Trends and Characteristics of US Emergency Department Visits, 1997-2007

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EMERGENCY DEPARTMENTS (EDs) are unique portals for health care in the United States because services are provided to all persons regardless of insurance or ability to pay.[1] As such, the Institute of Medicine has labeled EDs as "the Safety Net of the Safety Net . . . the provider of last resort for millions of patients who are uninsured or lack adequate access to care from community providers."[2] Among all EDs, the Centers for Disease Control and Prevention (CDC) further identified a subset as safety-net EDs because these EDs provide a disproportionate share of services to Medicaid and uninsured persons. Specifically, safety-net EDs are facilities that provide more than 30% of total ED visits to persons with Medicaid, more than 30% of total ED visits to uninsured individuals, or a combined Medicaid and uninsured patient population greater than 40%.[3]

Since the 1990s, visits to US EDs have steadily increased and the total number of EDs has declined.[4,5] Meanwhile, the number of uninsured persons has increased from 38.8 million in 1999 to 46.3 million in 2008 and Medicaid enrollment has increased from 28.5 million in 1999 to 42.6 million in 2008.[6] Previous research shows that privately insured persons accounted for most of the increase in ED visits be-

tween 1996 and 2001.[7] However, recent studies suggest an increasing number of uninsured and underinsured persons contributing to ED visits.[8-10] Patients who cannot obtain timely access to primary care often make frequent ED visits and often present with more severe illness and complications.[11,12]

This study examines changes in ED visit rates in the United States between 1997 and 2007, detailing differences between sociodemographic subgroups. To evaluate the hypothesis that EDs are serving in a safety-net role for an increasing segment of the US population, we specifically examined trends in ED visit rates according to insur-

Context The potential effects of increasing numbers of uninsured and underinsured persons on US emergency departments (EDs) is a concern for the health care safety net.

Objective To describe the changes in ED visits that occurred from 1997 through 2007 in the adult and pediatric US populations by sociodemographic group, designation of safety-net ED, and trends in ambulatory care–sensitive conditions.

Design, Setting, and Participants Publicly available ED visit data from the National Hospital Ambulatory Medical Care Survey (NHAMCS) from 1997 through 2007 were stratified by age, sex, race, ethnicity, insurance status, safety-net hospital classification, triage category, and disposition. Codes from the *International Classification of Diseases, Ninth Revision* (*ICD-9*), were used to extract visits related to ambulatory care–sensitive conditions. Visit rates were calculated using annual US Census estimates.

Main Outcome Measures Total annual visits to US EDs and ED visit rates for population subgroups.

Results Between 1997 and 2007, ED visit rates increased from 352.8 to 390.5 per 1000 persons (rate difference, 37.7; 95% confidence interval [CI], –51.1 to 126.5; $P=.001$ for trend); the increase in total annual ED visits was almost double of what would be expected from population growth. Adults with Medicaid accounted for most of the increase in ED visits; the visit rate increased from 693.9 to 947.2 visits per 1000 enrollees between 1999 and 2007 (rate difference, 253.3; 95% CI, 41.1 to 465.5; $P=.001$ for trend). Although ED visit rates for adults with ambulatory care–sensitive conditions remained stable, ED visit rates among adults with Medicaid increased from 66.4 in 1999 to 83.9 in 2007 (rate difference, 17.5; 95% CI, –5.8 to 40.8; $P=.007$ for trend). The number of facilities qualifying as safety-net EDs increased from 1770 in 2000 to 2489 in 2007.

Conclusion These findings indicate that ED visit rates have increased from 1997 to 2007 and that EDs are increasingly serving as the safety net for medically underserved patients, particularly adults with Medicaid.

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ance status and ambulatory care–sensitive conditions and estimated the proportion of EDs that meet CDC safety-net criteria.

METHODS

Study Design

We analyzed data from the National Hospital Ambulatory Medical Care Survey (NHAMCS), an annual, national probability sample survey of hospital EDs conducted by the National Center for Health Statistics.[13,14] Between 1997 and 2007, a purposeful sample of 340 to 408 EDs was included in NHAMCS, representing 8.7% to 10.3% of all US EDs (based on American Hospital Association ED counts[15]). Using the publicly available data set, this study was exempt from review by the institutional review board of the University of California, San Francisco.

