Crowding, Boarding, and Patient Flow

Description
An emergency department (ED) is “crowded” when the need for ED services exceeds the ED’s available resources for timely patient care. ED crowding is a major problem worldwide and has been associated with increased patient mortality, length of stay, cost, rates of medical errors, door-to-imaging time for stroke patients, time to surgery, length of ambulance transport time, numbers of patients who leave without being seen, and rates of ventilator-associated pneumonia in trauma patients. It has also been associated with delayed or missed orders, decreased patient satisfaction, poorer outcomes for chest pain patients, and decreased access to timely treatment, including triage, analgesia, antibiotics, and critical severe sepsis therapies. Crowding has also been associated with increased nursing workload, burnout, and staff turnover, and crowded EDs have negative impacts on the Emergency Medical Services (EMS) system, increasing ambulance diversion (i.e., when an ED closes to ambulance traffic) and “wall time” (i.e., the time that EMTs and paramedics spend waiting for an ED bed to open so that they can return to service).

One of the major causes of ED crowding is “boarding.” Boarded patients are those who continue to wait in the ED for more than 2-4 hours after they have been admitted to a floor in the hospital and their care has been assumed by an admitting doctor or team. (This bottleneck is often referred to as “access block” in European and Australasian literature.) Boarding, which is caused by hospital-wide problems and inefficiencies, has been associated with increased mortality and total hospital length of stay for patients admitted through the ED (i.e., it adds to admission time, rather than substituting for it), independent of its effect on crowding. Such findings have important implications for CMS length of stay measurements and reimbursement in the U.S.

Another consistent cause of ED crowding in many hospitals is the large percentage of behavioral health patients presenting to the ED for care. In 2007 in the US these patients comprised 12.5% of ED visits (up from 5.4% in 2000), and studies in 2012 found that they spend almost three times longer in the ED than non-psychiatric patients. This particular problem is often confounded by a county- or region-wide dearth of psychiatric treatment facilities.

Not all ED crowding is caused by boarding; much of it is caused by issues with ED patient throughput. Many EDs are not implementing viable solutions that deal with throughput problems that are within their control. Furthermore, there is no one set of solutions to crowding and boarding problems. Hospital characteristics such as location, academic affiliation or lack thereof, certifications (e.g., stroke, cardiac, trauma, etc.), size, demographics of the surrounding community that influence mean patient acuity, availability of psychiatric resources, engagement of leadership, and many other factors will affect not only the degree to which a given hospital experiences crowding or boarding, but also the possible solutions. As a result, identification of the etiology of crowding or boarding in a particular hospital must be data driven, and any potential solution must be oriented toward identified problems.
ENA Position
It is the position of the Emergency Nurses Association that:

1. Deleterious patient outcomes, including but not limited to substantially increased rates of mortality and increased degrees of nursing workload and burnout, are direct consequences of ED crowding and the boarding of admitted patients in the ED.

2. There is no single solution to ED crowding, boarding, or throughput that will work for all hospitals. Viable solutions must be problem-oriented, data-driven, and specific to each ED’s, hospital’s, and region’s demographics and resources.

3. Many EDs are not doing all that they can to address problems of crowding, boarding, and throughput.

4. Boarding admitted patients in the ED is a hospital-level administrative problem that requires hospital-level solutions. As such, it cannot be effectively addressed without the attention and continuous support from hospital administrators and non-emergency staff and physicians.

5. Nurses, as the care providers who have the most contact with patients in boarding and crowding situations, who are drivers of ED throughput, and who comprise the largest network of employees in most hospitals, can initiate and drive hospital-wide change in this area through interdisciplinary team building, shared governance, and communication.

6. Data is key to both understanding and conveying the factors that cause ED crowding and boarding. Measurement using rigorous metrics and transparency of data to all stakeholders is optimal to identify and address clinical process variations, as well as to evaluate process improvements.

7. Interdisciplinary teams that include nurse representatives from all departments that will be affected by potential solutions strategies be formed to drive quality improvement processes that address hospital-wide patient flow.

8. EDs consider establishing permanent teams that will identify problems and implement systems-based approaches such as LEAN Six-Sigma® in order to implement problem-specific solutions that include all stakeholders.

9. Hospitals advocate for initiatives that decrease boarding time and provide optimal care for psychiatric patients in the ED.

