



# Emergency department utilization and capacity

By Sarah Goodell, M.A., Derek DeLia, Ph.D., and Joel C. Cantor, Sc.D. based on a research synthesis by DeLia and Cantor

## SUMMARY OF KEY FINDINGS

- > **Privately insured patients account for the largest and fastest growing segment of ED users.**
- > **Visits to the ED for non-urgent and preventable conditions are common and growing.** Use of the ED for non-urgent conditions is associated with limited access to primary care providers.
- > **ED overcrowding is a complex problem that cannot be solved by simply increasing capacity or covering the uninsured.** Improved efficiency in moving ED patients to inpatient beds is important to reducing overcrowding.
- > **The effect of EDs on hospital finances depends heavily on the services provided and the reimbursement received — either directly through insurance or indirectly through government subsidies.**

## Why is this important to policy-makers?

- The growth in emergency department (ED) visits over the last decade coupled with the decline in the number of hospitals operating an ED have led some experts to declare that emergency care has reached a breaking point (Reference 1).
- EDs serve as a bellwether of performance for other parts of the health care system. The availability and utilization of ED care can reveal limitations in other areas such as primary care.
- The ED is a critical part of the first response to public health emergencies such as natural disasters, epidemics and bioterrorism.

## Who uses the emergency department?

### Low income and poor health are strong predictors of ED use (Reference 2).

ED utilization rates also are much higher than average among infants, the elderly, nursing home residents, the homeless, African Americans, and individuals covered by Medicaid and SCHIP (Table 1). Nevertheless, many of these high-use groups account for a small percentage of total ED visits.

Table 1: Annual ED visits by high-use population groups, 2006

Population group	ED visits per 100 individuals	Group's share of all U.S. ED visits
U.S. average	41	—
Infants	85	3%
Age 75+	60	9%
Nursing home residents	140	2%
Homeless	84	< 1%
African Americans	80	25%
Medicaid/SCHIP enrollees	82	26%

Source: Pitts et al., 2008 (Reference 3).

Notes: High-use populations are those with at least 60 visits per 100 individuals. Visit rates include individuals with multiple visits as well as those with no visits. Group shares should not be summed because individuals may be part of multiple groups.

### Frequent ED users have substantial physical and mental health problems.

Most are covered by Medicare or Medicaid and appear to use the ED as a supplement, rather than a substitute for other types of medical care (Reference 4).

## Recent growth in emergency department use is driven by people with private insurance.

### PATIENT COST-SHARING AND THE EMERGENCY DEPARTMENT

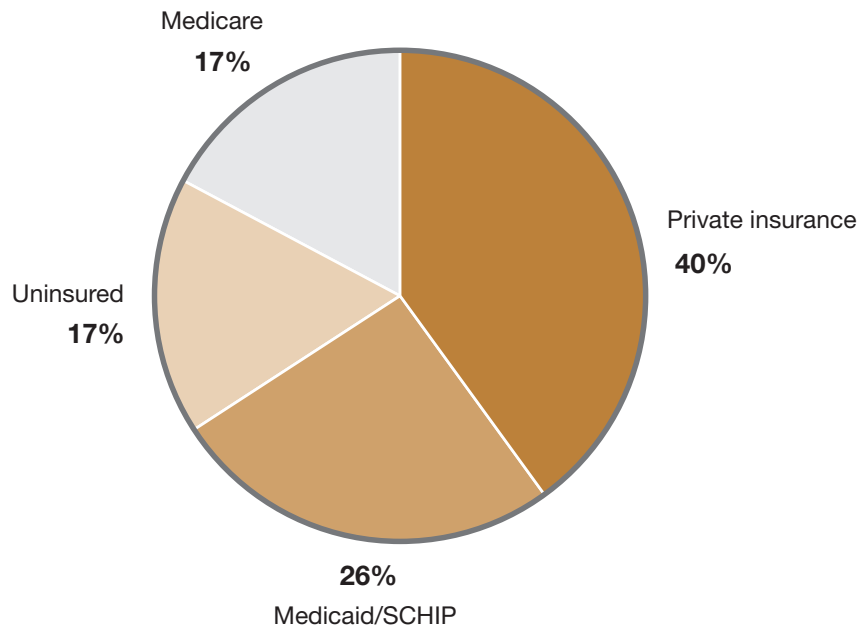
A number of studies have looked at the effect of patient cost-sharing on ED use. In general, greater cost-sharing is associated with reduced ED visits and the reductions tend to be greatest for non-urgent conditions. Most research finds little or no adverse health effects from ED cost-sharing (Reference 5). These studies are generally limited to well-insured populations with higher socioeconomic status and greater access to alternate forms of care, however.

