**Annotated Bibliography on Emergency Department Overcrowding**

Derlet, Robert W. (2000) Overcrowding in Emergency Departments: Effects on Patients. *Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health, 1* (1), 2-3.

This journal provides an analysis of the overcrowded conditions of emergency departments in California including the causes and the impact they have on the patients. From his findings, one of the effects of overcrowding in emergency departments is long queues for care. When patients wait longer for medical attention, it may cause their medical problems to worsen. Moreover, many patients leave due to the dissatisfaction of the services provided. Another effect of overcrowding is extended pain and suffering to patients who are waiting to get medical attention. In addition, patients become easily agitated and violent in such conditions and this can cause harm to the emergency physicians. Lastly, under time pressure the medical staff can potentially misdiagnose patients resulting in health complications and risk for malpractice. To resolve the problem of overcrowding in emergency departments Robert suggests that the EM physicians should push for legislation intended to improve the situation.

Skinner, J. (2016) Forecasting Emergency Department Overcrowding. *SPNHA Review, 12*(1), 96-109.

The author notes that a predictive two-hour forecasting tool can be used to predict emergency department overcrowding. The research study uses Bed Ratio (BR), National Emergency Department Overcrowding Scale (NEDOS) and Dixon Forecasting Model (DFM). The study was carried out in Michigan at Spectrum’s Health Buttersworth Emergency Department. The equation below was developed for predicting overcrowding in two hours.

Forecasted two-hour BR = (Total ED Patients + DFM Predicted Arrivals – Charge Nurse Predicted Departures) / Total Number of Treatment Spaces Available in two hours.

 Data was collected from June 17th to June 30th 2015. The results showed that a forecasted two-hour BR is important in foretelling future overcrowding. The study proves to be successful and can therefore be used to improve patient care by preventing overcrowding in emergency departments before they happen.

# Committee on Pediatric Emergency Medicine (2004) Overcrowding Crisis in Our Nation's Emergency Departments: Is Our Safety Net Unraveling? *Pediatrics,114*(3). DOI: [10.1542/peds.2004-1287](https://doi.org/10.1542/peds.2004-1287)

#  This article seeks to review the role of the American Academy of Pediatrics and pediatricians in guiding health guidelines decision-makers to come up with effective solutions for well-timed access to emergency care. The recommendations given by the pediatricians committee include the following; organize efficient follow-up care for ED visits, include the management of injuries or serious illness and the use of emergency services in anticipatory management, work with emergency care experts to make every ED experience a learning opportunity, call for improved Medicaid reimbursement, advocate for SCHIP enrollment, encourage health services research on ED overcrowding and encourage advocacy efforts that are aimed at tort reform and medical expert liability.

# McHugh, M. , Van Dyke, K., McClelland, M., Moss, D. (2011) Improving Patient Flow and Reducing Emergency Department Crowding: A Guide for Hospitals.*AHRQ Publication, 11* (12)

#  This article suggests that there is need to resolve emergency department crowding because; ED crowding is expensive, crowding reduces community trust, it compromises quality of service to the patients and ED crowding can be controlled by improving the flow of patients. The authors recommend creating a patient flow team that will comprise of a representative from all departments that are affected by the strategy such as a research analyst, ED nurses and physicians, representative from inpatient units a team leader and a senior hospital leader. After creating the team, there is need to measure ED performance. Strategies then have to be identified to resolve the issue after identifying the probable causes of the crowding, considering resources available and review documentations on similar problems in other hospitals. The team is responsible for facilitating change which includes expecting various challenges and taking the necessary steps to resolve them. After successfully reducing the ED crowding hospitals can share results internally and externally to other hospitals if they can.

McCarthy, M. (2011) Overcrowding in Emergency Departments and Adverse Outcomes. DOI: <https://doi.org/10.1136/bmj.d2830>

 This article focuses on how admission rates and death rates are higher when patients wait longer for medical service due to emergency department crowding. ED crowding is a serious problem in various countries worldwide. She mentions that one study found that there is almost 34% death in patients who are in crowded emergency rooms than those who are not in crowded emergency rooms. Also in another similar study done in another hospital, it was discovered that there was a high mortality at two,seven and about thirty days after patients visited hospitals with a lot of crowding.

Di Somma, S., Paladino, L. (2015) Overcrowding in Emergency Department: An Internal Issue. *Internal and Emergency Medicine, 10*(2),pp171-175.

 This article suggests that ED overcrowding could be a local symptom of a systemic problem. It could be caused by an increase in demand for medical care and a shortage of hospital beds. Problems cause by ED crowding include bad health care, extended length of stay and increased mortality and morbidity rates. The authors discuss how to solve emergency department overcrowding a worldwide problem by giving examples in different countries. Also, remedies are given to solve the issue of patients from the emergency department who are waiting to be admitted into the hospital.

Forero, R. (2011) Accessing block and Emergency Department Overcrowding. *Critical Care*. DOI<https://doi.org/10.1186/cc9998>

 The author refers to access block as the time when a patient is not about to get a hospital bed within a rational amount of time, which is not more than 8 hours. Overcrowding is described as the situation where the functionality of an emergency department is altered by the number of patients waiting to be attended to. Some of the effects of ED overcrowding are adverse events and less quality of care and efficiency. Potential solutions listed include community support, more research and audit of the problem and implementation of national access targets.

BC Medical Association (2009) Emergency Department Overcrowding Solutions Collaborations.*Report of the BC Medical Association, BC Section of Emergency Medicine and Ministry of Health Services*

This is a report that has a nine-point recommendation framework to assist in reducing the Emergency Department overcrowding. These recommendations include; emergency stretchers should be used only for emergency patients, the ED capacity requirements must be determined by strong modeling, to solve ED crowding a system-wide approach must be created, ED overcrowding measurement and definition should be standardized everywhere, resources and incentives should be provided, ED overcrowding should be monitored in new programs, accurate feedback loops should be created and the government should b committed to resolve ED overcrowding.

Akbar, M., Mian, A. (n.d.)Overcrowding in the Emergency Departments: Challenges and Opportunities for Improvement. *Short Communication*, *65* (12) pp 1344-1345.

This article notes that the repercussions of ED overcrowding include prolonged length of stay which leads to less availability of in-hospital beds and increased medical expenses, deteriorating healthcare, delays in diagnosis, patient dissatisfaction and increased waiting time. Some of the solutions suggested are separating non-acute patients and taking them to out-patient hospitals and increasing bed capacity in hospitals’ regular and intensive care units.

Ballensweig, A. (2009) Crowding and Prolonged Waiting Time in the Emergency Department

This report looks at the effects of extended waiting time and Emergency Department overcrowding. Also, the author looks at the factors that lead to such a situation and ways to deal with it. Just as other researchers have noted, effects of ED overcrowding are patient dissatisfaction, more medical errors and patients leaving without being seen and prolonged waiting times. Factors contributed to overcrowding are too many patients, delays with patient discharge, bottlenecks with laboratory tests, small space available among other factors.