



# **Public Health and Access to Emergency Care**

*an Information Paper*

*Developed by Members of the  
Public Health Committee*

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### Information Paper

#### **Abstract**

Americans view emergency medical care as an essential service along with law enforcement, fire and rescue services. Health care is becoming the most pressing issue amongst citizens in part concerned with access to care when they need it most: 24 hours a day, every day of the year. The ACEP Board of Directors requested the Public Health Committee develop a summary of the status of access to emergency medical care from the perspective of public health. Members of the Public Health Committee began with a historical perspective, then detailed current public health emergency department (ED) access issues, including disaster care and concluded with an analysis of future concerns. Some access issues affect all areas (pre-hospital, ED, and post ED) of emergency care. These include hospital closures and ED Crowding. Additional general access challenges include needs in rural areas and disparity issues (pediatric, racial, uninsured). Finally, issues localized to specific locations to access care (Pre-hospital issues: ambulance diversion, ED issues: staffing (nursing, physician) and on call specialists availability, and Post ED issues: mental health access and follow-up challenges) are also discussed. Access to emergency care is a fundamental service. As emergency physicians, we need to research, collaborate, contribute and ultimately develop practical solutions for these very pressing issues. Lack of involvement will lead to accepting less than ideal solutions developed by non-emergency medicine policy makers, or worse yet, continued unraveling of the safety net.

#### **Introduction**

Sometimes called places of universal access, emergency departments (EDs) provide a full range of medical services to all acutely ill or injured patients 24 hours every day. In the last several years, EDs and the care provided in the ED setting has been the subject of national attention. Our nation's emergency and trauma systems are among the most advanced in the world. However, concerns about rising costs and the erosion of the ED safety net by ED crowding and ambulance diversion have become critical issues. The recently released Institute of Medicine (IOM) report on the Future of Emergency Care highlights the national crisis in emergency care. In many aspects, emergency medical care may be considered an essential public health service. Like police response in your neighborhood, you need to be sure every moment of every day, that at the instant of your emergency you will have immediate access to high quality emergency care.

This report will provide a summary of the status of access to emergency medical care from the perspective of public health, starting with historical perspectives, then detailing current public health ED access issues (prehospital, ED, and post-ED challenges and common issues across the spectrum), access to emergency care during disasters and concluding with future concerns for access to emergency care.

#### **Historical Perspective**

Although EDs are a recent creation, access to physicians and health care has been an aspect of community service for centuries. Examining the arrangements that sustained a functioning system in the past may help clarify future practical directions.

In the Middle Ages access to hospitals was controlled and operated by the Church. In striving to satisfy the biblical admonition regarding the seven works of mercy, hospitals admitted the homeless and starving, the ill, the crippled, the aged, the blind, the insane, and the helpless orphans. The Hotel Dieu in Paris was a "vast and ancient" charity hospital with wards of 100 or more patients, several patients to a bed, and operated by the Church. Hospitals were financed by charity, in particular by the rich. By contrast,

Vienna's public hospital in the same era offered four tiers of admission much like today. The more one paid, the more one received. The poorest received the least services, but they were admitted.<sup>1</sup>

During the Industrial Revolution, people migrated from rural communities to cities to work in factories. The urban Church could not establish the universal overview that it held in rural areas. The power of the Church to enforce charity declined. Medical care of workers was justified by their utility to the factory rather than as a societal duty. By the end of the Industrial Revolution, county and city hospitals and health departments were developed to benefit the poor and communities at large. These health establishments furthered scientific medicine and scientific approaches to epidemics.

Health insurance first appeared in the form of present day disability insurance. In the early 20<sup>th</sup> century the expense of work days lost far exceeded medical costs.<sup>2</sup> Hospitalization schemes (Blue Cross) and ones for physician payment (Blue Shield) began in the depression to ensure a constant source of income for hospitals. Employer sponsored health insurance was a direct outgrowth of wage and price controls imposed in World War II. Employers were able to use health insurance as a form of income and an inducement to work at their facility. Employers received a substantial tax benefit for sponsoring these plans and health insurance was not made a part of payroll taxes.<sup>3</sup> The federal government, in response to the impoverished elderly of the Depression, reluctantly assumed the obligation for some charity care thus creating Medicare. Those made eligible comprised the worst insurance risks, and taxpayers assumed these risks. The insurance industry capitalized and marketed medical insurance to the largely healthy remainder of the population.

EDs developed in the 20<sup>th</sup> century, and prior to the 1970's were mostly staffed by non-emergency medicine trained physicians. The enactment of the Emergency Medical Treatment and Labor Act (EMTALA) in the 1980's mandated the availability of emergency screening and stabilization for any who seek ED care, regardless of ability to pay. Subsequently, EDs became known as the 'safety nets' of health care, where anyone needing health care could receive emergency treatment regardless of financial status. No provision was made for payment of provider or facilities. EMTALA was and remains an "unfunded mandate," a legal requirement and a right but without a source or form of payment defined.