Very little research examines the effects of ED co-payments by patient income or among enrollees in public programs. One study found that high deductible requirements led to a 25 percent decline in high-severity ED visits for patients in low-income areas, but no significant decline for other patients (Reference 6).

Accurate patient understanding is necessary for cost sharing to have the desired effects on health care utilization. One study found that although most patients were well informed about prescription and office-visit co-payments, more than half underestimated their ED co-payments by \$20 or more. Those who believed that they had a higher co-payment (rightly or wrongly) were more likely to delay or avoid ED care (Reference 7).

**Privately insured individuals account for the largest share of ED visits (Figure 1).** The recent growth in ED utilization is driven by individuals with private insurance, higher income, and private physicians as their usual source of care (Reference 8).

Figure 1: Expected payer distribution of ED visits, 2006



Source: Pitts et al., 2008 (Reference 3).

Note: Uninsured includes self-pay, no charge, charity, or where no other payment source was reported.

**After adjustment for health and other factors, ED use by the uninsured is no different from that of the privately insured.** After adjusting for self-reported health status, demographics, and the capacity of local EDs and primary care providers, uninsured patients used the ED at the same rate as the privately insured, while patients with Medicaid/SCHIP or Medicare coverage had much higher utilization rates (Reference 9).

### How often do patients seek care in the ED for non-urgent conditions?

**Although use of the ED for non-urgent and preventable conditions appears to be common and growing, identification of these conditions remains imprecise.** One study attributed all of the increase in total ED visits between 1997–1998 and 1999–2000 to visits classified as semi-urgent (care required within 1–2 hours), non-urgent, or no/unknown triage (Reference 10). Another study, however, found that 6 percent of patients triaged as non-urgent were later admitted as inpatients (Reference 11).

