Patients With Acute Myocardial Infarction**

<b>Acute Myocardial Infarction (AMI) Care Components</b>			
<ul style="list-style-type: none"> <li>• Thrombolytic agent received within 30 minutes of hospital arrival</li> <li>• Percutaneous Coronary Intervention (PCI) received within 120 minutes of hospital arrival</li> <li>• Aspirin received within 24 hours before or after hospital arrival</li> <li>• Beta blocker received within 24 hours after hospital arrival</li> </ul>			
<b>Flow Process</b>	<b>Interventions To Achieve AMI Care Components</b>	<b>Measures</b>	<b>Tools and References (Located in Resource Binder)</b>
<b>Door to Care Provider</b>	<p>Implement parallel processing system by which paramedics in the field can transmit 12-lead ECG to ED physician for review.</p> <p>Work with paramedics' director to develop and deploy a protocol to administer aspirin in the field to patients suspected of having an AMI.</p> <p>Develop a protocol allowing nursing staff to immediately administer aspirin to patients with probable AMI or chest pain who are without aspirin contraindications.</p> <p>Develop order sets that make it the default to order aspirin for eligible patients and require a special order for avoiding such compliant activities.</p> <p>Develop system by which ECG is to be completed within 5 minutes of arrival in ED and immediately presented to the ED physician for review.</p> <p>Place an ECG machine in triage area for use in case an ED bed is not immediately available.</p> <p>Ensure staff has adequate skills to meet requirements for initiating thrombolysis (e.g., cannulation skills, ECG interpretation).</p> <p>Use strategically placed visible reminders, such as listing of contraindications for aspirin and beta blocker, or post reminders or checklist to consider aspirin and beta blocker for every AMI admission.</p> <p>Place order set and admission orders on chart as soon as the patient is identified as having an AMI to ensure consistent care. This will facilitate the use of order sets.</p> <p>Post list of staff involved in PCI cases who have a door-to-balloon time under 120 minutes.</p>		

<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>Care Provider to Disposition</b></p>	<p>Develop protocol under which ED physician orders and initiates thrombolytics.</p> <p>Review PCI protocols for cases in which thrombolysis may be the preferred treatment, specifically for when time since onset of symptoms is under 2 hours.</p> <p>Increase the number of nurses skilled to mix and administer thrombolytic agents.</p> <p>Improve workflow by “fast track” admits requiring thrombolysis.</p> <p>Develop system by which ED physician calls cardiologist directly, indicating urgency with 911 code number.</p> <p>Remove bottleneck by stocking and administering thrombolytic therapy in ED.</p> <p>Design systems to avoid mistakes. For example, use the mnemonic CATH (C = consent and clothes; A = assemble equipment and documentation; T = telephone call from cath lab; H = hustle to cath lab).</p> <p>Synchronize care processes by instituting code “purple” or cardiac alert for ST segment elevation MI cases; alert cath lab team, cardiologist, and interventionalist simultaneously.</p> <p>Provide cath lab staff and ED care team with cordless phones to speed communications.</p>	<p><b>Process Measures:</b></p> <ul style="list-style-type: none"> <li>Percentage of patients with AMI without aspirin contraindications who received aspirin within 24 hours before or after hospital arrival</li> <li>Percentage of patients with AMI without beta blocker contraindications who receive a beta blocker within 24 hours after hospital arrival</li> <li>Thrombolytic agent received within 30 minutes of hospital arrival</li> <li>PCI received within 120 minutes of hospital arrival</li> </ul>	<ul style="list-style-type: none"> <li>Acute Myocardial Infarction Checklist</li> <li>Acute Myocardial Infarction Preprinted Orders Example</li> <li>Sample Acute Myocardial Infarction Pocket Card</li> <li>Management of ST-Elevation Myocardial Infarction</li> </ul>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>Disposition to Discharge</b></p>	<p>Develop a protocol of medication to be administered before going to cath lab. To smooth workflow during normal working hours, ensure that ED contacts cath lab to hold scheduled procedures for an urgent case.</p> <p>Require that cath lab on-call team can arrive in ED in less than 30 minutes.</p> <p>Use parallel processing to prepare patient in ED and ready the cath lab simultaneously.</p> <p>After PCI case is completed, have physician bring film images to ED to show staff members how they contributed to a successful outcome. Cardiologist also could draw the image on paper to share with ED staff.</p>	<p><b>Outcome Measure:</b></p> <ul style="list-style-type: none"> <li>AMI mortality rate</li> </ul>	<ul style="list-style-type: none"> <li>AMI Pre-Discharge Pocket Card</li> <li>Acute Myocardial Infarction Discharge Orders Example</li> <li>Performance Results Index Cards</li> </ul>

**Evidence**

1. ISIS-2 (Second International Study of Infarct Survival) Collaborative Group. Randomized trial of intravenous streptokinase, oral aspirin, both or neither among 17,187 cases of suspected acute myocardial infarction: ISIS-2. *Lancet* 1988; 2:349–60.
2. First International Study of Infarct Survival Collaborative Group. Randomised trial of intravenous atenolol among 16,027 cases of suspected AMI: ISIS-1. *Lancet* 1986; 2:57–66.
3. Goldstein S. B-blockers in hypertensive and coronary heart disease. *Arch Intern Med* 1996; 156:1267–76.