All visits to EDs from 1997 through 2007 were stratified by age, sex, race, ethnicity, insurance status, and triage category. We examined wait times and select disposition categories (death, hospital admission, and left before being seen). For a given year, EDs were classified as safety net if their caseload met CDC criteria: more than 30% of total ED visits with Medicaid as expected source of payment, more than 30% of total ED visits with self-pay or no charge as the expected pay source (considered uninsured), or a combined Medicaid and uninsured patient pool greater than 40% of total ED visits.[3] Adults were defined as individuals 18 years and older. Wait times to see a physician were expressed as median times with interquartile ranges (IQRs).

We examined ambulatory care–sensitive conditions based on the Agency for Healthcare Research and Quality (AHRQ) definition of Prevention Quality Indicators, which include bacterial pneumonia, urinary tract infection, hypertension, perforated appendix, congestive heart failure, diabetes mellitus (uncontrolled or with complications), asthma, chronic obstructive pulmonary disease, dehydration, and angina.[16] We used validated codes from the *International Classification of Diseases,*

Figure 1. Estimated Emergency Department Visits and US Population, 1997-2007
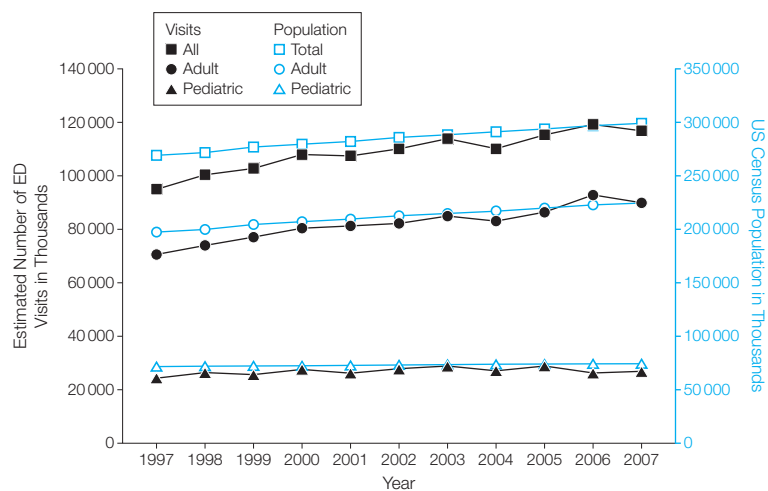
ED indicates emergency department.

Ninth Revision (*ICD-9*),[17] to identify visits related to these 10 ambulatory care–sensitive conditions. Because these definitions were developed for the adult population, we restricted our analysis of ambulatory care–sensitive conditions to adult ED visits.

Statistical Analysis

The referent population used for calculating annual ED visit rates is based on annual estimates provided by the US Census Bureau for civilian, noninstitutionalized populations.[6,18-22] Annual estimates of the number of persons with specific types of insurance are based on the Current Population Survey Annual Social and Economic Supplement (ASEC).[23] The Census Bureau used an approximation method to revise ASEC data from 1999 to 2003 to allow for consistency with later years; thus, we calculated rates of ED visits by insurance type only for the years 1999 to 2007. The Census Bureau also provides population estimates by insurance status for the following combinations of race and ethnicity: non-Hispanic white, black, Hispanic, Asian/Pacific Islander, and American Indian/Alaska Native. To maintain consistency, we used this same classification system for measuring overall ED visit rates for different race/ethnicity subgroups.

To calculate the proportion of safety-net EDs, we divided the number of EDs in NHAMCS that met safety-net criteria by the total number of EDs designated as a service line in the American Hospital Association Annual Survey of Hospitals from 1997 through 2007.[15] Aside from the 2000 report by the National Center for Health Statistics, the facility weights needed to calculate the number of safety-net EDs did not become publicly available until 2005.[24] For this reason, we do not provide temporal trends in the number of safety-net EDs over the entire study period.

