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March 2025

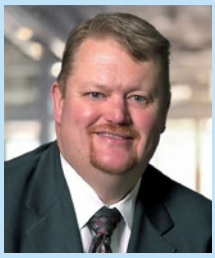
Four Strategies to Reduce Emergency Department Overcrowding

Emergency department overcrowding has been a problem for decades, but there is evidence that it is getting worse. Recent studies are quantifying what news reports tell us: Americans are waiting longer than ever to get seen and treated in the ED. Several factors contribute to this: patient volumes are increasing while ED and inpatient bed capacity decline; individuals without a regular primary care provider often turn to the ED as their first option for care; and persistent staffing shortages strain resources.

Patient boarding—the practice of holding admitted patients in the ED due to a lack of available inpatient beds—heightens patient distress, increases the risk of adverse events and limits the ED's ability to manage new emergencies effectively. At times, patients become frustrated and leave without being seen (LWBS); LWBS rates have doubled nationally and have reached at least 5% in a handful of states. This often leads to delayed diagnoses and treatments, potentially resulting in worse outcomes.

Boarding and high LWBS rates cost health systems money. Boarding has been shown to be financially costly, while it is estimated that each patient who leaves without being seen costs a system an average of approximately $550, equating to millions of dollars in annual losses for busy hospitals. Then there are indirect costs: the psychological toll on healthcare workers. Clinicians report that boarding contributes to burnout, including verbal and/or physical abuse from boarded patients; this burnout, in turn, tends to lead to higher staff turnover, particularly among ED nurses, exacerbating the situation. EDs are becoming pressure cookers, with rising incidents of violence and escalating tensions among patients and staff.

It adds up to a problem that cannot be ignored. ED overcrowding, once considered a temporary surge issue during flu season or mass casualty events, has become a chronic, systemwide failure. Patient outcomes, hospital finances and workforce sustainability all suffer as a result.



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Understanding overcrowding from the patient's perspective

Patients may not understand why EDs are overcrowded. But they can understand the results. There are too many stories of patients dying waiting to be seen in the ED. Boarding and high LWBS rates both have well-documented serious negative effects for patients on patient safety and healthcare quality.

Research indicates that patients admitted during periods of high ED occupancy face a higher risk of in-hospital mortality. Overcrowding's associated delays in treatment leads to adverse outcomes. One systematic review further highlights that ED overcrowding contributes to negative outcomes, including increased morbidity and mortality.

Patient satisfaction is a critical factor in reducing tension within the ED. To improve patient flow, EDs must align three key variables: direct care nurses, physician/advanced practice practitioner capacity and physical capacity. While hospitals often focus on outcome metrics like length

of stay and LWBS rates, patients prioritize one thing above all: speed. Time to provider (TTP) is the strongest predictor of patient satisfaction—more than total visit length, discharge process or communication with staff. Patients who waited longer than 30 minutes to see a provider were 40% more likely to rate their ED experience negatively. Patients associate faster provider access with higher-quality care, meaning that long wait times increase anxiety, frustration and dissatisfaction.

Improving TTP metrics is critical for financial sustainability. TTP optimizes length of stay by accelerating clinical decision-making, hastening throughput and reducing ED bottlenecks. TTP also has a direct impact on key quality metrics, including sepsis bundle compliance, stroke and heart attack response time, and patient safety. By improving TTP, hospitals can drive efficiency, enhance quality scores, and improve both patient and provider experiences.

Proven strategies to reduce overcrowding

Fortunately, overcrowding is not an unsolvable problem. An analysis of data reveals that hospitals often staff EDs based on average patient volume rather than peak demand, leading to early-morning mismatch of staffing to demand that causes patient arrivals to outpace clinical provider capacity. This initial lag creates a compounding effect, ultimately resulting in overcrowding in the waiting room. Health systems can analyze their ED data to implement operational improvements that address staffing, patient flow and capacity constraints. Here are four approaches that systems can employ:

1. **Queuing strategies:** Better queuing strategies—that is, methods to manage patient flow and reduce wait times—can improve efficiency up to 30%. These strategies include dynamic staffing (adjusting staff levels based on real-time demand), predictive modeling and split-flow triage (separating patients by urgency to speed up care). The alignment of three key variables—direct care nurses, physician/advanced practice practitioner capacity and physical capacity—with attention on staying ahead of patient arrivals curves can yield significant improvement in multiple outcome metrics.

Overcrowding is not an unsolvable problem. Hospitals can employ queuing strategies, real-time bed management, predictive analytics and dynamic triage as strategies to alleviate it.

2. **Real-time bed management:** During peak periods, any single moment that an inpatient bed is unoccupied represents waste. Hospitals using real-time bed tracking systems experience faster inpatient admissions, significantly reducing boarding. Systems should automate bed tracking to optimize admissions; implement early discharge protocols and structured multidisciplinary rounds to open inpatient capacity; and create processes reduce ED boarding to free up treatment areas.
3. **AI-driven predictive analytics:** Artificial intelligence's capacity to forecast patient surges in the ED and expedite care is unmatched. In one instance, an AI-based clinical assistant reduced wait times by 50%. AI-driven workload balancing can significantly reduce diagnostic turnaround times, improving throughput. Predictive scheduling adjusts workforce allocations based on real-time demand. Hospitals should employ AI-powered scheduling and clinical decision tools to adjust staffing in real time based on patient volume predictions and implement automated workload distribution to optimize lab and imaging processing.

4. **Dynamic triage and parallel processing:** Dynamic triage—also known as split triage, in which patients are categorized into different care pathways depending on the urgency and severity of their presentation—can significantly reduce ED length of stay and LWBS rates, according to studies. This model fast-tracks low-acuity patients while ensuring high-acuity cases receive immediate care.

The case for addressing ED overcrowding

Failing to fix ED overcrowding will lead to clinical consequences that harm patients, and to financial consequences that jeopardize long-term sustainability. Hospitals cannot afford to ignore ED inefficiencies. But hospitals that focus on ED overcrowding can expect to see a return on their investment in a number of ways:

- Improved patient safety and clinical outcomes;
- Improved patient satisfaction (as gauged in Press Ganey scores);
- Improved reputation in their community, which can be a market differentiator;
- Lower LWBS rates; and
- Higher clinician and staff satisfaction, which in turn leads to lower turnover rates.

Some of these returns can easily be quantified as a financial savings. Others, such as improved reputation, are less directly tied to performance. But all matter to hospitals and to the communities they serve.

Case study

A 350-bed academic medical center launched an ED optimization project to address inefficiencies in patient flow. Patients were waiting an average 37 minutes before being placed in a room and 59 minutes before being seen; the LWBS, patient elopement, and leaving against medical advice (AMA) combined rate was 5.3%. Operational inefficiencies were causing bottlenecks, which strained staffs and led to lower revenues and patient satisfaction scores.

It implemented a two-pronged strategy to optimize patient flow. First, it undertook process optimization, introducing a quick-sort triage system to prioritize patients based on acuity, adopting a split-flow model and enhancing bed management. Secondly, it launched a staff training initiative, deploying rapid assessment teams and retraining frontline staff to ensure adherence to new workflows.

The results were immediate and quantifiable. Arrival to room time went from 37 minutes to 4; TTP went from 59 minutes to 14; and the LWBS/elopement/AMA rate fell from 5.3% to 2.4%. The hospital estimated it recovered $1.7 million in revenue. The ED optimization project demonstrated that strategic process redesign and technology adoption can result in measurable improvements, and the hospital is now exploring additional AI-driven predictive analytics and automation tools to enhance decision-making and operational efficiency.

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