### **Current ED Access Issues**

Challenges for patients accessing emergency care can occur in the prehospital setting, the ED itself, and can continue after stabilization and discharge from the hospital. Some problems, such as ED crowding, affect all areas of patient access. Other problems may affect one area more, such as with ambulance diversion in the pre-hospital setting. Many of these issues are intertwined (ie, hospital closures contributing to ambulance diversion and crowding). This section will begin with the major problems of hospital closures and crowding. A discussion of rural area concerns, racial disparities and pediatric issues that affect access are also included.

'Access to emergency care' is a complicated entity to measure, and any discussion regarding the current status of access to emergency care needs to acknowledge this difficulty. According to Dan Pollock, MD, from the National Center for Injury Prevention and Control, "Finding a way to monitor access more systematically is a pivotal task and should be a high priority. Accomplishing this task calls for prompt attention to two fundamental questions about access barriers and their effects: What counts and who's counting?"<sup>4</sup> An integral portion of the definition of access to emergency care involves deciding what care is urgent and what care is non-urgent, or what care is appropriate and what care is inappropriate. Interpretations of what constitutes an urgent ED visit varies based on the perspective of the health care provider and the patient.<sup>5</sup> In a study by Lowe, there was poor agreement between patient, triage nurse, and retrospective chart review opinions on what ED visits were inappropriate.<sup>6</sup> Although debates

regarding the ideal means to measure access to emergency care continue, observations regarding the specific access concerns can still be discussed.

## **Hospital Closures**

Hospital closures create direct physical barriers to all emergency care. Overall there has been a 30% reduction in available inpatient beds over 15 years<sup>7</sup>, and a 12.4% reduction in hospital EDs in the past 10 years.<sup>8</sup> During the 1980's, almost 10% of all rural hospitals closed.<sup>9-10</sup> This trend slowed in the 1990's.<sup>11</sup> While rural hospital closures create the obvious distance and subsequent time delay to access emergent care, even urban hospital closures can affect health outcomes. In one study in Los Angeles County, hospital closures affected the distance to the nearest hospital.<sup>12</sup> Additionally, this increased distance was associated with increased deaths from heart attacks and unintentional injuries.<sup>12</sup>

## **ED Crowding**

ED crowding is frequently discussed in the media and is the consequence of hospital closures and increased ED volume. With hospital closures, the total number of EDs available to treat patients has decreased. This decrease occurs at a time when ED volume continues to increase.<sup>8</sup> Additionally, with fewer inpatient beds available (due to hospital closures), admitted patients are held in the ED until inpatient beds become available. The "awaiting bed" phenomenon contributes significantly to ED crowding with admitted patients occupying ED beds, thus preventing turnover to new ED patients.

Review of the National Hospital Ambulatory Medical Care Survey (NHAMCS) statistics demonstrate that a significant portion of increased ED volume is related to the increase in the elderly ED patient population.<sup>8</sup> Other studies suggest that insured populations are also increasing their use of the ED.<sup>13</sup> As the population continues to age and ED volume continues to rise, crowding issues become even more pressing.

Crowding due to uninsured patients' use of the ED has been widely discussed in the literature. Because of the EMTALA mandate, uninsured patients are guaranteed a screening exam and stabilization regardless of ability to pay. Historically, allegations regarding the 'misuse' of EDs by uninsured patients have been suggested. One study found that routine use of the ED for care was associated with uninsured status.<sup>13,14</sup> In another study, the provision of adequate free primary care for the uninsured decreased overall ED visits for this population.<sup>15</sup>

Several other studies, however, have not supported this perception that the nation's uninsured account for the dramatic increase in ED patient volume and crowding. One study by the Health Policy Center found that the uninsured and privately insured adults have the same risk of being frequent users of the ED, and that the uninsured do not use EDs more than the insured population.<sup>16</sup> Another study evaluating the level of service provided to insured and uninsured patients found no difference in the proportion of uninsured adults provided low acuity care when compared to privately insured patients.<sup>17</sup> In this same study, uninsured children received only 6% more low acuity care, when compared to insured children.<sup>17</sup> Further refuting the popular belief that the uninsured are the major cause for increased ED use, Cunningham's research found that, insured Americans accounted for most of the recent increase in ED visits. In addition, the study which may address this question most reliably is the NHAMCS 2004 study, which found that 7.5% of uninsured ED visits were categorized as non-urgent compared to 12.5% non-urgent visits of privately insured patients.<sup>18</sup> Overall, the data suggests that although providing uninsured patients a regular source of medical care can decrease ED use, uninsured patients do not appear to be over-utilizers of the ED for non-urgent care, compared to privately insured patients.