We report actual visits from the hospitals included in the NHAMCS sample, national estimates based on survey visit weights, and 95% confidence intervals (CIs) based on standard errors provided by NHAMCS. For clarity, we present ED visit rates for the first and last years of the observation period and show the rate difference (RD) between the 2 years with 95% CIs for the RD. To assess the full statistical significance of changes in ED visit rates over the observation period, we performed trend tests using weighted linear regression models. To assess the statistical significance of trends in triage category and the proportions of ED visits during which patients left without being

seen, were hospitalized, or died, we used weighted χ^2 test for trend. To compare median ED wait times in 1997 and 2007, we used the Wilcoxon rank sum test using the unweighted sample, because medians and IQRs were virtually identical between weighted and unweighted samples. All analyses were performed using SAS (version 9.0; SAS Institute, Cary, North Carolina) and Sudaan (version 10.0; RTI International, Research Triangle Park, North Carolina).

RESULTS

Between 1997 and 2007, total annual visits to US EDs increased from an estimated 94.9 million (95% CI, 80.3 to 109.5) to an estimated 116.8 million (95% CI, 95.8 to 137.8), an increase of 23.1% ($P < .001$ for 11-year trend) (**FIGURE 1**). This increase is almost double what would be expected from population growth during this period (267.8 million persons in 1997 and 301.3 million in 2007, a 12.5% increase).[18,19] Although the number of

ED visits increased, the number of EDs available to the US population decreased by 5%, from 4114 EDs in 1997 to 3925 in 2007.[15]

Factoring in the growth in the US population, visits by the 18- to 44-year-old and 45- to 64-year-old populations accounted for the greatest increase in ED visits (**TABLE 1**). Between 1997 and 2007, ED visit rates per 1000 persons increased from 368.4 to 432.6 for persons aged 18 to 44 years (RD, 64.2; 95% CI, −34.3 to 162.7; $P < .001$

Table 1. Emergency Department Visits in the United States, 1997-2007, by Demographic Characteristics and Insurance Status[a]