Table 5: Additional Interventions to Improve Patient Throughput

Flow Process	Interventions	Measures	Tools and References (Located in Resource Binder)
Door to Care Provider	<p><b>Physician-assisted triage/rapid medical evaluation (RME):</b> This is an express service for patients with minor injury or illness that works in conjunction with traditional triage. Patients with ankle sprains, bronchitis, skin irritation, or other minor conditions will enter RME for immediate assessment and treatment by a physician, nurse practitioner, or physician's assistant. RME patients who need tests, x-rays, or further evaluation by the ED physicians return to the lobby or a nice lounge to wait for results while others continue to filter through the system.  <b>TIP:</b> This strategy works well if there are no beds available or if one has an ED that is too small for existing volume. This may not be efficient use of resources if beds are available. Additionally, you should educate patients about the process to deter patients from leaving (patients may leave under the assumption that their treatment is complete).  <b>TIP:</b> It is important to manage pain effectively and to identify a process that confirms regular check backs with these patients so that they do not feel "ignored." Additionally, find ways to ensure that exams and discussions with the physician and/or physician's assistant are held in a confidential manner.</p> <p><b>Team triage:</b> The five-member team consisting of a physician, nurse, scribe, registrar, and technician work together to begin an ED patient's evaluation and treatment at the point of contact in triage. The scribe writes or types comments made by the team, and the technical assistant helps with tasks (i.e., order entry).</p> <p><b>Streamline registration:</b> Patients provide only limited information before the triage assessment, and registrars get the rest of the information as the patient waits for treatment.</p> <p><b>Bedside registration:</b> This strategy eliminates the patients having to wait for treatment pending full registration. It also moves questioning in public waiting areas to an ED patient room, where registration can be completed in private after the patient is made comfortable.</p> <p><b>Triage short form:</b> Emphasis is placed on a few leveraged questions surrounding the chief complaint upfront, collecting complete patient histories and vital signs later. This moves the patient to a private room more quickly.</p>	<ul style="list-style-type: none"> <li>• Overall LOS</li> <li>• Timeliness of triage</li> <li>• Door to bed time</li> <li>• Door to physician time</li> </ul>	