Another contributor to crowding is the concern that the ED is over-utilized for non-urgent care by all populations. Research suggests both insured and uninsured utilize the ED for non-urgent care.<sup>19</sup> According to Young et al, ambulatory patients (almost 50% of whom were considered non-urgent) seek ED care because of worrisome symptoms and nonfinancial barriers to care. However, a disturbing percentage of these patients initially considered nonurgent required hospitalization.<sup>20</sup> Numerous research attempts to determine a safe, reliable and valid means to identify a non-urgent ED visit prior to evaluation have not been successful.<sup>21</sup> Attempting to limit 'nonurgent' patients access to the ED without the ability to identify patients who could safely be denied evaluation, places barriers to potentially needed emergency care and may cause patients harm.<sup>6,21</sup> While non-urgent care may contribute somewhat to crowding, after 20 years of research without substantial success, it is unlikely that this factor can safely be modified. Additionally, according to the 2007 NHAMCS survey of 2005 data, only 12.5% of all ED visits were considered non-urgent.<sup>18</sup> From a public health perspective, even a dramatic decrease in non-urgent visits would not make a dramatic decrease in total ED volume.

Crowding, although complex and multifactorial, continues to be a significant barrier for access to timely emergency care. There are consequences to crowding including longer patient waits, increased ambulance diversion, longer turnaround times for emergency medical services (EMS) and increased risk for poor outcomes.<sup>8</sup> Because of the complexity of crowding and the subsequent potentially dangerous consequences, it has been the focus of numerous research projects beyond the scope of this discussion. Crowding continues to be a substantial access barrier and further research is ongoing and necessary.

### **Rural Challenges**

Patients living in a rural community continue to have unequal access to emergency care. The recent IOM report specifically addressed the challenges of emergency care in the rural setting.<sup>22</sup> According to a study by the urban institute, rural counties tend to have higher levels of poverty and concentrations of elderly.<sup>23</sup> They also tend to have increased rates of infant mortality, low birth weight, and morbidity. Rural areas have suffered from hospital closures as well as suboptimal ED staffing. In a survey of rural counties in four states, it was determined that ED coverage was a factor discouraging physicians from relocating to rural areas.<sup>23</sup> A recent evaluation of EDs throughout the USA found that 80% of rural EDs were low volume (less than 1 visit/hr annually).<sup>24</sup> This statistic raises staffing concerns for ED physicians. Some of these hospitals paid local non-emergency medicine trained physicians to work in the ED. Although telemedicine and use of midlevel providers trained in emergency medicine might improve this situation, currently these options have not been widely implemented.<sup>25-27</sup> From a public health perspective, the issue of adequate staffing (with qualified emergency care providers) in these smaller EDs needs to be addressed to ensure access to quality emergency care within the rural setting.

### **Disparities in Access to Emergency Care**

Disparity in access to emergency care exists in pediatrics, specific racial populations, and in uninsured populations.

Lately, there has been an increasing focus on the issues of inadequate pediatric emergency care. Pediatric cases make up approximately one-fourth of the emergency care provided in US EDs. Children are a unique subset of the ED population, requiring special services, supplies and clinicians with expertise in treating them. Results from a 2002-03 Emergency Pediatric Services and Equipment Supplement added to the 2002-2003 NHAMCS found that only 5.5 percent of EDs had all recommended pediatric supplies.<sup>28</sup> The American Academy of Pediatrics (AAP) detailed problems restricting access to pediatric emergency care in 2000.<sup>29</sup> Issues discussed include lack of pediatric training and experience for pre-hospital transport personnel and variability in pediatric training and experience among physicians staffing EDs. The AAP noted an improvement in emergency medicine residency training programs with specific training and

experience in pediatric emergencies. In addition, there has been substantial and ongoing increases in board certified emergency physicians throughout the country. In another recent study it was shown that emergency physicians felt least confident in their treatment of pediatric patients.<sup>30</sup> As previously discussed under rural challenges, the IOM report notes that many of the pediatric related shortcomings are exacerbated in rural areas.<sup>31</sup>

Discussing all of the factors regarding barriers to adequate access to emergency care for pediatric populations is beyond the scope of this discussion. Clearly, pre-hospital care administrators and the emergency medicine community need to address concerns regarding adequate equipment, training, and experience in caring for pediatric emergencies as outlined in the most recent IOM report.<sup>31</sup>

There is little data regarding racial or uninsured related disparity in the pre-hospital setting. However, there is data to suggest some disparity exists in ED and in post ED care. Most of the studies suggest that while patients receive care, the care is disparate. Racial disparity in the ED delivery of analgesics has been suggested in the literature, although this disparity appears to be institution related as not all locations studied revealed this disparity.<sup>32-34</sup> Concerns regarding the potential for trauma disposition disparity also exists, with African American females and uninsured patients less likely to be admitted.<sup>35</sup> Another study looking at admission rates found disparate care for uninsured patients.<sup>36</sup> Several studies have suggested disparate care of patients with chest pain based on race and insurance status.<sup>37,38</sup>

Although disparities based on age, race and insurance status does not appear to limit initial access to emergency care, it is clear that disparate access to specific types of emergency care is a significant concern from a public health perspective. This issue has been addressed specifically in the emergency medicine community through a consensus conference,<sup>38</sup> and the elimination of all health disparities is identified as a national goal of the Healthy People 2010 process.<sup>39</sup> Continued efforts to address this important issue are needed.