	ED Visits, Unweighted No.		Estimated ED Visits, Weighted No. in Millions		Estimated ED Visits per 1000 Population, No. (95% CI)			P Value for Trend
	1997[b]	2007	1997[b]	2007	1997[b]	2007	Rate Difference	
Total ED visits	22 209	35 490	94.9	116.8	352.8 (298.6 to 407.0)	390.5 (320.2 to 460.8)	37.7 (−51.1 to 126.5)	.001
Visits by age, y								
<18	5690	7929	24.3	26.9	339.6 (281.8 to 397.4)	361.5 (280.2 to 442.8)	21.9 (−77.8 to 121.6)	.32
≥18	16 519	27 561	70.6	89.9	357.6 (302.4 to 412.8)	400.1 (329.7 to 470.5)	42.5 (−46.9 to 131.9)	<.001
18-44	9453	14 872	40.2	47.9	368.4 (309.9 to 426.9)	432.6 (353.4 to 511.8)	64.2 (−34.3 to 162.7)	<.001
45-64	3654	7539	15.6	24.5	277.6 (234.5 to 320.7)	317.1 (262.5 to 371.7)	39.5 (−30.0 to 109.0)	<.001
≥65	3412	5150	14.8	17.5	461.6 (385.6 to 537.6)	476.8 (391.6 to 562.0)	15.2 (−99.0 to 129.4)	.77
Visits by sex								
Male	10 584	16 415	44.6	53.6	341.4 (289.1 to 393.7)	361.1 (296.7 to 425.5)	19.7 (−63.2 to 102.6)	.22
Female	11 625	19 075	50.3	63.2	367.1 (311.0 to 423.2)	413.5 (339.0 to 488.0)	46.4 (−46.9 to 139.7)	<.001
Visits by race/ethnicity								
Non-Hispanic white	14 367	20 884	64.7	71.8	332.3 (275.2 to 389.4)	360.6 (288.4 to 432.8)	28.3 (−63.7 to 120.3)	.11
Black	5129	8642	20.6	27.9	605.2 (475.7 to 734.7)	721.3 (561.6 to 881.0)	116.1 (−89.5 to 321.7)	<.001
Hispanic	2339	5197	8.4	15.8	287.0 (223.7 to 350.3)	347.6 (259.4 to 435.8)	60.6 (−47.9 to 169.1)	.02
Asian/Pacific Islander	527	1005	1.6	2.2	168.2 (117.4 to 219.0)	164.7 (120.3 to 209.1)	−3.5 (−70.9 to 63.9)	.15
American Indian/Alaska Native	83	207	0.44	0.66	224.3 (80.8 to 367.9)	288.4 (99.5 to 477.3)	64.1 (−173.2 to 301.4)	.29
Visits by insurance status[c]								
Adults								
Private insurance	5734	8675	2.8	2.9	188.8 (157.3 to 220.3)	188.7 (152.3 to 225.1)	−0.1 (−48.2 to 48.0)	.30
Medicaid	2081	6319	9.6	17.7	693.9 (569.0 to 818.7)	947.2 (775.4 to 1118.7)	253.3 (41.1 to 465.5)	.001
Uninsured	2870	4661	1.4	1.6	465.5 (384.9 to 546.1)	422.8 (343.0 to 502.6)	−42.7 (−156.1 to 70.7)	.31
Medicare	3003	4845	15.1	16.5	413.3 (340.3 to 486.3)	402.9 (329.9 to 475.9)	−10.4 (−112.9 to 92.1)	.49
Children								
Private insurance	2204	2784	11.6	9.2	229.3 (170.6 to 288.0)	192.1 (148.4 to 235.8)	−37.2 (−95.8 to 21.4)	.01
Medicaid	1627	3727	8.3	11.7	567.6 (454.6 to 680.6)	561.7 (429.4 to 694.0)	−5.9 (−179.9 to 168.1)	.46
Uninsured	636	645	3.4	2.2	371.4 (294.8 to 448.0)	265.8 (202.4 to 329.2)	−105.6 (−205.1 to −6.1)	.05
Visits for ambulatory care-sensitive conditions								
Total adult visits	1368	2079	6.9	7.2	33.7 (27.9 to 39.5)	31.9 (26.4 to 37.4)	−1.8 (−9.8 to 6.2)	.39
Visits by insurance status[c]								
Private insurance	401	551	2.1	1.9	13.7 (10.9 to 16.5)	12.1 (9.5 to 14.7)	−1.6 (−5.5 to 2.3)	.17
Medicaid	194	505	0.92	1.6	66.4 (50.4 to 82.4)	83.9 (67.0 to 100.8)	17.5 (−5.8 to 40.8)	.007
Uninsured	194	278	0.98	1.1	32.8 (25.5 to 40.1)	28.4 (21.1 to 35.7)	−4.4 (−14.7 to 5.9)	.61
Medicare	442	619	2.4	2.2	64.8 (48.8 to 80.8)	52.7 (42.2 to 63.2)	−12.1 (−31.2 to 7.0)	.03

Abbreviations: CI, confidence interval; ED, emergency department.
[a]Difference in ED visit rates between the first and last years of the observation period are provided with 95% CIs. To assess the statistical significance of changes in ED visit rates over the entire observation period, the P value for trend is also provided.
[b]Except for insurance status and ambulatory care-sensitive conditions, for which data reflect 1999.
[c]Visit rates reflect estimated ED visits per 1000 persons (enrollees).

for trend) and from 277.6 to 317.1 for persons aged 45 to 64 years (RD, 39.5; 95% CI, –30.0 to 109.0; $P < .001$ for trend). There was no significant change in visit rates for children younger than 18 years and for persons 65 years and older. In 1997, black individuals visited EDs at a rate nearly double the rate among non-Hispanic white and Hispanic individuals and exhibited the largest increase in visit rates over the 11-year period (RD, 116.1; 95% CI, –89.5 to 321.7; $P < .001$ for trend).