<b>Care Provider to Disposition</b>	<p><b>Preemptive test guidelines:</b> Test ordering guidelines authorize nurses to order common diagnostic tests at triage. Upfront ordering provides available results when the physician sees the patient.</p> <p><b>TIP:</b> This strategy should be used when a physician is not readily available to evaluate the patient. If used for all patients, it can delay the time from door to care provider. Additionally, the potential for over ordering tests or the omission of critical tests exists. Thus, the physician could have to wait for unneeded test results or have to order additional tests upon evaluating the patient, resulting in an increased LOS.</p> <p><b>Point-of-care testing:</b> Blood analysis point-of-care testing uses a handheld device versus traditional laboratory testing.</p> <p><b>TIP:</b> This tool may not improve patient throughput if the bottlenecks in your lab process include specimen acquisition or results reporting.</p> <p><b>Decentralization of laboratory testing:</b> Decentralize laboratory testing services, introduce satellite laboratories near areas of great need, and change transit method (pneumatic tube).</p>	<ul style="list-style-type: none"> <li>• Laboratory turnaround times</li> </ul>	
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Disposition to Discharge	<p><b>Emergency physician admit authority<sup>1</sup>:</b> Emergency physician admit authority grants the ED physician admission decision authority, speeding up the decision to admit and starting the admission process earlier.</p> <p><b>Patient report forms/no-delay nurse report and protocol for admissions<sup>2</sup>:</b> The ED staff writes a brief summary of the patient’s diagnosis on a newly created form and faxes it, along with notes, to the admitting floor. Per a new protocol, the patient leaves the ED within a predetermined time (e.g., 30 minutes) after the report is faxed.</p> <p><b>IMPORTANT NOTE:</b> The Joint Commission now requires that if reports are faxed, there is a mechanism for the receiving unit to be able to call and ask questions of the person who has written the report.</p> <p><b>Preemptive bed request:</b> A bed request and admission order request are simultaneously submitted at the point an emergency room patient is anticipated to require admission.</p> <p><b>Adopt a boarder:</b> Inpatients boarding in the hallway of the ED are moved to the appropriate inpatient unit hallway until an inpatient bed is clean and ready.</p> <p><b>Centralized bed control/electronic tracking board:</b> Teams assess inpatient bed utilization; help to plan more timely discharges on difficult-to-place patients; and identify which patients could be discharged the next day, making the necessary arrangements. Bed czars often are given the authority to transfer patients, discharge patients, expedite testing, and cancel or put a hold on elective admission or procedure.</p> <p><b>Code Help ER<sup>2</sup>:</b> This is a code developed by one Boston hospital under which priority is placed on transporting patients to inpatient beds, completing nursing reports, and cleaning beds. Code Help ER is the final step taken before the hospital goes on diversion. This code has been adopted by the state of Massachusetts as best practice.</p> <p><b>Patient Resource Manager Program<sup>3</sup>:</b> The Patient Resource Manager Program is staffed by a dedicated registered nurse. The program works as follows: As soon as the patient is identified for admission, the resource manager is notified and begins the admissions process. The program has helped to expedite admissions, plan for contingencies, improve interactions with managed care organizations, and facilitate interhospital patient transfers.</p> <p><b>RN–patient care technician admission team:</b> This team is responsible for transporting patients, entering their data into the unit computer, and performing routine inpatient admitting duties, which enables admission to occur even when inpatient units are too busy to accept patients.</p> <p><b>Rapid admission units:</b> These units are staffed to monitor and provide basic care while patients await inpatient admission. Nurses care for these patients immediately after being admitted, either from the ED or from the physician’s office. Orders are initiated, tests and treatment begun, and care coordinated. The rapid admission unit also provides a place for private medical staff to send direct admissions for those patients who would ordinarily be sent to the ED for admissions and allows for expediting first inpatient day workup and treatment.</p>	<ul style="list-style-type: none"> <li>• Timeliness of admission process</li> <li>• Disposition to departure time for admitted patients</li> <li>• Boarder hours</li> <li>• Patient satisfaction rates</li> </ul>	<p>Faxed Report Form www.IHI.org</p>
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Overall ED Initiatives	<p><b>Fast track:</b> Fast tracks are used to treat patients with nonemergent conditions that can be treated relatively quickly. The advantage of fast tracking is that patients with minor injuries are separated from the more serious cases and treated quicker, resulting in the reduction of wait times for both urgent and nonurgent patients.</p> <p><b>Efficiency profiling<sup>1</sup>:</b> Physicians are profiled on initial time to patient and overall LOS. Reports shared with physicians provide individual performance data directly compared to peer data. <b>TIP:</b> This tool is only effective if it is incorporated into the overall strategy to improve flow.</p> <p><b>Charting scribe<sup>4</sup>:</b> Scribes assist physicians in chart documentation. This streamlines the documentation process and reduces the time the physician has to spend charting, thereby freeing the physician to spend more time with the patient. <b>TIP:</b> More effective if used with templated chart.</p> <p><b>Patient tracking systems:</b> Computerized patient tracking systems can be used to keep tabs on a patient's movement throughout the ED, serving as an indication of when the unit is becoming overwhelmed. The advantage is real-time access to patients' whereabouts, allowing for an accurate determination of ED occupancy and capacity monitoring.</p>	<ul style="list-style-type: none"> <li>• Physician productivity</li> <li>• Physician-specific LOS data</li> <li>• Timeliness of admission process</li> </ul>	ED Fast Track Criteria <a href="http://www.IHI.org">www.IHI.org</a>
Hospital Initiatives to Increase Inpatient Bed Availability	<p><b>Short stay units:</b> Short stay units for patients who are less severely ill or injured can provide a space for monitoring marginally ill patients who are too sick for discharge but who do not meet formal admission criteria at the time of their initial ED evaluation. Because a percentage of these patients will improve after a period of observation and can be discharged, inpatient beds are saved for those truly needing admission. Thus, boarding of admitted patients in the ED is reduced.</p> <p><b>Discharge center:</b> Discharge centers are designated areas where discharge patients can wait in comfortable surroundings for someone to take them home or a place where the entire discharge process unfolds.</p> <p><b>Hospitalist admission<sup>2</sup>:</b> Hospitalists are medical doctors or doctors of osteopathy who have special skills and interest in managing hospitalized patients. A hospitalist is responsible for determining the need for patient admission in collaboration with the emergency physician and others or redirecting the plan of care to address the patients' immediate needs. The use of hospitalists has shown to reduce the inpatient LOS for patients admitted through the ED by having patients admitted directly instead of being sent through the unit as well as to lower hospital admissions.</p> <p><b>Work with resources outside the hospital to improve flow:</b> Provide a physician assistant or nurse practitioner to make regular rounds to extended care facilities, preempting visits to the ED for episodic and acute care.</p>	<ul style="list-style-type: none"> <li>• LOS in fast track</li> <li>• LOS in short stay units</li> <li>• Patient satisfaction rates</li> </ul>	

<sup>1</sup>"Clockwork ED" Healthcare Advisory Board.

<sup>2</sup>Managing Patient Flow: Strategies and Solutions for Addressing Hospital Overcrowding. Joint Commission Resource.

<sup>3</sup>American College of Emergency Physicians. Responding to Emergency Department Crowding: A Guide for Chapters. A Report of the Crowding Resources Task Force. August 2002.

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