### **Prehospital Access to ED Issues**

The most publicized pre-hospital access issue relates to ambulance diversion. This issue is interconnected with crowding problems and hospital closures. In a study sponsored by the American Hospital Association in 2004, lack of critical care capacity and ED crowding were the most common reasons for diversion.<sup>40</sup> In 2003, Schull et al. found that the number of admitted patients held in the ED was a primary determinant of ambulance diversion rates, thus linking the rate of admission from the ED to inpatient beds to ED crowding.<sup>41</sup> In 2003, ambulances were diverted over 500,000 times nationally.<sup>24</sup> There are potentially significant consequences associated with ambulance diversion.<sup>42</sup> A review of 600 ambulance diversion studies found associated increases in times to drug therapy for acute myocardial infarctions. Absent from these reviews were data on subsequent morbidity related to ambulance diversion. As a result, the authors concluded that further research was necessary.<sup>43</sup>

Other concerns with ambulance diversions include diversion to facilities with inadequate expertise and inadequate resources for the patients' needs.<sup>24</sup> The recent IOM report describes strategies to limit diversion by addressing ED crowding and improving coordination and integration of EMS systems.<sup>24</sup>

### **Hospital Access Issues**

Staffing issues and on-call specialists' availability have a significant impact on access to emergency care in the ED. Staffing issues include both physician and nursing shortages.

Emergency physicians are predicted to be in short supply for several decades.<sup>44,45</sup> Additionally, in one survey, 60% of emergency physicians suffered from moderate to high burnout.<sup>46</sup> Emergency physicians

may consider alternate careers because of inadequate resources, litigation concerns, and declining reimbursements<sup>47</sup> Currently, and in the foreseeable future, an inadequate supply of qualified emergency medicine trained physicians creates a barrier to emergency care.

While physician shortage is a concern, a more pressing and urgent concern is the nursing shortage. Although the nursing shortage in general affects the entire hospital, its effects in the ED are magnified and immediately apparent. Hospital-wide nursing shortages contribute heavily to admitted patients being 'held' in the ED pending adequate staffing for inpatient beds. This means ED nurses have to care for floor patients held in the ED awaiting an inpatient bed as well as care for the incoming ED patients. A shortages of emergency trained nurses exacerbates the problem. It should not be a surprise that emergency nursing availability is expected to be insufficient in the future.<sup>48</sup> In California, attempts to limit staffing of emergency nurses to no more than four patients per nurse led to hospital closures for failure to meet this demand.<sup>49</sup> The consequences, issues, and solutions to the nursing shortage and its affect on access to emergency care are beyond this discussion. Although the recent IOM report addresses some of the nursing shortage issues,<sup>24</sup> there is no simple solution and ongoing research and action is necessary.

Lack of emergency on-call specialist availability is a significant issue for access to emergency care in the ED setting. The decreased availability of on-call specialists is often cited as one of several sources of ED crowding.<sup>50</sup> The Centers for Medicare and Medicaid Services (CMS) mandate that an on-call specialist must respond within a reasonable period of time. A 2006 study of provider response times in California found that this was not always the case.<sup>51</sup> Hospital zip code income can negatively affect specialist response time. Mohanty et al found that for every \$10,000 increase in hospital zip code income, the odds of on-call specialist response within 30 minutes increased by 123%.<sup>51</sup> Uninsured or underinsured patients are increasingly creating challenges for on-call specialists. The reluctance of a specialist to see these patients often stems from the financial risk that they present as they often cannot pay for the specialist's services.<sup>52</sup> According to Macasaet et al, emergency patients in general also pose more of a threat as a liability to specialists due simply to their inherent instability and unpredictability as a patient.<sup>52</sup> Efforts to get emergency coverage are substantial. In the past, many surgical specialists were required to take ED coverage as a condition of staff privileges (and therefore operating room privileges). With the advances in outpatient surgery and increased free standing surgical centers, denying hospital admission privileges (for not taking ED call) may no longer be an enticement for several surgical specialties such as ophthalmology, plastic surgery, and hand surgery. Financial enticements have also been tried. According to Medical Economics, one California hospital spent 5 million a year in 2001 to provide on-call specialty support.<sup>53</sup> The same report described the concern that even with financial incentives, some doctors would still shun the ED in order to simplify their professional lives.<sup>53</sup> The IOM suggests some solutions such as regionalization, adequate compensation, and professional liability protections. The reason for availability being less than it used to be is due to rising malpractice premiums and that is driving physicians away from practice and even away from their states. Attempts to address this problem in California have resulted in the introduction of legislation requiring physicians to provide some on-call services as a condition of licensure, with mandatory reporting to the state medical board for failure to respond.<sup>54</sup> The issue of adequate on-call specialists availability is on-going, pressing, and requires immediate attention. This problem represents substantial threat to adequate access to emergency care.