Emergency department visit rates among adults with Medicaid increased significantly between 1999 and 2007, from 693.9 to 947.2 visits per 1000 enrollees (RD, 253.3; 95% CI, 41.1 to 465.5; $P = .001$ for trend) (**FIGURE 2**). Adults with private insurance and Medicare, as well as the uninsured, showed no significant change in ED visit rates. Among children, ED visit rates remained stable for the Medicaid population but decreased for privately insured (RD, –37.2; 95% CI, –95.8 to 21.4; $P = .01$ for trend) and uninsured children (RD, –105.6; 95% CI, –205.1 to –6.1; $P = .05$ for trend).

During our study period, the number of facilities meeting criteria for safety net classification increased. In 2000, the CDC reported an estimated 1770 safety-net EDs (43% of total EDs) based on NHAMCS data.[3] Using the same para-meters, by 2007 the number of EDs meeting criteria for safety net increased to 2489 (63% of total EDs).

Between 1999 and 2007, overall ED visit rates for ambulatory care–sensitive conditions remained stable. However, among adults with Medicaid, the ED visit rate for ambulatory care–sensitive conditions per 1000 enrollees increased from 66.4 in 1999 to 83.9 in 2007 (RD, 17.5; 95% CI, –5.8 to 40.8; $P = .007$ for trend). There was minimal change in ED visit rates for ambulatory care–sensitive conditions among privately insured and uninsured individuals, and the rate declined for adults with Medicare. Changes in the distribution of triage acuity were most evident for patients in the categories 15 to 60 minutes and more than 1 hour up to 2 hours (**TABLE 2**).

From 1997 to 2007, median ED wait times to see a physician increased from 22 minutes (IQR, 10-47) to 33 minutes (IQR, 15-71) ($P < .001$). The percentage of total ED visits in which the patient left before being seen increased from 1.05% (95% CI, 0.80% to 1.30%) to 1.65% (95% CI, 1.34% to 1.96%) ($P < .001$ for trend). The proportion of ED visits resulting in hospital admission remained stable from 13.5% (95% CI, 12.5% to 14.6%) in 1997 to 14.2% (95% CI, 12.8% to 15.7%) in 2007 ($P = .18$ for trend). Death on arrival or in the ED declined from 0.3% (95% CI, 0.29% to 0.39%) in 1997 to 0.04% (95% CI, 0.02% to 0.07%) in 2007 ($P < .001$ for trend) (Table 2).

COMMENT

Between 1997 and 2007, the total annual visits to US EDs increased by 23%—corresponding to an estimated 21 million additional ED visits nationwide. This is roughly twice the rate of growth of the US population over the same time period. Persons insured by

Figure 2. Adult Emergency Department Visit Rate by Insurance Status, 1999 and 2007
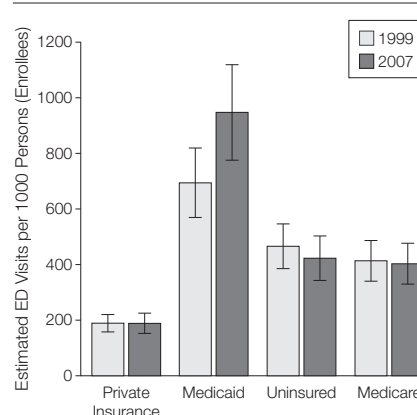
ED indicates emergency department. Error bars indicate 95% confidence intervals.

Table 2. Emergency Department Visits in the United States, 1997-2007, by Triage Category and Disposition[a]

	ED Visits, Unweighted No.		Estimated ED Visits, Weighted No. in Millions		Percentage of Total Estimated ED Visits (95% CI)		P Value for Trend
	1997	2007	1997	2007	1997	2007	
Visits by triage category							
Unknown or no triage	4801	5925	20.7	19.8	21.9 (18.1 to 23.9)	17.0 (13.2 to 20.8)	<.001
<15 min	4555	5636	19.9	18.4	21.0 (18.1 to 23.9)	15.7 (14.0 to 17.5)	.001
15-60 min	7174	13 481	30.4	44.9	32.0 (29.3 to 34.8)	38.4 (35.4 to 41.5)	<.001
>1 h to 2 h	3500	7282	14.6	24.5	15.4 (12.8 to 18.0)	21.0 (18.9 to 23.1)	<.001
>2 h to 24 h	2179	3166	9.2	9.2	9.7 (8.0 to 11.4)	7.9 (6.6 to 9.1)	.04
Visits by disposition							
Death on arrival or in ED	66	19	0.32	0.05	0.34 (0.29 to 0.39)	0.04 (0.02 to 0.07)	<.001
Admitted to hospital[b]	3066	5438	12.85	16.64	13.53 (12.49 to 14.57)	14.24 (12.79 to 15.71)	.18
Left before being seen[c]	223	576	1.00	1.93	1.05 (0.80 to 1.30)	1.65 (1.34 to 1.96)	<.001

