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### **Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health**

#### **Title**

Overcrowding in U.S. EDs: A Critical Condition

#### **Permalink**

<https://escholarship.org/uc/item/4tw5b3k7>

#### **Journal**

Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health, 3(2)

#### **ISSN**

1936-900X

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#### **Publication Date**

2002

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**ORIGINAL CONTRIBUTION****Overcrowding in U.S. EDs:  
A Critical Condition**

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The issue of overcrowding in Emergency Departments (EDs) has become a significant national problem.<sup>1-5</sup> Several recent scientific studies have added documentation of the overcrowding problem.<sup>6-8</sup> In addition, discussions with emergency physicians across the country and at national meetings indicate that this is a major problem.<sup>9-11</sup> Many private, academic, and urban EDs in both large and small communities are frequently subjecting patients to long delays compared with many years ago, when such overcrowding occurred primarily in inner-city EDs on Friday or Saturday nights.<sup>1</sup> Recently, the issue of ED overcrowding was brought before the state legislator and other California agencies.<sup>12-14</sup> The United States is not alone in the overcrowding problem. In Canada, the issue of overcrowding in "accident and emergency rooms" is a serious national issue.<sup>15</sup> In Australia, ED overcrowding in Sydney has resulted in ambulance diversions from hospitals. Other countries, including Great Britain and Taiwan, have also reported overcrowding.<sup>16,17</sup>

Overcrowding in EDs is difficult to define scientifically. It may be obvious to the average person when places such as shopping centers, international airports, and restaurants are overcrowded, but arriving at the precise scientific definitions are the subject of debate. Likewise, it may be obvious to the average person when an ED is overcrowded, but definitions based on precise wait times, or quantitative delays in actual ED care are lacking. Some have defined ED overcrowding on the basis of delays to transfer a patient to an inpatient bed,<sup>18</sup> but this does not address other potential measures of overcrowding, such as front door to ED gurney time, significant delays in initial care, or use of the hallway as a treatment area. Some emergency physicians would define overcrowding as a situation in which demand for service exceeds the ability to provide care within a reasonable time, causing physicians and nurses to feel too rushed to provide quality care. Real-time computerized tracking of waiting times, treatment times, and current census of actual number of patients in the ED being treated or waiting to be seen, are needed to accurately define overcrowding. However, not all EDs have these.

Overcrowding has been documented more with photos of congested EDs and anecdotal cases, and less with quantitative figures. Eight to ten years ago, overcrowding in EDs was described in some metropolitan academic centers.<sup>19-24</sup> A number of articles in the lay press and academic journals documented the problems related to providing adequate or even basic care to patients. In 1990, *Time* magazine focused on overcrowded EDs in a detailed cover story.<sup>25</sup> Documentation showed that patients suffered undue prolonged pain, inconvenience, and poor outcomes as a result of delays in emergency care. The American College of Emergency Physicians (ACEP) convened a task force and published a statement addressing these issues.<sup>26,27</sup>

In response, some hospitals invested more funds to enlarge EDs, enhance nursing staff, increase the number of physicians, and focus on providing better care to the patient. From 1990 to 1998, the number of emergency medicine residency programs increased 80% to 120 programs. Because of these measures and growing concern that managed care might decrease ED volumes, little discussion occurred on overcrowding between 1992 and 1997. However, efforts to decrease overcrowding have not kept up with demand, and complaints among ED personnel have reopened discussions on overcrowding. A recent study found that 92% of academic emergency medicine EDs are overcrowded, and although inner-city, urban, and university hospitals have been the first to feel the effects of overcrowding, community and suburban EDs are also being affected.

Overcrowding in EDs has reached the attention of major agencies including the CDC and AHA. Healthcare policy advisors and political leaders are faced with determining which are the most important causes that result in ED overcrowding. At present, while it is well-accepted that EDs are overcrowded, it is generally not agreed upon which causes are the significant ones that result in overcrowding.

Alleged reasons for overcrowding include increases in population demographics, decreases in number of EDs, increase in acuity of patients presenting, increase in the number of elderly patients, shortage of nursing staff, shortage of physician staff, shortage of residents in teaching hospitals, shortage of x-ray imaging equipment, shortage of on-call consultants, problems with language barriers and interpretation, an increase in the numbers of patients with chronic illnesses such as HIV, renal failure, congestive failure, and other problems, inadequate physical plant space in the ED and increase in insured population and problems with access to HMO regulated clinics.