## **Post ED Issues**

### *Mental Health*

An important issue regarding access to emergency care after the ED evaluation is the availability of mental health resources. The number of patients seeking mental health care in EDs is increasing.<sup>55</sup> Patients suffering mental illness require resource intensive care and have high admission rates.<sup>56</sup> Unfortunately, because of limited resources to place these patients, many who are indigent or uninsured, ED staff spend twice as long looking for inpatient beds.<sup>56</sup> Sixty percent of physicians surveyed noted that

the increase in psychiatric patients negatively affected access to emergency care for all patients.<sup>55</sup> According to the National Association of Psychiatric Health Systems (NAPHS) annual survey, in 2004 average inpatient admissions increased 4.6%, and average total days of care increased 3.5%.<sup>57</sup> During the same time, hospitals responding to the survey noted only 3.5% increase in licensed beds. The same survey noted that occupancy of these beds is high, with 25% of the large psychiatric facilities (those with 100 beds or more) having greater than 90% occupancy. Access to mental health emergency services is an important topic. Accordingly the IOM acknowledged this problem and recommends increased funding.<sup>24</sup>

#### *Access to Outpatient follow-up*

Access to outpatient care after evaluation, treatment, and discharge from the ED is a challenge for certain populations. Uninsured may have limited access to primary care outside the ED, and poor follow-up may result in return ED visits, and potentially worse outcomes. One study looking at insurance status and access to urgent ambulatory care follow-up appointments found that patients with private insurance were more likely to receive timely access to follow-up care.<sup>58</sup> The effects of limited access to primary care follow-up for uninsured ED discharged patients are unclear. One study found subsequent ED utilization was decreased in uninsured patients given primary care followup.<sup>59</sup> Yet, another study, found that for uninsured patients discharged from the ED without access to primary care, improving access did not reduce ED return visits.<sup>60</sup> Reasons for unanticipated return visits to the ED after discharge are varied, and include medical errors<sup>61,62</sup> and disease related issues.<sup>63</sup> Return visits related to asthma have been studied extensively, and lack of follow-up care has not been suggested as the primary reason for unanticipated return ED visits. In fact, one study<sup>64</sup> noted that although most ED discharged pediatric asthma patients did not receive outpatient follow-up, the ones that did were more likely to have a return ED visit. This may suggest selection bias for a higher severity of continued symptoms in those seeking follow-up after an ED visit for asthma. Challenges regarding limited after-ED visit access to care exist, however, the magnitude of this problem, and the effect on patient morbidity and mortality is understudied.

#### **Disaster-Related Access Issues**

Given the current access to emergency care challenges that already exist, a disaster situation obviously complicates the situation even more. Integral to any disaster plan should be provisions to manage emergent disaster related and non-disaster related emergencies (myocardial infarctions, strokes, sepsis that are not disaster related). Disaster related factors that may affect access to emergency care include weather related issues (roads may become impassible preventing staff from reaching hospitals or may damage these facilities to the degree that they are unsafe), utility related challenges (lack of fresh water for dialysis or electricity for ventilators), and unanticipated staff shortages.

Alternate care centers are key components to access to care during a disaster response. These areas can function as triage and treatment areas for those immediately affected by a disaster far from a health care facility. The advanced identification of these disaster emergency care facilities may improve access so community members will know where to go if they cannot make it to an ED.

Although attention to emergent patients takes immediate precedent, other urgent conditions need also to be addressed. For example, while not emergent, dialysis patients will still need dialysis and so provisions for this and similar needs must be anticipated. When facilities become overwhelmed with patients suffering emergent conditions, resource rationing (regarding already admitted patients and incoming new patients) may need to be addressed. Questions such as selection of patients for ICU care are difficult, and if possible, priority plans should be developed before they are needed. The Canadian four scale protocol for admission to the ICU in the event of an influenza pandemic is an example of one plan to ration ICU care to maximize survival.<sup>65</sup> This plan divides patients into four categories based on an objective assessment of organ failure. Patients most likely to survive and benefit from ICU care have highest



priority admission to ICU. When resources are stretched and at a premium, such plans for other types of care (intubation, dialysis, and surgery) may also be needed.

