MedPro Group
a Berkshire Hathaway company

Risk Q&A

Overcrowding in the Emergency Department

Question

What strategies can healthcare organizations put in place to prevent or manage overcrowding in emergency departments (EDs)?

Answer

Overcrowding in the ED is an enduring and complex issue in healthcare. Although overuse of the ED for nonemergent issues might seem like the obvious culprit, it is not the only — or even primary — cause of overcrowding.[1] Many factors contribute to the problem, and some researchers categorize them as input, throughput, and output issues. One study explains that these issues "are independent from each other, but they are interconnected and influenced by underlying contributors . . ."[2]

Input refers to the number of patients coming into the ED as well as the severity of their conditions and waiting times. Many circumstances influence input, including geographical location, insurance coverage, access to primary care, the aging population, increasing behavioral health needs, etc.[3]

Throughput refers to the time it takes patients to move through the ED, including time to process, diagnose, treat, and transfer. The determinants that influence throughput include staffing levels, performance, workflow, patient severity, demands for testing and imaging, evaluation and consultation times, documentation, bed availability, and more.[4]

Output refers to the number of patients leaving the ED, whether through admission to a hospital unit, transfer to another facility, or discharge home. The factors that affect output include hospital occupancy and bed availability, staffing ratios, discharge processes, home care access, transportation availability, and so on. Delays in output can lead to exit block and patient boarding. Exit block occurs when patients who require admission cannot access hospital beds in a timely manner. Patient boarding occurs when patients are held in the ED until beds and resources are available.[5]

Whether occurring alone or in combination, the issues associated with input, throughput, and output can put a serious strain on the ED and lead to overcrowding. The consequences of overcrowding are significant and include increased morbidity and mortality, delays in diagnosis, poorer quality of care, increased length of stay, patient and staff dissatisfaction, increased medical errors and adverse events, and a higher likelihood of patients leaving against medical advice or leaving without being seen (LWBS).[6] Not surprisingly, overcrowding also can increase liability exposure for healthcare providers and organizations.[7]

Unfortunately, the multifactorial issues that lead to overcrowding do not have straightforward or universal solutions. Many potential solutions will require large-scale interventions that target health insurance, access to care, workforce models and staffing, hospital capacity, technology, and more. However, EDs and hospitals can take proactive steps within their organizations to alleviate ED overcrowding. For example:

- Consider strategies to improve the efficiency of the triage process, such as using team triage models, implementing triage liaison providers, adopting an evidence-based triage assessment, initiating testing during the triage process, using electronic decision support tools, and streamlining patient registration.
- Determine the feasibility of using a fast-track system to transfer lower-acuity patients (as determined during triage) to a dedicated area within the ED for evaluation and treatment. Fast-track systems can reduce waiting times, result in quicker treatment and discharge, improve patient satisfaction, and prevent instances of LWBS.
- Implement evidence-based clinical pathways to standardize diagnostic and treatment processes and support high-quality, efficient, and consistent care. Determine how best to implement care pathways into workflow patterns so they are not underutilized.
- Establish point-of-care testing (POCT) in the ED for certain tests and conditions to reduce time associated with sending specimens to a laboratory and waiting for communication of results. “When used in appropriate scenarios, POCT could be an effective tool to minimize the time-to-treatment initiation and to improve patient outcomes.”[8]
- Use evidence-based guidelines to establish criteria for various types of testing and imaging. Doing so can help prevent overutilization of these services that may lead to throughput delays.

- Make sure that essential medications, supplies, and equipment are readily available in the ED so staff do not have to delay care to procure them elsewhere.
- Determine the practicality of observational units to address the needs of patients who do not require hospitalization but require close observations for a short time.
- Recommend home healthcare as an option for patients who don't require hospitalization but do require continued care. Appropriate and high-quality home healthcare can ensure patients receive the medical care they require and prevent them from returning to the ED.
- Partner with outpatient facilities (e.g., clinics, imaging centers, and laboratories) to provide alternative care options for patients who have nonurgent conditions. Educate patients about the purpose of the ED, when it's appropriate to seek care in the ED, and when they should contact an alternative care site. Provide clear and simple information to help patients understand their options.
- Use predictive analytics to forecast peak flow and patient demand in the ED. Adjust staffing models and workflow patterns during these times to optimize efficiency and patient processes.
- Consider creating an online or telephone helpline to assist prospective patients in obtaining information and guidance about their healthcare needs (e.g., whether to come to the ED or go to an alternative care site). Likewise, follow up with patients after discharge via phone call or telehealth appointment to assess their condition, provide guidance, and help prevent unnecessary return visits to the ED.
- Collaborate with emergency medical services and other facilities to develop parameters and a process for diverting patients, including communication to ensure diversion decisions are appropriate.
- Collaborate with hospital units and other facilities to standardize and simplify the process of admitting patients in an effort to prevent delays and improve efficiency. Make sure ED and hospital policies include guidance related to using transition orders.
- Work with hospital leaders to identify system-wide approaches that can help alleviate ED overcrowding as a result of patient boarding in the ED. Examples include better identifying patients who no longer require hospitalization and can be safely discharged (i.e., reverse triage), optimizing the scheduling of elective surgical procedures and subsequent

hospitalizations, discharging patients earlier in the day or on weekends, and activating a full capacity protocol.[9]