Abbreviations: CI, confidence interval; ED, emergency department.
[a] Percentages of total estimated ED visits for the first and last years of the observation period are provided with 95% CIs. To assess the statistical significance of changes in percentage of total estimated ED visits over the entire observation period, the P value for trend is also provided.
[b] Includes admissions to the intensive care unit and observation unit.
[c] In 2007, National Hospital Ambulatory Medical Care Survey used "left before screening examination."

Medicaid, particularly nonelderly adults, accounted for a large proportion of this increase. This is partly explained by the change in Medicaid enrollment, which increased by 6.2 million children (+42%) and 4.8 million adults (+35%).[6] However, total and Medicaid ED visit rates by children younger than 18 years were relatively stable, suggesting that, despite the introduction of the State Children's Health Insurance Program (SCHIP) and the largest expansion of Medicaid since its introduction 40 years ago, there was not an associated increase in ED visit rates. In fact, the decrease in ED visits among uninsured children may reflect an additional success of SCHIP.

However, among adults with Medicaid, visit rates increased an additional 253.3 visits per 1000 persons. One possible explanation for these trends is that adults with Medicaid are experiencing increasing difficulties in accessing primary care. This possibility is supported by finding a parallel increase in ED visits for ambulatory care–sensitive conditions among adults with Medicaid. Although our study methodology cannot determine the proportion of ED visit increases attributable to poor access to care, other research shows that Medicaid enrollees or those who are underinsured have reduced access to primary care and specialist care.[25-27] In the 2008 National Health Interview Survey, 4% of children with Medicaid reportedly had no usual source of care, compared with 10% of adults with Medicaid; 2% of children with Medicaid did not receive needed care because of cost, compared with 11% of adults with Medicaid.[28]

Another potential explanation for the difference in ED visit rate trends between adults and children with Medicaid is disease prevalence leading to ED visits. In an AHRQ study on pediatric ED visits, the top 10 most common reasons for ED visits for children in 2005 all involved infections (eg, upper respiratory infections were number 1; otitis media, number 3; viral infections, number 8) or injuries (eg, superficial injury or bruise, number 2; open

wounds of head, neck, or trunk, number 4; sprains and strains, number 5; fracture of arm, number 9).[29] With increased access to primary care, some of the infections could have been treated in the pediatrician's office.

The stability of ED visit rates among persons with Medicare was an unexpected finding. Although elderly patients, most of whom have 1 or more chronic diseases, are expected to have high ED visit rates, and indeed did have ED visit rates more than double of privately insured (mostly nonelderly) adults, improvements in the quality of care provided to Medicare beneficiaries over the last decade[30] might help explain this temporal stability in ED visit rates.

There have also been improvements in access to primary care for Medicare beneficiaries. In 1993, 12% of individuals with Medicare coverage alone reported no usual source of care; by 2002, this proportion declined to 4.2%. In addition, only 3.6% of persons aged 65 years and older reported that they delayed seeking medical care because of cost, compared with 8.3% of persons aged 45 to 64 years.[30] In 2003, the Medicare Prescription Drug, Improvement, and Modernization Act also removed a barrier to obtaining necessary care for the elderly: the increasing cost of prescription drugs.