In addition to the acute access challenges anticipated during a disaster, other non-urgent access to care issues should also be anticipated. Displaced victims needing medications (such as insulin, and antihypertensive medications) should be expected and appropriate plans should be in place to address this need. Diversion of these non-urgent patients (who could become urgent should appropriate access to medications not be available) to the ED is inappropriate and only compounds the expected crowding situation. Finally, long term access to care challenges include lack of records for displaced victims. Plans to preserve medical information can be implemented prior to any disaster.

### **Future Challenges**

The 21st century has its own challenges with regard to access to emergency care. Overall ED volume has continued to increase in spite of hospital closures resulting in fewer inpatient and ED beds available for care. This situation contributes to substantial ED crowding. Ambulance diversion and admitted patients held in EDs awaiting an inpatient bed are commonplace. Additionally, hospital specialists are no longer readily available to care for ED patients urgently needing specialized care. This history is already documented. The reality of these issues prompted the 2006 report from the IOM on the state of emergency care.<sup>24</sup> According to their analysis, “Despite the lifesaving feats performed every day by EDs and ambulance services, the nation’s emergency medical system as a whole is overburdened, underfunded, and highly fragmented...”.

The future potential for a terrorist or natural disaster (such as pandemic influenza) to stress our emergency system is increasingly likely. This potential, coupled with the stresses in access to emergency care in “normal” conditions, increases the urgent need to address this issue now. While the IOM provided recommendations, it is incumbent upon the emergency medicine community to act on this important issue.

### **Conclusion**

Access to emergency care is a fundamental service. Emergency medicine has a unique and complete understanding of all of these issues. It remains our responsibility to research, collaborate, and ultimately develop practical solutions for these very pressing issues. If we don’t help solve these problems, either we will be forced to accept less than ideal solutions developed by non-emergency medicine policy makers, or worse yet, continue to watch the safety net unravel.

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### **References**

1. Goldin G. Historic hospitals of Europe, 1200-1981: Exhibit of photographs. National Library of Medicine. Department of Health and Human Services, Bethesda, 1983.
2. Thomasson M. Health insurance in the United States. In: Whaples R (ed). EH:Net Encyclopedia. April 18, 2003. URL. <http://eh.net/encyclopedia/article/thomasson.insurance.health.us>
3. Glied S. The employer-based health insurance system: mistake or cornerstone? In: Mechanic, David (ed). Policy Challenges in Modern Health Care. Robert Wood Johnson Foundation. New Brunswick, NJ:Rutgers University Press, 2005:37-52.
4. Pollock DA. Barriers to health care access: What counts and who’s counting? *Acad Emerg Med*. 2001;8(11):1016-1018.

