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A Research Agenda to Assure Equity During Periods of Emergency Department Crowding

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Abstract

The effect of emergency department (ED) crowding on equitable care is the least studied of the domains of quality as defined by the Institute of Medicine (IOM). Inequities in access and treatment throughout the health care system are well documented in all fields of medicine. While there is little evidence demonstrating that inequity is worsened by crowding, theory and evidence from social science disciplines, as well as known barriers to care for vulnerable populations, would suggest that crowding will worsen inequities.

To design successful interventions, however, it is important to first understand how crowding can result in disparities and base interventions on these mechanisms. A research agenda is proposed to understand mechanisms that may threaten equity during periods of crowding and design and test potential interventions that may ensure the equitable aspect of quality of care.

The effect of emergency department (ED) crowding on equitable care is the least studied of the six domains of quality defined by the Institute of Medicine (IOM). Inequities in access and treatment throughout the health care system are well documented in all fields of medicine; the 2003 Society for Academic Emergency Medicine (SAEM) consensus conference on disparities in emergency health care identified disparities in timing and intensity of ED therapies, treatment modalities, referral patterns, and hospitalization decisions.[1] While there are little data to suggest that inequity is worsened by crowding, theory and evidence from social science disciplines, as well as known barriers to care for vulnerable populations, would suggest that crowding will worsen inequities. To design successful interventions, it is important to first understand how crowding can result in disparities and base interventions on these mechanisms.

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The concern about disparities in health care has traditionally focused on inequitable access to care, evaluation, and treatment as a result of race or ethnicity. However, it is conceivable that other demographic, personal, and disease factors may also result in disparities in ED care. This article presents an expanded definition of equity in emergency care, reviews the literature on disparities in emergency medicine (EM), considers hypotheses as to the mechanisms by which disparities could be worsened in crowded conditions, and suggests some interventions that might prevent this from happening. An equity research agenda was developed using expert consensus with iterative discussion and feedback prior to the conference and then refined at the 2011 *Academic Emergency Medicine* (*AEM*) consensus conference by participants. This conference focused on "Interventions to Assure Quality in the Crowded Emergency Department" for the six quality domains identified by the 2001 IOM report.[2]

BACKGROUND

What Is Equitable Care?

In the context of emergency care, we define equitable as the principle that all individuals have the same access to quality emergency treatment and receive the same standard of care regardless of race, age (children, elders), sex, ethnicity, income, insurance, geographic location, barriers to communication or mobility, or any other demographic detail. Other patients for whom bias can result in less than equitable care, such as those with mental illness, substance abusers (particularly "drug-seekers"), frequent ED visitors, undocumented visitors, and "very important persons" or "VIPs" are also among the vulnerable populations that may be affected by crowding.

What Does Inequity in Access Look Like?

When patients do not have the ability to obtain high-quality emergency care because they belong to a certain group or possess a specific characteristic, there is inequity. Lack of access may be due to scarcity of nearby facilities or delays in access to those facilities. Nationally, the number of existing EDs is dwindling; safety net EDs (those that "organize and deliver a significant level of health care and other related services to uninsured, Medicaid, and other vulnerable patients"[3]) and those EDs serving a higher share of the populations in poverty are at greatest risk of closing.[4] In California, counties with more insured and more highly educated residents have a greater number of EDs per capita than those with less insured and less educated residents.[5] Many individuals do not have access to trauma care within 1 hour of driving time. This inequity in access to trauma care particularly affects the poor and those living in rural areas.[6,7] Trauma centers in areas with higher shares of minorities have a higher risk of trauma center closure.[8] Injured elderly patients are less likely to receive care in a trauma center.[9] Among individuals who had previously sought care for a fracture and then were told to follow up at a tertiary ED instead of a private physician or clinic, the vast majority were minorities or lacked insurance.[10] Finally, the American Hospital Association reported in 2004 that crowding resulted in ED diversion and noted that in 1 year, 70% of urban hospitals and 74% of teaching hospitals diverted patients.[11,12] These all illustrate inequity in access to timely ED care on national and local settings.

What Does Inequity in Treatment Look Like?