## REFERENCES

- Reference 1: Institute of Medicine (IOM). *Hospital-Based Emergency Care: At the Breaking Point*. National Academy of Sciences: Washington, D.C., 2007.
- Reference 2: Cunningham P. "What Accounts for Differences in the Use of Hospital Emergency Departments Across U.S. Communities?" *Health Affairs*. Web Exclusive, July 18, 2006; Mortensen K and Song P. "Minding the Gap: A Decomposition of Emergency Department Use by Medicaid Enrollees and the Uninsured." *Medical Care* 46(10): 1099–1107, 2008.
- Reference 3: Pitts R, Niska RW, Xu J and Burt C. *National Hospital Ambulatory Medical Care Survey: 2006 Emergency Department Survey*. Washington, D.C.: U.S. Department of Health & Human Services, Center for Disease Control & Prevention; National Center for Health Statistics, No. 7, 2008.
- Reference 4: Hunt KA, Weber EJ, Showstack JA, Colby DC and Callahan ML. "Characteristics of Frequent Users of Emergency Departments." *Annals of Emergency Medicine* 48(1): 1–8, 2006; Zuckerman S and Shen Y. "Characteristics of Occasional and Frequent Emergency Department Users: Do Insurance Coverage and Access to Care Matter?" *Medical Care* 42(2): 176–182.
- Reference 5: Selby JV. "Cost Sharing in the Emergency Department—Is It Safe? Is It Needed?" *New England Journal of Medicine*. 336(24): 1750–1751, 1997; Hsu JT, Price M, Brand R, et al. "Cost Sharing for Emergency Care: Findings on Adverse Clinical Events from the Safety and Financial Ramifications of ED Copayments Study (SAFE)." *Health Services Research* 41(5): 1801–1820, 2006.
- Reference 6: Wharam JF, Landon BE, Galbraith AA, et al. "Emergency Department Use and Subsequent Hospitalizations Among Members of a High-Deductible Health Plan." *JAMA* 297(10): 1093–1102, 2007.
- Reference 7: Reed M, Fung V, Brand R, et al. "Care-Seeking Behavior in Response to Emergency Department Copayments." *Medical Care* 43(8): 810–6, 2005.
- Reference 8: Weber EJ, Showstack JA, Hunt KA, et al. "Are the Uninsured Responsible for the Increase in Emergency Department Visits in the United States?" *Annals of Emergency Medicine* 52(2): 108–115, 2008; Cunningham P and May J. *Insured Americans Drive Surge in Emergency Department Visits*. Center for Studying Health System Change, Issue Brief No.70, October 2003.
- Reference 9: Cunningham, 2006.
- Reference 10: Cunningham and May, 2003.
- Reference 11: Young GP, Wagner MB, Kellermann AL, Ellis J, Bouley D. "Ambulatory Visits to Hospital Emergency Departments. Patterns and Reasons for Use. 24 Hours in the ED Study Group." *JAMA*. 276(6): 460–465, 1996.
- Reference 12: Elixhauser A and Russo CA. *Uninsured Hospitalizations, 2003*. HCUP Statistical Brief #7. Rockville, MD: Agency for Healthcare Research and Quality, May 2006.
- Reference 13: Pitts, 2008.
- Reference 14: Melnick G, Bamezai A, Green L, and Nawathe A. *California's Emergency Departments: Do They Contribute to Hospital Profitability?* Los Angeles, CA: California HealthCare Foundation, Issue Brief, 2003; Mann NC, Mackenzie E, Teitelbaum SD, Wright D, Anderson C. "Trauma System Structure and Viability in the Current Healthcare Environment: A State-by-state Assessment." *Journal of Trauma* 58(1): 136–47, 2005.
- Reference 15: Government Accountability Office. *Medicaid Financing. Federal Oversight Initiative is Consistent with Medicaid Payment Principles but Needs Greater Transparency*. GAO-07-214, March 2007; Mechanic RE. "Medicaid's Disproportionate Share Hospital Program: Complex Structure, Critical Payments." National Health Policy Forum Background Paper, September 2004.
- Reference 16: Petersen LA, Burstin HR, O'Neil AC, Orav EJ and Brennan TA. "Nonurgent Emergency Department Visits: The Effect of Having a Regular Doctor." *Medical Care* 36(8): 1249–55, 1998.
- Reference 17: Weinick R, Billings J and Thorpe J. Ambulatory Care Sensitive Emergency Department Visits: A National Perspective. Abstract from Academy Health Meeting 2003; abstract no. 8.; DeLia D. *Potentially Avoidable Use of Hospital Emergency Departments in New Jersey*. Report to the New Jersey Department of Health and Senior Services, July, 2006-a.; Kerwin Fuda K and Habte-Yimer G. *Non-emergent and Preventable ED Visits*. Analysis in Brief, No.7. Massachusetts Division of Health Care Finance and Policy, 2004.
- Reference 18: Regenstein M, Nolan L, Wilson M, Mead H, and Siegel B. "Walking a Tightrope: The State of the Safety Net in Ten U.S. Communities." *Urgent Matters*, May 2004.; Young, 1996.
- Reference 19: Asplin B, Magrid D, Rhodes K, et al. "A Conceptual Model of Emergency Department Crowding." *Annals of Emergency Medicine* 42(2): 173–180, 2003.
- Reference 20: Burt C and McCaig E. *Staffing, Capacity and Ambulance Diversion in Emergency Departments: United States, 2003–04*. Washington, D.C.: U.S. Department of Health & Human Services, Center for Disease Control & Prevention; National Center for Health Statistics, No. 376, 2006.; Green L, Melnick G, and Nawathe A. *On-Call Physicians at California Emergency Departments: Problems and Potential Solutions*. Oakland, CA: California HealthCare Foundation, Issue Brief, 2005.
- Reference 21: Cunningham P, McKenzie K and Taylor EF. "The Struggle to Provide Community-based Care to Low-Income People with Serious Mental Illnesses." *Health Affairs* 25(3): 694–705, 2006; Larkin GL, Claassen CA, Emond JA, Pelletier AJ and Camargo CA. "Trends in U.S. Emergency Department Visits for Mental Health Conditions, 1992 to 2001." *Psychiatric Services* 56: 671–677, 2005; Hazlett SB, McCarthy ML, Londner MS, and Onyike CU. "Epidemiology of Adult Psychiatric Visits to U.S. Emergency Departments." *Academic Emergency Medicine* 11(2): 193–195, 2004.
- Reference 22: Olshaker JA and Rathlev NK. "Emergency Department Overcrowding and Ambulance Diversion: The Impact and Potential Solutions of Extended Boarding of Admitted Patients in the Emergency Department." *Journal of Emergency Medicine* 30(3): 351–356, 2006.
- Reference 23: Pines JM and Hollander JE. "Emergency Department Crowding Is Associated With Poor Care for Patients With Severe Pain." *Annals of Emergency Medicine* 52(1): 1–5, 2008; Hwang U, Richardson LD, Sonuyi TO and Morrison RS. "The Effect of Emergency Department Crowding on the Management of Pain in Older Adults With Hip Fracture." *Journal of the American Geriatric Society* 54(2): 270–5, 2006; Fee C, Weber EJ, Maak CA and Bacchetti P. "Effect of Emergency Department Crowding on Time to Antibiotics in Patients Admitted With Community-Acquired Pneumonia." *Annals of Emergency Medicine* 50(5): 501–509, 2007.
- Reference 24: Greene J. "Emergency Department Flow and the Boarded Patient: How to Get Admitted Patients Upstairs." *Annals of Emergency Medicine* 49(1): 68–70, 2007; Han JH, Zhou C, France DJ, et al. "The Effect of Emergency Department Expansion on Emergency Department Overcrowding." *Academic Emergency Medicine* 14(4): 338–43, 2007.