Background
Both crowding and boarding are daily problems in EDs worldwide.38-45 The rate of ED visits over the past 15 years has outpaced population growth in the U.S., increasing at double the expected rate between 1997 and 2007 and, coupled with an increased closure of EDs nationwide, has created a substantial mismatch between the need for emergency services and the available resources to provide that care.46-50 EDs are responsible for more than half of hospital admissions,51 and by law EDs must provide care to all patients regardless of citizenship, legal status, or ability to pay.52-54 As a result, EDs routinely treat the non-emergent and primary care needs of those who cannot access a primary care provider (PCP).55-56 Patient flow in both the ED and the hospital as a whole can be conceptualized in terms of intake, throughput, and outflow.57 The ED is a major choke point in the hospital system, and nearly all patients entering the ED will leave by being discharged or admitted to the hospital. The throughput and output rates of those discharged is largely controlled by the ED itself, while throughput and output rates of those admitted is entirely dependent on the hospital’s throughput rate. When ED throughput and output
becomes clogged the ED becomes crowded and its patients experience the negative outcomes listed above.

Patients with behavioral health problems contribute substantially to ED crowding. The etiology of this problem is complex, but in the U.S. it is due in part to vastly decreased numbers of psychiatric beds across the country. In 1955 there were 558,922 patients in psychiatric hospitals, but between 1970 and 2002 the total number of mental health beds – including hospital inpatient and residential treatment – decreased by more than 50% (from 524,878 to 211,199) and the number of state and county mental health beds decreased by 86% (from 413,066 to 57,263). Meanwhile, the nation’s population increased by more than 85,000,000 (a 42% increase). ED visits by behavioral health patients increased 75% between 1992 and 2003, and by 2007 one in eight ED visits was for mental health or substance abuse, accounting for nearly 12 million ED visits per year. In the US these patients are boarded in the ED on average from between 4.4 and 34 hours. These extended lengths of stay substantially contribute to ED crowding.

Measurement using rigorous metrics is fundamental to identifying and addressing clinical process problems with intake, throughput, and output, as well as to evaluating process improvements. Sharing the results of departmental and multi-unit initiatives via methods such as ED dashboards helps support a culture of change and improvement. Fortunately, many of the metrics that the Centers for Medicare and Medicaid Services require can be used for this purpose. Once problem areas have been identified, solutions can be implemented to solve them.

Many hospitals and EDs have found process improvement teams that employ process improvement methodologies like Lean Six Sigma® to be extremely helpful in identifying problems and generating viable solutions. That said, solutions for decreasing boarding nearly always require improving patient flow throughout the hospital, rather than within an isolated unit, and necessitates a systems-level understanding of variations of capacity, demand, and the specific consequences of misalignment of these variables. Buy-in from hospital administrators who are committed to solving the problem is requisite.

There are many evidence-based specific solutions to these problems that have been published; information for implementing many of them can be obtained online from organizations such as Agency for Healthcare Research & Quality (AHRQ), the Institute of Healthcare Improvement (IHI), Urgent Matters, and ENA. In addition, a multitude of articles that report research into proposed solutions to ED boarding and crowding can be found via search engines like PubMed.

The choice of which solution to use for problems of ED crowding, boarding and patient flow must be matched to the particular contributory problems that are specific to a given hospital, county, and region. Every ED, hospital, county, and region presents a different set of variables that contribute to ED crowding and boarding. There is no one-size-fits-all solution, and all solutions must be data-driven and problem-oriented.

Resources
Best practices for improving flow and care of pediatric patients in the emergency department.


George Washington University School of Medicine and Health Sciences. (n.d.). *Urgent Matters.*
https://smhs.gwu.edu/urgentmatters/


References


Authored by

Justin Winger, PhD, MA, BSN, RN, Chairperson
Elizabeth Stone, MSN, RN, CPEN

Reviewed by

2017 ENA Position Statement Committee
Joop Breuer, RN, CEN, CCRN, FAEN
Audrey Cloughessy, MHA, RN, FAEN
Melanie Crowley, MSN, RN, CEN
Capt. Katherine Mallett, MSN, RN
E. Marie Wilson, MPA, RN

ENA 2017 Board of Directors Liaison
Sally Snow, BSN, RN, CPEN, FAEN

ENA Staff Liaison
Monica Escalante Kolbuk, MSN, RN, CEN

This Position Statement replaces Holding, Crowding, and Patient Flow (5/2014).


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