5. Gill JM, Riley AW. Nonurgent use of hospital EDs: urgency from the patients' perspective. *J Fam Pract.* 1996;42(5):491-496.
6. Lowe RA, Bindman AB. Judging who needs ED care: a prerequisite for policy-making. *Am J Emerg Med.* 1997;15(2):133-136.
7. Adams JG. The endangered safety net: Establishing a measure of control. *Acad Emerg Med.* 2001;8(11):1013-1015.
8. McCaig LF, Nawar EW. National Hospital Ambulatory Medical Care survey: 2004 emergency department summary. Advance data from vital and health statistics; no. 372. Hyattsville, MD: National Center for Health Statistics. 2006.
9. Hart LG, Pirani MJ, Rosenblatt RA. Causes and consequences of rural small hospital closures from the perspectives of mayors. *J Rural Health.* 1991 Summer;7(33):222-245.
10. DesHarnais S, Reif S, Bernard S, Randolph R. Final Report: Effects of Rural Hospital Closure on Access to Care: Data Analysis July 1998.  
[http://www.shepscenter.unc.edu/research\\_programs/rural\\_program/wor59.pdf](http://www.shepscenter.unc.edu/research_programs/rural_program/wor59.pdf) Accessed 2/22/07
11. Poley ST, Ricketts TC. Fewer hospitals close in the 1990s: Rural hospitals mirror this trend. October 2001. [http://www.shepscenter.unc.edu/research\\_programs/rural\\_program/fb73.pdf](http://www.shepscenter.unc.edu/research_programs/rural_program/fb73.pdf). Accessed 2/22/07
12. Buchmueller TC, Jacobson M, Wold C. How far to the hospital? The effect of hospital closures on access to care. *J Health Economics.* 2006;25(4):740-761.
13. Cunningham P, May J. Insured Americans drive surge in ED visits. *Issue Brief Cent Stud Health Syst Change.* 2003;70:11-16.
14. Pane GA, Farner MC, Salness KA. Health care access problems of medically indigent ED walk-in patients. *Ann Emerg Med.* 1991; 20(7):730-733.
15. Davidson RA, Giancola A, Gast A, et al. Evaluation for access, a primary care program for indigent patients: inpatient and emergency room utilization. *J Community Health.* 2003; 28(1):59-64.
16. Health Policy Center, the Urban Institute, Washington DC 20037. Characteristics of occasional and frequent ED users: do insurance coverage and access to care matter? *Med Care.* 2004; 42(2):176-182.
17. Irvin CB, Fox JM, Smude B. Are there disparities in emergency care for uninsured, Medicaid, and privately insured patients? *Acad Emerg Med.* 2003;10(11):1271-1277.
18. Nawar EW, Niska RW, Xu J. National Hospital Ambulatory Medical Care survey: 2005 emergency department summary. Advance data from vital and health statistics; no. 386. Hyattsville, MD: National Center for Health Statistics. 2007.
19. Northington WE, Brice JH, Zou B. Use of an ED by nonurgent patients. *Am J Emerg Med.* 2005; 23(2):131-137.
20. Young GP, Wagner MB, Kellermann AL, et al. Ambulatory visits to hospital EDs. Patterns and reasons for use. 24 years in the ED study group. *JAMA.* 1996; 276(6):460-465.
21. Richardson LD, Hwang U. Access to care: A review of the emergency medicine literature. *Acad Emerg Med.* 2001; 8(11):1030-1036.
22. IOM June 14, 2006 Hospital-Based Emergency Care: At the Breaking Point.
23. Ormond BA, Wallin S, Goldenson SM. Supporting the rural health care safety net. March 2000  
<http://www.urban.org/uploadedpdf/occa36.pdf#search=%22rural%20safety%20net%22> pg 7
24. Sullivan AF, Richman IB, Ahn CJ, et al. A profile of US emergency departments in 2001. *Ann Emerg Med.* 2006; 48(6):694-701.
25. Gazewood JD, Rollins LK, Galazka SS. Beyond the horizon: The role of academic health centers in improving the health of rural communities. *Acad Med.* 2006; 81(9):793-797.
26. Ricci MA, Caputo M, Amour J, et al. Telemedicine reduces discrepancies in rural trauma care. *Telemed J E Health.* 2003; 9(1):3-11.
27. Drozda PF. Physician extenders increase healthcare access. *Health Prog.* 1992; 73(4):46-48.
28. Middleton KR, Burt CW. Availability of pediatric services and equipment in emergency departments: United States, 2002-03. Advance Data from Vital and Health Statistics, CDC. Feb. 28, 2006. Number 376:1-16.