# Policy Implications

The hospital ED is playing a larger role in the health care of virtually all patients. High-need patients including the poor, elderly, and chronically ill are heavy users of the ED. Yet the bulk of ED volume and growth is driven by non-elderly insured middle-class patients. At the same time, the growing use of the ED for preventable conditions signals deterioration in access to primary care. Because of their key role in health care delivery, EDs are becoming overcrowded and health care quality and patient safety are suffering. In addressing these issues, policy-makers should consider the following:

- > **Expansion of health insurance coverage on its own is likely to *increase* rather than *decrease* stress on overcrowded EDs.** ED overcrowding is driven by the inability to move patients out of the ED to an inpatient bed, not the use of EDs for non-emergent care by the uninsured. Although expanded coverage may reduce the demand for uncompensated ED care (and improve hospitals' financial performance), insured patients represent the fastest growing subpopulation of ED users.
- > **Current market and reimbursement incentives often stand as barriers to improving efficiency.** The ability of specialists to earn higher fees in other settings makes it difficult to maintain specialty coverage in the ED. "Patient boarding" results in overcrowding, but improvements in patient flow often require disruption to current delivery patterns for elective surgeries and other profitable services. Hospitals that reduce ED overcrowding may suffer financially if this reduction leads more profitable patients and their physicians to go elsewhere.
- > **Improved access to primary care may reduce the use of the ED for non-urgent conditions.** Medicaid patients, the uninsured, and young children, in particular, are seeking care in the ED for non-urgent and preventable conditions, in part, because of a lack of available primary care.

**THE SYNTHESIS PROJECT** is an initiative of the Robert Wood Johnson Foundation to produce relevant, concise, and thought-provoking briefs and reports on today's important health policy issues.

## PROJECT CONTACTS

David C. Colby, Ph.D., the Robert Wood Johnson Foundation  
Brian C. Quinn, Ph.D., the Robert Wood Johnson Foundation  
Sarah Goodell, M.A., Synthesis Project

## SYNTHESIS ADVISORY GROUP

Linda T. Bilheimer, Ph.D., National Center for Health Statistics  
Jon B. Christianson, Ph.D., University of Minnesota  
Paul B. Ginsburg, Ph.D., Center for Studying Health System Change  
Jack Hoadley, Ph.D., Georgetown University Health Policy Institute  
Haiden A. Huskamp, Ph.D., Harvard Medical School  
Julia A. James, Independent Consultant  
Judith D. Moore, National Health Policy Forum  
William J. Scanlon, Ph.D., Health Policy R&D  
Michael S. Sparer, Ph.D., Columbia University  
Joseph W. Thompson, M.D., M.P.H., Arkansas Center for Health Improvement  
Claudia H. Williams, Markle Foundation