Evaluation and treatment disparities have been previously documented in emergency care, with treatment of pain the most widely studied. Minorities, elders, and women have been reported to receive delayed or less adequate pain control compared with others.[13–20] Those with mental illness have also been shown to have a lower likelihood of receiving opioids.[21] Although one study showed that male patients had lower odds (by 40%) of receiving analgesia, a male physician treating a male patient increased the likelihood of receiving analgesia more than twofold.[22] Other examples include the evaluation and care of chest pain, which has been shown to be less comprehensive for minorities, the uninsured, and women.[23–26] Outcomes of trauma[27,28] and care for pediatric patients in the ED[29,30] have been shown to be worse for minorities, immigrants, and uninsured. Language barriers have been shown to result in more testing, with higher test charges and a longer length of stay.[31] Those with language barriers experience less satisfaction with their medical encounters, less explanation, and less follow-up.[32] Despite federal standards mandating culturally and linguistically appropriate services, the use of interpreters for those with language barriers remains low.[33–35]

HOW WOULD CROWDING WORSEN CARE INEQUITY? EVIDENCE, MECHANISMS, AND AREAS FOR FURTHER RESEARCH

Evidence

ED closures are a major contributor to crowding by decreasing the supply of emergency care centers. We have already noted that the closure of EDs disproportionately disenfranchises minorities, immigrants, and the poor.[8] The shrinking supply of EDs leads to crowding at other facilities, and more vulnerable populations are more likely to be disadvantaged.[4] The left-without-being-seen rate (a marker of crowding) is higher for poorer EDs.[36] Nationally, admitted African American patients wait longer for inpatient beds than admitted white patients, which may be a result of their accessing more crowded hospitals.[37] These effects strongly suggest the need for policy interventions to support EDs in communities where there is a high level of uninsured or underinsured and to provide adequate health care coverage for them.

Within the ED, there are even fewer studies of how crowding effects care for disadvantaged and vulnerable populations. Pain care for elders with hip fracture is negatively affected by crowding, although this care was not compared with that of younger patients.[38] Preliminary evidence is also emerging of disparities in care during periods of ED boarding, when admitted patients wait in the ED for unavailable inpatient beds. Patients who are older or white, have Medicare insurance, and have serious medical illness board longer in the ED than younger patients.[39] Hospitals may consider it economically advantageous to keep admitted patients (both uninsured and insured) waiting in the ED for unavailable inpatient beds (a practice called boarding), while continuing to schedule elective surgeries. Another potential contributor to financial triage occurs when hospitals accept high-margin patients referred from other hospitals and clinics as direct admission transfers.[40] This allows such patients to leapfrog past the ED boarding patients waiting for inpatient beds. These create disparities between emergency patient admissions and those with illnesses that generate more lucrative physician and hospital reimbursements. However, even among admitted ED patients, differential care may exist. Waits for intensive care unit beds have been found to be different for whites and African Americans at the same hospital.[37]

Mechanisms

Theoretically, there are reasons to believe that crowding contributes to inequity in emergency care. Understanding the mechanisms by which crowding might heighten disparities is the first step to designing interventions that could prevent this from happening. Van Ryn and Burke[41] have characterized how physicians in general tend to differentially perceive white patients and African American patients and those of lower versus higher socioeconomic groups:

> Physicians' perceptions of patients were influenced by patients' socio-demographic characteristics. Physicians tended to perceive African-Americans and members of low and middle socioeconomic status (SES) groups more negatively on a number of dimensions than they did whites and upper SES patients. Patient race was associated with physicians' assessment of patient intelligence, feelings of affiliation toward the patient, and beliefs about patient's likelihood of risk behavior and adherence with medical advice; patient SES was associated with physicians' perceptions of patients' personality, abilities, behavioral tendencies and role demands.

In a later paper, van Ryn[42] concluded there "is sufficient evidence for the hypothesis that provider behavior contributes to race/ethnicity disparities in care to warrant further study."

