

Emergency department crowding

A worldwide problem with evidence-based, but underused solutions

Emergency department (ED) crowding is an increasing public health crisis in the U.S. and around the world. A burgeoning literature has found associations between ED crowding and negative outcomes, such as poor quality care, medical errors, inpatient complications, and higher mortality rates [1, 2]. A recent report detailed increased crowding across 16 countries, including Germany. Similar to many other industrialized countries, ED visit volume and crowding are both increasing in Germany [3]. Recent surveys in Germany have found increases in ED visits by 4% in 2006 and 8% in 2007, with an estimated 12 million visits in 2007; however, there are no official national statistics on German ED visits [3].

Across the world, ED crowding has worsened for several reasons. First and most important, people increasingly chose EDs over other settings because of the convenience and the 24-7 comprehensive care provided. In many countries, the outpatient care system makes patients wait and is poorly designed to care for acutely ill patients [4]. For these reasons, increases in ED visit volume have outpaced population growth in the U.S., Canada, and France [3]. EDs themselves have also become more congested as lengths of stays have increased with higher rates of laboratory testing, advanced imaging, and intravenous fluid and medication administration [5]. Particularly in the U.S., there have been dramatic increases in the use of CT scans in the ED [6]. Finally,

ED crowding is worsened by ED boarding, where admitted patients spend prolonged periods of time in the ED before being moved to inpatient beds. Based on local reports, boarding seems to be a major theme across many countries' hospitals [3].

In some parts of the world, economics favor higher ED crowding [7]. Because caring for an acutely ill patient is much more time- and resource-intensive than a well visit, physicians increasingly refer their patients to the ED for work-ups. Patients also realize that comprehensive ED care is often superior to evaluation in a doctor's office for acute problems. Furthermore, outpatient physicians increasingly are not available at off-hours when patients' acute care needs require attention. For many hospitals, there are few incentives to reduce ED crowding. Having a crowded ED may paradoxically benefit hospital finances. For example, in U.S. hospitals, patients who use the ED are more likely to be uninsured or have government insurance and are less attractive than pre-screened direct admissions which are more likely to have private insurance, which pays higher rates. Therefore, many hospitals focus efforts on elective cases rather than ensuring their EDs are efficient.

In the U.S. and other parts of the world, the incentive to address ED crowding has started to change. Crowding measures such as ED length of stay are planned for U.S. public reporting; therefore, in the fu-

ture, hospitals may have to compete on ED efficiency. Many U.S. EDs are already reporting waiting times on public billboards as a way to compete for paying patients. Some countries are far ahead of the U.S. in reducing crowding and have mandated limitations on ED lengths of stay. For example, from 2004–2005, the UK phased in a requirement that 98% of patients leave the ED within 4 h [8]. More recently, New Zealand, Canada, and parts of Australia have created similar time limits for ED care ranging from 4–8 h. These time limits reduce crowding, but have also been criticized for unintended consequences, such as forcing dispositions that may occur in the final minutes before the time limit expires. In the UK, systems adapted to time limits, where patients requiring more prolonged work-ups were moved to different areas of the hospital, such as observation units. Just recently, the UK lifted the 4-h restriction on ED length of stay [9].

For hospitals that focus efforts on reducing ED crowding, there are many tested hospital-based solutions primarily focusing on two areas:

- improving throughput within the ED and
- reducing the “access block” by focusing on eliminating the boarding of admitted patients.

Throughput solutions involve reducing the time from the door-to-provider by either bringing patients directly in-

to room and eliminating triage when rooms are available (i.e., immediate bedding) or moving physicians into triage to start the diagnostic and treatment process early in the ED visit [10]. Other throughput solutions effectively increase the size of the ED through using internal waiting rooms (i.e., large sitting spaces for patients to await test results), or being able to dynamically increase ED size or staff (i.e., open new areas of the ED or call-in staff during busy times). Another throughput solution is called “streaming” where patients are tracked together who have similar acuity or expected resource utilization. For example, fast-tracks are very popular in the U.S., and increasing other “tracks” are forming, such as mid-track for medium acuity patients who are not critically ill but require multiple tests.

By comparison, solutions that focus on reducing boarding of admitted patients have been more challenging because they involve not only the ED but other parts of the hospital. Addressing boarding requires buy-in from a much broader group of stakeholders, some with variable interest in improving the ED. One particularly effective output solution is termed “surgical-smoothing”. The usual surgical schedule in many hospitals is busy early in the week, is reduced later in the week, and few elective procedures are performed on the weekend. This flow variation results in uneven demand for inpatient beds, and causes boarding early in the week as ED patients compete for the same inpatient beds. Smoothing involves evening out the surgical or elective procedure schedule throughout the week, moving some procedures to later in the week and to weekends. Surgical smoothing is very effective at reducing ED boarding. Another solution is what has been termed the “full-capacity protocol”, where during times of high ED boarding, admitted ED patients move into inpatient hallways [11]. Output solutions such as these are very effective at reducing boarding; however, many hospitals that have tried to implement them have encountered significant resistance. Ultimately, many U.S. hospitals have tried but failed to broadly implement output solutions and reduce ED boarding [12].

In conclusion, ED crowding is a worsening public health problem throughout

the world. Many countries have directly addressed ED crowding by planning to publicly report data or mandating specific time targets for length of stay. Broad solutions such as time targets are effective at reducing crowding; however strict standards may create unintended consequences. In fact, in many countries where crowding has been identified as a major problem from local reports, there are no national efforts to measure crowding and length of stay. Measurement is a necessary first step for quality improvement to reduce ED crowding. For hospitals that want to improve ED crowding, there are many solutions that exist, but many are underused because they are difficult to implement due to local politics, lack of leadership or organizational will. More research is necessary to understand the ideal policy solutions for crowding, and which solutions are most effective for local hospitals.

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Compliance with Ethics Guidelines

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