The Synthesis Project  
The Robert Wood Johnson Foundation  
Route 1 & College Road East  
P.O. Box 2316  
Princeton, NJ 08543-2316  
E-mail: [synthesisproject@rwjf.org](mailto:synthesisproject@rwjf.org)  
Phone: 888-719-1909  
[www.policysynthesis.org](http://www.policysynthesis.org)

# Overcrowding often results from a shortage of inpatient beds for patients admitted through the ED.

**Use of the ED for non-urgent care is often associated with limited access, financial or otherwise, to primary care providers (Reference 16).** ED use for non-urgent and preventable conditions is most common among Medicaid patients, the uninsured, children under age 5, and patients visiting public hospitals (Reference 17). In addition, some patients indicate a preference for ED care due to convenience, the access it provides to specialty care, or perceptions that higher-quality care is available in a hospital setting (Reference 18).

## What are the causes and consequences of overcrowding?

**The inability to move patients from the ED to the appropriate inpatient unit is a major driver of overcrowding.** “Patient boarding” results when hospitals do not have room for admitted patients to be moved out of the ED. The higher the hospital occupancy rate, the greater the waiting times in the ED and the more likely the ED is to divert ambulances to other hospitals (Reference 19).

**A shortage of on-call specialists in the ED is another source of overcrowding (Reference 20).** Hospitals are reporting more trouble finding specialists who are willing to provide on-call services in the ED.

**Many clinicians believe the growth in psychiatric ED visits is a contributor to overcrowding, but this issue has not been studied rigorously.** Although psychiatric patients still account for a modest share of ED visits, visits for patients with psychiatric diagnoses are growing faster than ED visits overall (Reference 21). This trend has raised concern among ED clinicians who describe psychiatric patients as time-consuming, difficult to care for, and disturbing to other patients (Reference 22).

**ED overcrowding is associated with reduced quality and patient safety.** Increases in ED overcrowding are associated with increased waiting times for painkillers and antibiotics, greater mortality, and more adverse events (Reference 23).

**Although some hospitals require additional capacity to alleviate overcrowding, it may be more effective to use existing capacity more efficiently.** Many hospitals have found that improving the efficiency of their internal processes, especially the flow of patients across departments, is the key to reducing overcrowding in the ED (Reference 24).

## How much does it cost to provide care in the ED?

**The true costs associated with care in the ED, particularly non-urgent care, are not well understood.** Since EDs maintain a high level of staffing and equipment for unexpected emergencies, the cost of one additional visit can be quite low. Alternatively, care in the ED is potentially more expensive because of a lack of patient records and the medical screening required by the Emergency Medical Treatment and Active Labor Act (EMTALA).

## THE EFFECT OF EDs ON HOSPITAL FINANCES

Evidence of the effect of EDs on hospital finances is mixed. Federal law requires hospitals to provide screening and stabilization services to all patients regardless of their ability to pay.<sup>1</sup> As a result, the ED is exposed to potentially large financial losses by providing care that may not be reimbursed. Indeed, the ED is the dominant source of hospital admissions for the uninsured (Reference 12).

The uninsured represent only a small percentage of all hospital admissions through the ED, however. Most visits to the ED are by privately insured patients and the ED is an important and growing source of revenue from inpatient admissions (Reference 13).

Ultimately, the effect of the ED on hospital finances appears to depend on a number of factors. For hospitals located in urban areas with high uninsured rates, EDs often are a drain on hospital finances. EDs that serve a large volume of non-admitted patients and EDs that are part of a trauma center also are more likely to have a negative effect on hospital finances (Reference 14).

Various subsidy mechanisms exist to support uncompensated care provided by EDs with large volumes of poor and uninsured patients. These subsidies are often poorly targeted, however, and applied inconsistently across states (Reference 15).

<sup>1</sup> See Emergency Medical Treatment and Active Labor Act (EMTALA) 42-USC-1395-dd.



Robert Wood Johnson Foundation

## THE SYNTHESIS PROJECT

NEW INSIGHTS FROM RESEARCH RESULTS

POLICY BRIEF NO. 17  
JULY 2009

The Synthesis Project  
The Robert Wood Johnson Foundation  
Route 1 & College Road East  
P.O. Box 2316  
Princeton, NJ 08543-2316  
E-Mail: [synthesisproject@rwjf.org](mailto:synthesisproject@rwjf.org)  
Phone: 888-719-1909

[www.policysynthesis.org](http://www.policysynthesis.org)