Chapter 4 in the 2003 IOM report "Unequal Treatment: Confronting Racial and Ethnic Bias in Health Care" also describes how bias may manifest itself in clinical encounters and goes further to describe how certain aspects of clinical situations promote these biases, namely, "time pressure, incomplete information, and high demand on attention and cognitive resources."[43] A 1960 paper by Miller[44] suggested that as information overload occurs, individuals adjust by an increase in errors, omissions, queuing (delaying), less precise reporting, and escape from the task. One might see how inherent and unconscious bias could result in some of these behaviors being more pronounced for some patients or that physician and nursing staff might be less likely to supply the additional effort needed to accurately evaluate and care for individuals with special needs, such as language barriers, the hard of hearing, or those with mental illness. Language interpretation services are often underutilized in EDs due to perceived time and labor working with professional interpreters.[32] Use of professional interpreters in clinical settings, however, is believed to decrease language-related disparities in the quality and outcomes of care.[45] Perhaps crowding makes it more likely that physicians use unofficial interpreters (family members, other patients, untrained staff) or rely on their own often-overestimated second-language skills when caring for patients with limited English proficiency (LEP) to save time.

Groups other than LEP patients may also face communication barriers that may be exacerbated by crowding. Physicians may not obtain detailed histories when the patient is in cognitive decline. When overloaded, are physicians more likely to abbreviate their evaluation of a known substance abuser with a new pain complaint, assuming it is simply "drug-seeking" behavior? In crowded situations, patients with minor problems may be preferentially chosen over sicker patients because they are easier to deal with. Physicians may opt to care for patients who are likely to have a concrete problem with a straightforward disposition (e.g., fracture) compared with those that will involve longer history taking and evaluation (e.g., "weakness"). These considerations suggest that an understudied area in ED crowding is provider behavior in the setting of stress and overload, particularly with regard to how it might influence differential treatment based on bias, stigma, or simply extra work. This would in turn lead to interventions not only to decrease the effect of overload on providers, but also to guard against the differential effect on vulnerable populations.

Sociologic studies provide some insight to reasons for and interventions against treatment disparities due to cultural differences in care-seeking behavior. As an example, studies on cancer and mental illness suggest that ethnic Chinese are less likely to report pain or symptoms of depression.[46] During periods of crowding, physicians and nurses may be even less likely than usual to seek out complaints from stoic individuals who would otherwise not mention it and may not check back as frequently, relying instead on the patient to proactively request treatment. Another question is the role of empathy. Providers seeing patients in chronically crowded EDs may experience empathy fatigue. This erosion of empathy may disproportionally affect vulnerable population groups.[47,48]

It is also possible that crowding leads to disparate treatment that improves care for vulnerable populations. Physicians may be more willing to discharge patients with primary physicians and good social support and insurance to obtain outpatient evaluations to decrease crowding in their departments, but do a more extensive workup for those who are likely to fall through the cracks in the outpatient setting. This could lead to earlier diagnosis, or more assured symptom control. The "VIP" syndrome is another example where those with greater advantages may actually receive worse care as they spend less time in the ED because of crowding. This may limit their opportunity to be evaluated for wide differential diagnoses for their complaints and may inadvertently delay care that could have been given in the ED.

THE RESEARCH AGENDA

We divide the recommendations into two parts: first, gaining better understanding of the issues, and second, testing potential interventions. All of the following proposed research recommendations can be studied at the macro and micro level, spanning the national, regional (e.g., state, geographic), local (e.g., interhospital), institution (e.g., intrahospital), and individual population levels (race/ethnicity, young versus elder, sex, mental health, etc.). Other crowding interventions proposed for the five other quality domains (i.e., safety, timeliness, efficiency, effectiveness, and patient-centeredness) can also evaluate equity using this framework.

