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# National Hospital Ambulatory Medical Care Survey: 2007 Emergency Department Summary

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## Abstract

*Objective*—This report presents data on U.S. emergency department (ED) visits in 2007, with statistics on hospital, patient, and visit characteristics.

*Methods*—Data are from the 2007 National Hospital Ambulatory Medical Care Survey, which uses a national probability sample of visits to emergency departments of nonfederal general and short-stay hospitals in the United States. Sample data were weighted to produce annual national estimates.

*Results*—In 2007, there were about 117 million ED visits in the United States. About 25 percent of visits were covered by Medicaid or the State Children's Health Insurance Program (SCHIP). About one-fifth of ED visits by children younger than 15 years of age were to pediatric EDs. There were 121 ED visits for asthma per 10,000 children under 5 years of age. The leading injury-related cause of ED visits was unintentional falls. Two percent of visits resulted in admission to an observation unit. Electronic medical records were used in 62 percent of EDs.

**Keywords**: boarding • electronic medical records • emergency department visits • overcrowding

## Introduction

The National Hospital Ambulatory Medical Care Survey (NHAMCS) has been gathering, analyzing, and disseminating information about hospital outpatient and emergency departments (EDs) since 1992. NHAMCS and the National Ambulatory Medical Care Survey (NAMCS) are parts of the ambulatory component of the National Health Care Surveys, a family of surveys that measure health care utilization across various types of providers. More information about the National Health Care Surveys can be found at the following website: http://www.cdc.gov/nchs/nhcs.htm.

NHAMCS and NAMCS data have been used in articles examining important topics of interest in public health and health services research. For a list of publications, see: http://www.cdc.gov/nchs/data/ahcd/publist-9-4-2009.pdf. In addition to the ED report, other reports highlight visits to outpatient departments (OPDs) (1) and physician offices (2). Annual reports are available from: http://www.cdc.gov/nchs/ahcd/ahcd_reports.htm. Public-use data files are available from: http://www.cdc.gov/nchs/ahcd/ahcd_questionnaires.htm. Data from NHAMCS 2007 will also be available on CD–ROM. These and other products can be obtained from the National Center for Health Statistics (NCHS), Office of Information Services, Information Dissemination Staff at 1–800–232–4636, the Ambulatory and Hospital Care Statistics Branch at 301–458–4600, or by e-mail at CDCINFO@cdc.gov.

This 2007 report begins with a summary of major issues in emergency medicine as articulated by the Institute of Medicine (IOM), the American College of Emergency Physicians (ACEP), and the Healthy People 2010 (HP-2010) objectives of the U.S. Department of Health and Human Services. The report then highlights key data elements on EDs from NHAMCS that are relevant to those issues.

In 2006, IOM identified several key issues affecting U.S. emergency medicine, including overcrowding of EDs, lack of critical specialists to whom EDs could refer patients, and gaps in emergency pediatric care. On overcrowding, the IOM noted an increase in ED visits along with a

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decrease in the number of EDs. The visit increase was tied not only to provision of medical care to uninsured patients, but also to evening and weekend care of insured patients whose regular physicians were unavailable (3). There has been concern about increasing enrollment in Medicaid as an indicator of stress on the safety net system in which EDs play a major part (4). Data on ED visit rates, Medicaid and uninsured status of those using EDs, and the use of EDs for care in the evening and on weekends are presented in this report.

According to the Government Accountability Office (GAO), the main issue contributing to overcrowding of EDs has been delays in moving the sickest patients to inpatient beds (5). Admitted patients have often been boarded in EDs or hospital hallways for hours to days, resulting in overcrowding and diversion of incoming ambulances to other hospitals (6). IOM recommended adopting systems to even out the flow of patient admissions and implementing 23-hour observation units (3). This report presents data on boarding and systems to address patient flow.

On specialist availability, IOM found that approximately 75 percent of hospitals had difficulty providing consultants to take calls for emergencies. On pediatric care, IOM observed that most children received care in general EDs, rather than pediatric facilities with optimal expertise and equipment to handle their unique needs (3). Included in this report are data on visits involving on-call physicians and pediatric EDs.

In its 2009 National Report Card, ACEP rated emergency department quality of care, including patient safety, with respect to a scoring system based on 15 quality indicators. Quality of care was rated as a C+ nationally, but individual state scores varied widely. Hospital crowding, ED boarding, ambulance diversion, and high rates of uninsured individuals were key issues impacting quality of care (7).