Improvements in preventive screening and chronic disease management, access to primary care, and prescription drug coverage might have offset the increased demand for ED services that might have been expected due to increasing number and severity of chronic medical conditions in older persons over the past decade. Differences in ED visit rates observed by race or ethnicity are likely to be confounded by age, insurance coverage, regular source of care, and other barriers to health care.[31]

Because of the increasing numbers of visits by persons with Medicaid or no insurance, EDs classified as safety net increased 46% during this time period and now constitute almost two-thirds of all EDs. Emergency departments are increasingly serving as the "safety net

of the safety net," as the burden placed on them by the underserved population has increased, both in terms of overall volume and the types of conditions that could potentially have been treated in a primary care facility. The potential repercussions of this shift are still unknown. Our findings suggest that from 1997 to 2007, hospitalization rates associated with ED visits have not increased, and mortality on arrival or in the ED has actually decreased. However, wait times to see a physician and the number of visits in which the patient left without being seen by a physician have increased.

The findings of our study must be interpreted in light of several limitations. First, NHAMCS surveys use the US Census Bureau as the field data collection agent, which could introduce error into the data set despite hospital staff being responsible for actual visit sampling and data collection from the medical record. Completeness checks by field staff and clerical edits on receipt of the data are performed in an attempt to reduce errors. Second, NHAMCS surveys may include inaccuracies in self-reported data fields, such as insurance status. However, we would not expect differential misreporting or misclassification to occur over time to bias our results. Third, because there is as high as a 15% nonresponse rate to race/ethnicity, imputations for missing data are performed, which could introduce error in demographic categories.

Fourth, NHAMCS surveys do not include patient identifiers, and thus we cannot determine whether increases in visits are due to new patients or to frequent visits by individual patients. Other research suggests that the proportion of unique ED users in the US population increased during this period from 12.7% to 13.8%.[32] Fifth, "noninstitutionalized populations" in the US Census Bureau surveys exclude persons who reside in nursing homes, extended-care facilities, prisons, and mental health facilities and those who are undocumented or homeless. Many of these individuals visit the ED on a fre-

quent basis, and thus ED visit rates would be overestimated because many of these people are not accounted for in the population denominator. Sixth, we relied on *ICD-9* codes from NHAMCS to identify ambulatory care–sensitive conditions. A maximum of 3 *ICD-9* codes were documented in this survey. However, AHRQ methodology uses the primary diagnosis only, and thus it is possible that we would underestimate ambulatory care–sensitive conditions if there were more than 3 diagnoses on the original medical record or if an ambulatory care–sensitive condition appeared as a secondary diagnosis.

Seventh, the AHRQ Prevention Quality Indicators methods were designed for use with hospital inpatient discharge data to identify gaps in the quality of outpatient care. Analogous indicators have not been developed and validated for ED discharge data. Oster and Bindman[33] applied similar methodology using *ICD-9* codes for 5 chronic ambulatory care–sensitive conditions based on NHAMCS ED discharge data. They suggested that most hospitalizations for ambulatory care–sensitive conditions occur through EDs, and therefore EDs may be an important setting for understanding preventable hospitalizations.

Even though our study includes the latest available data on US ED visits, through 2007, a critical concern is what has happened in more recent years. One of the nation's most severe recessions started in 2008, and with record job losses in 2008 and 2009, an estimated additional 5.8 million Americans became uninsured and an estimated 5.4 million enrolled in Medicaid and SCHIP.[34,35] Medicaid enrollment increased by an estimated 3.29 million individuals (7.5%) across the United States in fiscal year 2009 alone, the largest 1-year enrollment increase since its introduction in the 1960s,[36] resulting in 60 million total enrollees (compared with 39.5 million reported by the Census Bureau in 2007).[6,37] An additional 16 million individuals are expected to obtain Medicaid coverage through the Patient Protection and Affordable Care Act of 2010.[37]

Our findings suggest that increased enrollments in Medicaid between 1999 and 2007 have had substantial effects on ED volume and crowding, and that at least part of this may reflect limited access to primary care services for Medicaid enrollees. A deeper examination of the differential access to primary care by insurance type is needed to better understand health care utilization patterns by patients with Medicaid, and to develop more effective strategies for reducing pressure on the safety net.

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> The first capacity of human intellect is that the mind is fitted to receive the impressions made on it, either through the senses by outward objects, or by its own operations when it reflects on them.
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> —John Locke (1632-1704)