IMPROVED UNDERSTANDING

1. Collect accurate, self-reported demographic data on race/ethnicity, sex, age, SES, and language preference. In 2011, the AMA Commission to End Health Care Disparities recommended strategies for collecting and using demographic data.[49]
2. Encourage further study on the differential access to EDs as a result of race, ethnicity, SES, and location. This includes studies of differences in geographic access, capabilities of departments, waiting times for providers, and waiting times for admission to inpatient units.
3. Stratify quality measures that are already being collected by race, ethnicity, and language or other relevant characteristics of inequitable care. Adjusting for ED conditions that lead to poor quality care may reveal the effect of crowding on vulnerable subpopulations. Similarly, crowding studies should stratify outcomes (be it the harm of crowding or the benefit of an intervention to alleviate crowding) to look at differential effects on vulnerable populations.
4. Understand the potential mechanisms whereby disparities could be worsened during crowding is critical to designing appropriate interventions. Does bias or stigma become more prominent during periods of overload, stress, or chaos? If so, why, and how might this manifest in the ED setting? What provider behaviors are curtailed or altered during crowded conditions that might result in less or worse care for vulnerable populations? What patient characteristics might make them vulnerable to receiving disparate care (e.g., pain relief seeking behavior, mental illness, low literacy, LEP, etc.)
5. Use qualitative approaches (interviews, observation, focus groups) in addition to quantitative methods. Researchers from EM, geriatrics, psychology, sociology, anthropology, economics, psychiatry, and substance abuse treatment should be involved in this research.

INTERVENTIONS

Designing and testing interventions that would prevent disparities in care is the second major focus of this research agenda. The 2003 SAEM Consensus Conference suggested several strategies to address disparities, including the need for workforce diversity, educational programs in cultural competence in EM, increased use of evidence-based clinical guidelines, and monitoring of individual and institutional disparities in performance through quality improvement documentation.[1,50] As the patient population increases in diversity and age, modifying clinical practice to accommodate cultural preferences of patients is necessary.[51] All of these would be relevant to preventing disparities under conditions of crowding within a broader definition of vulnerable populations. Additionally, the effect of public policies regarding the funding of ED care and universal coverage must be addressed.

Understanding the mechanisms by which disparities could increase with crowding will undoubtedly lead to ideas for interventions that could be studied to prevent or remove inequitable care. Given the proposed mechanisms discussed above, the breakout session for the 2011 *AEM* consensus conference recommended a research agenda that would evaluate several different lines of approach:

1. Consider interventions that might prevent bias or stigma from affecting care during crowded conditions. Possible interventions that could be tested:
    - Cultural competency education and self-assessment. Use of simulation medicine to provide education with care-seeking behaviors of different cultures and age groups may improve providers' understanding of inherent biases.
    - Evidence-based guidelines and treatment pathways may allow for more standardized and uniform care.
    - Use of a "crowding time-out" (when the department is crowded) by ED clinical staff may allow for reflection on disparate clinical behavior and attitudes toward patients.
    - Physical modifications to the treatment environment to improve convenience of translation and hearing devices (e.g., ED gurneys equipped with hearing devices).
    - Community engagement to identify and ameliorate potential sources of disparate treatment and improve empathy; e.g., community dialogue, experiential education, and quality improvement projects that include community leaders as advisor.[52]
2. Provision of additional resources to lessen provider "escape" behaviors that are associated with overload.
    - Limiting interruptions and prioritizing communications between ED staff.[53]
    - Backup systems to increase the number of clinicians at busy times.
    - Ancillary providers (e.g., social work, volunteers, patient advocates) to assist in evaluation and follow-up arrangements.
3. Mitigate cultural and language differences.
    - Use of validated pain scales that are culturally sensitive.

- Provide information and encouragement to patients to seek attention in the ED.
- Increase availability of translators—stationed in the ED, proactively identifying those needing translation.
- Use of computer-based and telehealth translation services.

4. Target quality improvement interventions to specific subpopulations under conditions of crowding.

Finally, policy interventions are needed to prevent crowding from disproportionately affecting the access and wait times of vulnerable populations to emergency care. The health care reimbursement system disadvantages hospitals in poorer communities where more patients are self-pay, resulting in ED closures and crowding at surviving hospitals and longer travel distances to hospitals providing state-of-the art care.

Suggested policy interventions for research include:

1. Increasing availability of drop-in and primary care clinics in under-served neighborhoods.
2. Regionalization and changes in ambulance destination policies for specific illnesses that bring patients to hospitals providing state-of-the-art care for trauma, stroke, or myocardial infarction, regardless of patient location, insurance, or age.

CONCLUSIONS

Despite crowding in EDs, quality and equity of care must be assured for all patients. We suggest mechanisms that might come into play when EDs are crowded that could threaten equitable care. A research agenda is proposed to understand these mechanisms and design and test potential hospital-based and public policy interventions that ensure the equity aspect of quality care, despite ED crowding.

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