Data from NHAMCS are used as a national standard for health care estimates in the HP–2010 objectives. NHAMCS ED visit data have been used to establish baseline estimates for two objectives related to reducing ED visits for asthma and nonfatal dog bite injuries. The asthma objective breaks the population into three age groups and identifies separate targets for reduction in each group (8). This report includes data on visit rates for asthma for each of these age groups, for injuries in general, and for dog bites in particular.

# Methods

## Data source

This report presents data on ED visits in terms of hospital, patient, and visit characteristics. These data are from the 2007 NHAMCS, a national probability sample survey of nonfederal, general, and short-stay hospitals conducted by the Division of Health Care Statistics, NCHS, Centers for Disease Control and Prevention (CDC). The survey was conducted from January 1, 2007, through December 30, 2007. The multistage design involves sampling geographic primary sampling units (PSUs), hospitals that have EDs or OPDs within PSUs, clinics within OPDs, and then patient visits within emergency service areas (ESAs) in EDs and clinics in OPDs. Within EDs, types of ESAs included general, adult, pediatric, fast track, psychiatric, and trauma. The sample of 112 PSUs comprised a probability subsample of PSUs used in the 1985–1994 National Health Interview Surveys (NHIS). In 2007, a sample of 482 hospitals was selected from a sampling frame constructed from hospitals listed in the 1991 Verispan Hospital Database updated using hospital data from Verispan, L.L.C., specifically its ''Healthcare Market Index, Updated July 15, 2006'' and ''Hospital Market Profiling Solution, Second Quarter, 2006.'' These products were formerly known as the SMG Hospital Database. Using the 2006 data to update the 2007 sample allowed for the inclusion of hospitals that had opened or changed their eligibility status since the previous sample was updated for 2003.

Hospital staffs or field representatives from the Bureau of the Census completed a Patient Record Form (PRF) for a sample of visits during a 4-week reporting period. Of the sample of 482 hospitals selected for the 2007 NHAMCS, 384 were in scope and had eligible EDs, and 357 of these EDs responded (ED-level response rate of 93.0 percent unweighted and 92.6 percent weighted for the probability of selection). A total of 438 of the 477 ESAs within the participating EDs responded and provided 35,490 PRFs. Of these 438 ESAs, 432 responded fully or adequately by providing at least one-half of their expected forms (ESA-level response rate of 90.6 percent unweighted and 93.1 weighted). The overall response rate, which is the product of the response rates of the EDs and the ESAs, was 84.2 percent unweighted and 86.2 percent weighted. A detailed discussion of methodology may be found in the ''Technical Notes.'' A sample PRF is included at the end of this report.

## New data items

The 2007 survey uses a similar design and data collection forms as the 2006 survey (9), but some items have been expanded or added. New items include respiratory rate and episode of care (initial or follow-up visit). New diagnostic and screening services include prothrombin time/international normalized ratio (INR), blood culture, toxicology screen, rapid influenza test, and wound culture. The computerized tomography (CT) scan and magnetic resonance imaging (MRI) items now differentiate between head and other scans. For procedures, orthopedic care has been replaced by cast and splint or wrap, and wound care by laceration repair, incision and drainage, wound debridement, and foreign body removal. Residents have been added to the on-call attending/fellow checkbox. Left without being seen has been replaced by dual checkboxes for left before and after medical screening exam. Dead on arrival (DOA) and died in ED have been split into separate items. For hospital admission, step-down or telemetry unit

and mental health or detoxification unit have been added, and the operating room and cardiac catheterization lab have been split into separate items. Alive hospital discharge status now has subcategories for home and transferred to another hospital.

### Tests of significance

In this report, the determination of statistical significance is based on the two-tailed *t*-test. The Bonferroni inequality was used to establish the critical value for statistically significant differences (0.05 level of significance) based on the number of possible comparisons within a particular variable (or combination of variables) of interest. A weighted least squares regression analysis was used to determine the significance of trends at the 0.05 level. Terms relating to differences such as "greater than" or "more likely" or "less than" or "less likely" indicate that the difference is statistically significant. A lack of comment regarding the difference does not mean that the difference was tested and found to be not significant.

## Results

### Emergency department utilization

- In 2007, there were 116.8 million ED visits or 39.4 visits per 100 persons (Table 1). There were about 222 visits to U.S. EDs every minute during 2007.
- The annual number of visits to EDs has increased by 23 percent since 1997 (Figure 1), while the annual visit rate increased by 11 percent (data not shown).
- About 18.6 percent of visits by children younger than 15 years of age were to pediatric EDs (data not shown).

### Patient characteristics

- The age group with highest annual ED visit rate was infants under 12 months old (88.5 visits per 100 U.S. infants). This represents about 3.8 million visits (Table 2).