Resources

To learn more about ED overcrowding and boarding, see the following resources:

- American College of Emergency Physicians: Emergency Department Boarding and Crowding
- Annals of Emergency Medicine: Boarding of Admitted and Intensive Care Patients in the Emergency Department
- Emergency and Critical Care Medicine: Emergency Department Overcrowding: Causes and Solutions
- Journal of Clinical and Diagnostic Research: Management Strategies for Overcrowding in Emergency Medicine Department: A Narrative Review
- Journal of Personalized Medicine: Emergency Department Overcrowding: Understanding the Factors to Find Corresponding Solutions
- Pediatrics: Crowding in the Emergency Department: Challenges and Best Practices for the Care of Children

Endnotes

[1] Savioli, G., Ceresa, I. F., Gri, N., Bavestrello Piccini, G., Longhitano, Y., Zanza, C., . . . Bressan, M. A. (2022). Emergency department overcrowding: Understanding the factors to find corresponding solutions. *Journal of Personalized Medicine, 12*(2), 279. doi: https://doi.org/10.3390/jpm12020279

[2] Ibid.

[3] Ibid.; Sartini, M., Carbone, A., Demartini, A., Giribone, L., Oliva, M., Spagnolo, A. M., . . . Cristina, M. L. (2022). Overcrowding in emergency department: Causes, consequences, and solutions—a narrative review. *Healthcare, 10*(9), 1625. doi: https://doi.org/10.3390/healthcare10091625; McDonnell Busenbark, M. (2023, July 24). *The problem of emergency department crowding.* Children's Hospital Association. Retrieved from www.childrenshospitals.org/news/childrens-hospitals-today/2023/07/the-problem-of-emergency-department-crowding

[4] Ibid.

[5] Ibid.

[6] Savioli, et al., Emergency department overcrowding: Understanding the factors to find corresponding solutions; Sartini, et al., Overcrowding in emergency department: Causes, consequences, and solutions—a narrative review.

[7] Darraj, A., Hudays, A., Hazazi, A., Hobani, A., & Alghamdi, A. (2023). The association between emergency department overcrowding and delay in treatment: A systematic review. *Healthcare, 11*(3), 385. doi: https://doi.org/10.3390/healthcare11030385

[8] Rooney, K. D., & Schilling, U. M. (2014). Point-of-care testing in the overcrowded emergency department—can it make a difference? *Critical Care, 18*(6), 692. doi: https://doi.org/10.1186/s13054-014-0692-9

[9] Sartini, et al., Overcrowding in emergency department: Causes, consequences, and solutions—a narrative review; Savioli, et al., Emergency department overcrowding: Understanding the factors to find corresponding solutions; McDonnell Busenbark, *The problem of emergency department crowding;* Singer, A. J., Taylor, M., LeBlanc, D., Meyers, K., Perez, K., Thode, H. C., Jr., & Pines, J. M. (2018). Early point-of-care testing at triage reduces care time in stable adult emergency department patients. *The Journal of Emergency Medicine, 55*(2), 172–178. doi: https://doi.org/10.1016/j.jemermed.2018.04.061; Mostafa, R., & El-Atawi, K. (2024). Strategies to measure and improve emergency department performance: A review. *Cureus, 16*(1), e52879. doi: https://doi.org/10.7759/cureus.52879; Skinner, J., Higbea, R. J., Buer, D., & Horvath, C. (2018, January 29). *Using predictive analytics to align ED staffing resources with patient demand.* Healthcare Financial Management Association. Retrieved from www.hfma.org/finance-and-business-strategy/analytics/59165/; Derlet, R. W., & Richards, J. R. (2008). Ten solutions for emergency department crowding. *The Western Journal of Emergency Medicine, 9*(1), 24–27; Butun, A., Kafdag, E. E., Gunduz, H., Zincir, V., Batibay, M., Ciftci, K., . . . Yigit, E. (2023). Emergency department overcrowding: Causes and solutions. *Emergency and Critical Care Medicine, 3*(4), 171–176; Musselwhite, M., Warby, R., Thomas, J. (2024, February 24 [last updated]). EMS emergency department diversion. *StatPearls.* Retrieved from www.ncbi.nlm.nih.gov/books/NBK603736/