Multiple groups agencies, organizations, and insurers are quick to blame anyone other than the area they control for

problems. As long as the multiple groups that control healthcare blame each other for causes of ED overcrowding, little improvement will result in emergency services. In addition, confusion has risen over the actual impact of ED overcrowding. Some groups state that this only results in inconvenience for patients who have trivial illnesses and need to wait in the waiting room. Other groups feel that overcrowding results in poor patient care which leads to permanent disability, chronic pain or even death. If significant death and disability occur as a result of overcrowding, then the issue of ED overcrowding needs to move to the forefront of healthcare policy.

Although past studies have demonstrated widespread overcrowding in EDs, the primary and secondary causes have not been well-measured and outcome, including specific mortality and morbidity, have only been provided on a case report basis.

A number of recent studies have been conducted in the area of ED overcrowding. In one study, the directors of EDs in California were surveyed on their opinions of the extent and factors associated with overcrowding in EDs. Surveys were mailed to a random sample of ED directors and included questions on magnitude, frequency causing and effects of overcrowding. Of the 160 directors surveyed, 71% responded and 96% reported overcrowding as a problem. All university and county hospital directors and most private and community hospital directors reported overcrowding. Only four private or community hospitals reported no overcrowding, which served smaller communities with populations <250,000. Twenty-eight percent of responding directors indicated that overcrowding occurred daily. The most cited causes were increasing patient acuity in volume, hospital bed shortage, laboratory delay, and nursing shortage. These putative causes were similar between university and county, and private or community hospital directors, except for consultant delays which are more prevalent among university or county hospital EDs. ED overcrowding was perceived to be a serious problem by ED department directors. Many factors contributed to overcrowding and most were beyond the control of EDs.

In an expanded study, EDs in all 50 states were surveyed. Similar questions were asked on ED census, frequency impact, determination of overcrowding. Of 836 EDs surveyed, 579 responded and 91% reported overcrowding as a problem. The problems were similar in nature to that reported in California, and included hospital bed shortages, increasing patient acuity, high ED volume, radiology and lab delays, and insufficient ED space. The definition of overcrowding is difficult to determine and in order to get a better sense of this we asked EDs how they defined overcrowding. More than 70% defined overcrowding as patients in the hallways and all ED beds

occupied greater than six hours per day, or an ED in which patients who wait more than 60 minutes to see a physician. It concluded that episodic, but frequent overcrowding is a significant problem in academic, county, and private hospitals in both rural and urban settings. Its causes are complex and multifactorial. This study focused on a limited number of EDs.

Most recently, a study was published on ED use and capacity **in California**.<sup>28</sup> The study analyzed changes in use in EDs in the state of California from 1990 - 1999. Most significantly was the finding of an increase in critical visits to the Emergency Department by 59%. At the same time an 8% decline in nonurgent visits occurred. An accompanying editorial analyzed some of the factors related to increased acuity of patients in the ED.<sup>29</sup> Essentially EDs have reduced capacity because the number of patients that can be seen within a 24-hour period for the same number of beds is reduced. Capacity has decreased because critically ill patients require more bedside care, more laboratory tests, more consultants, and more radiology imaging. And there are more patients utilizing the Emergency Department with chronic problems who do not have access to healthcare elsewhere, such as those listed earlier with cancer, renal failure, diabetes, HIV and other infectious diseases, COPD, and those suffering from mental disorders for which county health systems do not provide care.

Despite the publicity, both in scientific as well as generalized public media, little has been done to rectify the situation. Some health systems are reluctant to expand the size of their emergency departments for fear of attracting a larger share of the indigent population. The population of uninsured patients has grown substantially in the state of California over the past decade. Other health systems simply do not have the funding to expand their Emergency Departments. It will take state or federal funding to rectify the problem with ED overcrowding and to provide appropriately for public safety of acutely injured and ill people. Unfortunately, it may take some very critical event such as a nuclear chemical or biowarfare event to show the current safety net (emergency care is inadequate to provide in regional disasters). Hopefully, this never occurs and, therefore I urge medical professionals and members of the public to become active in lobbying for increased funding in emergency services.

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