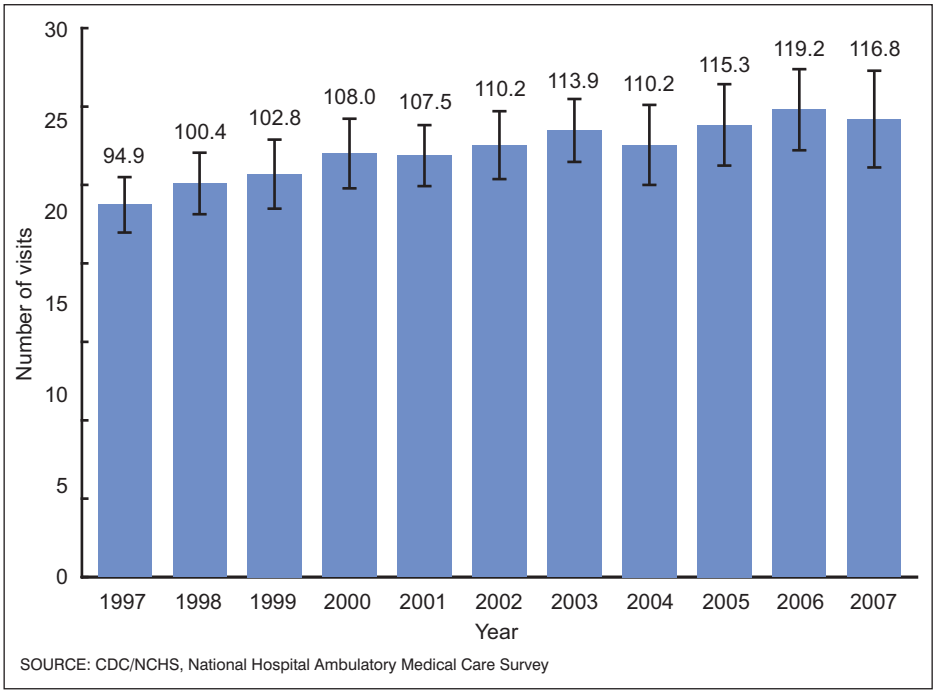


**Figure 1. Annual number of emergency department visits (and 95% confidence intervals): United States 1997–2007**

- Persons aged 75 years and over had an annual ED visit rate of 62.0 visits per 100 U.S. persons (Table 2).
- The visit rate for persons living in nursing homes was approximately four times higher than for those living in private residences, for the overall population and for persons aged 65 or over (data not shown). Nursing home residents accounted for about 2.3 million visits (Table 2).
- The visit rate for homeless persons was almost twice that of those living in private residences (71.8 compared with 35.9 visits per 100 persons). Homeless persons accounted for 542,000 visits (Table 2).
- Compared with the ED visit rate for white persons (35.9 visits per 100 U.S. white persons), the rate for black persons was more than double (74.6 visits per 100 U.S. black persons), and that for Asian persons was less than one-half (16.0 visits per 100 U.S. Asian persons) (Table 3).

### Time of day

- For 64.7 percent of visits, patients arrived in EDs during nonbusiness hours (5:00 p.m. to 8:00 a.m. Monday through Friday, and on the weekends) (Table 4).
- During two-thirds of visits, a patient spent fewer than 4 hours in the ED (Table 4).

### Mode of arrival

- Patients arrived in EDs by ambulance for about 18 million (15.5 percent) visits (Table 5).
- About 44.9 percent of patients 75 years of age or over arrived at EDs by ambulance (Table 5).

### Payment source

- Private insurance was an expected source of payment for 39.0 percent of all ED visits (Table 6).
- Other sources of payment included Medicaid or SCHIP (25.2 percent) and Medicare (17.2 percent) (Table 6).
- Uninsured patients, defined as self-pay and no charge or charity, where no other payment source was reported, represented 15.3 percent of visits (Table 6).

### Triage

- Patients were triaged as needing to be seen immediately at 4.5 percent of

ED visits and within 1 to 14 minutes (emergent) at 11.3 percent of visits. Patients were triaged as needing to be seen within 15 to 60 minutes (urgent) at 38.5 percent, 1 to 2 hours (semi-urgent) at 21.0 percent, and 2 to 24 hours (nonurgent) at 7.9 percent of visits. At 16.9 percent of visits, no triage was done or triage time was unknown or blank (Table 7). The term ''nonurgent'' does not imply an unnecessary visit.