29. American Academy of Pediatrics. Access to pediatric emergency medical care [policy statement]. *Pediatrics*. 2000; 105(3):647-649.  
<http://aappolicy.aappublications.org/cgi/content/full/pediatrics;105/3/647> accessed 2/22/07
30. Schumacher JG, Deimling G, Meldon S, et al. Older adults in the ED: Predicting physicians' burden levels. *J Emerg Med*. 2006; 30(4):455-460.
31. IOM Emergency Care for Children: Growing Pains. June 14, 2006. Pg 2
32. Tamayo-Sarver JH, Hinze SW, Cydulka RK, et al. Racial and ethnic disparities in ED analgesic prescription. *Am J Public Health*. 2003; 93(12):2067-2073.
33. Todd KH, Deaton C, D'Adamo AP, et al. Ethnicity and analgesic practice. *Ann Emerg Med*. 2000; 35(1):11-16.
34. Fuentes EF, Kohn MA, Neighbor ML. Lack of association between patient ethnicity or race and fracture analgesia. *Acad Emerg Med*. 2002; 9(9):910-915.
35. Selassie AW, McCarthy ML, Pickelsimer EE. The influence of insurance, race, and gender on ED disposition. *Acad Emerg Med*. 2003; 10(11):1260-1270.
36. Ruger JP, Richter CJ, Lewis LM. Association between insurance status and admission rate for patients evaluated in the ED. *Acad Emerg Med*. 2003; 10(11):1285-1288.
37. Hiestand BC, Prall DM, Lindsell CJ, et al. Insurance status and the treatment of myocardial infarction at academic centers. *Acad Emerg Med*. 2004; 11(4):343-348.
38. Venkat A, Hoekstra J, Lindsell C, et al. The impact of race on the acute management of chest pain. *Acad Emerg Med*. 2003; 10(11):1199-1208.
39. Department of Health and Human Services, Healthy People 2010: A systematic Approach to Health Improvement [http://www.healthypeople.gov/document/html/uih/uih\\_2.htm](http://www.healthypeople.gov/document/html/uih/uih_2.htm) Accessed 2/22/07
40. American Hospital Association. Hospital Capacity and Emergency Department Diversion: Four Community Case Studies. April 2004.  
<http://www.aha.org/aha/content/2004/PowerPoint/EDDiversionsSurvey040421.ppt>
41. Schull MJ, Lazier K, Vermeulen M, et al. ED contributors to ambulance diversion: a quantitative analysis. *Ann Emerg Med*. 2003; 41(4): 467-76.
42. AHA press release and statement: Overcrowded emergency departments leading to more diversions, longer wait times. April 2002. <http://www.aha.org/aha/press-release/2002/pr-020408-emergrooms.html> Accessed 2/22/07.
43. Pham JC, Ptel R, Millin MG, et al. The effects of ambulance diversion: A comprehensive review. *Acad Emerg Med*. 2006; 13(11):1220-7.
44. Holliman CH, Wuerz RC, Hirshberg AJ. Analysis of factors affecting U.S. emergency physician workforce projections. SAEM workforce Task Force. *Acad Emerg Med*. 1997; 4(7):731-735.
45. Gallery ME, Allison EJ Jr, Mitchell JM, et al. Manpower needs in academic emergency medicine. *Ann Emerg Med*. 1990; 19(7):797-801.
46. Goldberg R, Boss RW, Chan L, et al. Burnout and it's correlates in emergency physicians: Four years' experience with a wellness booth. *Acad Emerg Med*. 1996; 3(12):1156-1164.
47. Taylor TB. Threats to the health care safety net. *Acad Emerg Med*. 2001; 8(11):1080-1087.
48. Schriver JA, Talmadge R, Chuong R, Hedges JR. Emergency nursing: Historical, current and future roles. *Acad Emerg Med*. 2003; 10(7):798-804.
49. CA state health director announces proposed changes to nurse to patient ratio regulation <http://www.applications.dhs.ca.gov/pressreleases/store/pressreleases/04-70.html>. Nov 4, 2004, number 04-70.
50. Rudkin SE, Oman J, Langdorf MI, et al. The state of ED on-call coverage in California. *Am J Emerg Med*. 2004; 2:575-581.
51. Mohanty SA, Washington DL, Lambe S, et al. Predictors of on-call specialist response times in California EDs *Acad Emerg Med*. 2006; 13:505-512.
52. Macasaet AL, Zun L. The on-call physician. eMedicine.com, Inc. Available at: <http://www.emedicine.com/emerg/topic878.htm>. Accessed August 14, 2006.

53. Lowes R. What will it take to solve the ER crisis? Dec 3, 2001  
<http://www.memag.com/memag/article/articleDetail.jsp?id=118268> Medical Economics
54. Asplin BR, Knopp RK. A room with a view: On-call specialists panels and other health policy challenges in the ED. *Ann Emerg Med.* 2001; 37(5):500-503.
55. EDs see Dramatic Increase in People with Mental Illness Seeking Care. NMHA News Release. April 27, 2004 <http://www.nmha.org/newsroom/system/news.vw.cfm?do=vw&rid=601>
56. Larkin GL, Claassen CA, Emond JA, et al. Trends in U.S. emergency department visits for mental health conditions, 1992-2001. *Psychiatr Serv.* 2005;56(6):671-677.
57. Szpak C. New NAPHS Annual Survey tracks behavioral Treatment Trends. NAPHS April 2006. <http://www.naphs.org/documents/Annualsurvey2005.pdf>. Accessed 2/22/07.
58. Asplin BR, Rhodes KV, Levy H, et al. Insurance status and access to urgent ambulatory care follow-up appointments. *JAMA.* 2005;294(10):1248-1254.
59. Murnik M, Randal F, Guevara M, et al. Web-based primary care referral program associated with reduced emergency department utilization. *Fam Med.* 2006;38(3):185-189.
60. McCarthy ML, Hirshon JM, Ruggles RL, et al. Referral of medically uninsured emergency department patients to primary care. *Acad Emerg Med.* 2002;9(6):639-642.
61. Nunez S, Hexdall A, Aguirre-Jamie A. Unscheduled returns to the emergency department: an outcome of medical errors? *Qual Saf Health Care.* 2006;15(2):102-108.
62. Forster AL, Rose NG, Van Walraven C, et al. Adverse events following an emergency department visit. *Qual Saf Health Care.* 2007;16(1):17-22.
63. Liaw SJ, Bullard MJ, Hu PM, et al. Rates and causes of emergency department revisits within 72 hours. *J Formos Med Assoc.* 1999;98(6):422-425.
64. Cabana MD, Bruckman D, Bratton SL, et al. Association between outpatient follow-up and pediatric emergency department asthma visits. *J Asthma.* 2003;40(7):741-749.
65. Christian MD, Hawryluck L, Wax RS, et al. Development of a triage protocol for critical care during an influenza pandemic. *CMAJ.* 2006;175(11):1377-1388.