- Blood pressure was recorded at 95.8 percent of visits by adults 18 years of age or over (data not shown).
- Temperature was in the febrile range (above 38.0° C or 100.4° F) at 4.8 percent, normal (between 35.1° C and 38.0° C or 95.1° F and 100.4° F) at 87.9 percent, and in the hypothermic range (below 35.0° C or 95.0° F) at 0.4 percent of visits (Table 8).
- Pulse oximetry was recorded at 74.3 percent of visits (Table 8).
- Patients presented with severe pain at 22.4 percent of visits and with moderate pain during 23.3 percent of visits. The pain level was not recorded at 21.5 percent of visits (Table 8).

## Reasons for visits

- The leading reasons for visits among children (under age 15 years) were fever, cough, and vomiting (Table 9).
- The leading reasons given by patients aged 15–64 years for visiting the ED were chest pain and abdominal pain (Table 9).
- The leading reasons given by older patients (aged 65 years or over) for visiting the ED were chest pain, shortness of breath, and abdominal pain (Table 9).

## Primary diagnoses

- Acute upper respiratory infections and otitis media or Eustachian tube disorders were the leading primary diagnoses in both boys and girls under 15 years of age (Table 10).
- For women between 15 and 64 years of age, abdominal pain and obstetrical complications were the leading primary diagnoses, while for men, open wounds and contusions were the leading diagnoses (Table 10).
- For adults 65 years of age and over, chest pain and non-ischemic heart disease were leading primary diagnoses for both men and women (Table 10).
- There were 121.0 ED visits with a primary diagnosis of asthma per 10,000 children under 5 years of age, 59.0 visits per 10,000 persons between 5 and 64 years of age, and 25.0 visits per 10,000 persons 65 years of age or over (Figure 2). The HP-2010 target is to reduce asthma-related ED visits to 80 from the 1997 baseline of 150 visits per 10,000 for children under 5 years old (8).

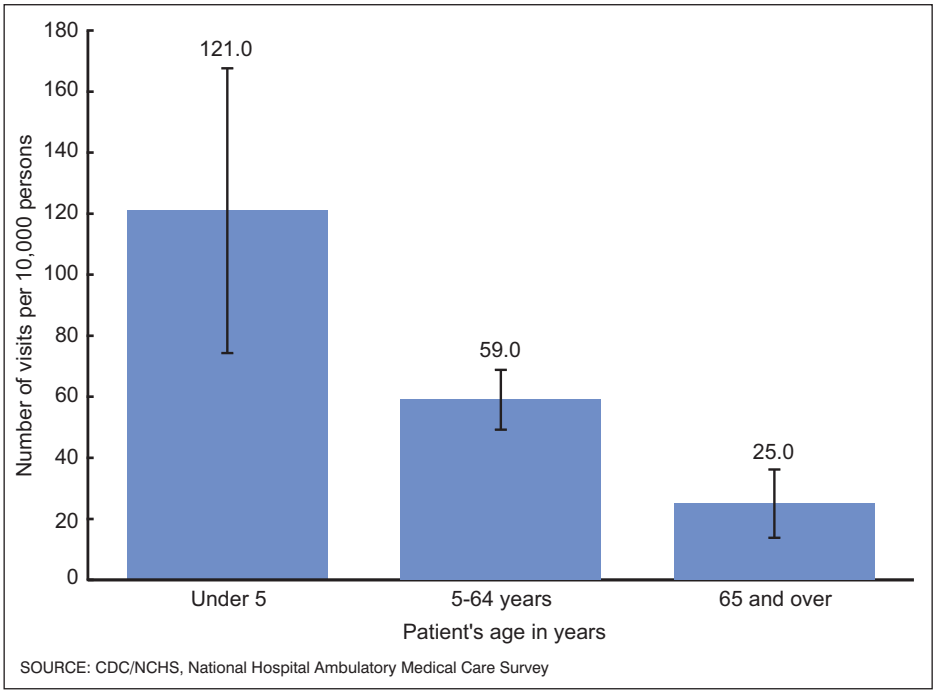


**Figure 2. Emergency department visit rates for primary diagnosis of asthma (and 95% confidence intervals) by age group: United States, 2007**

## Injury, poisoning, and adverse effects of medical treatment

- Visits for injury, poisoning, and adverse effects of medical treatment accounted for 39.4 million visits (33.7 percent), or 13.3 visits per 100 persons (Table 11).
- Adults 75 years of age or over (19.1 per 100 persons) had the highest visit rates for injuries, poisoning, and adverse effects of medical treatment, followed by adults 15–24 years of age (17.1 per 100 persons) (Table 11).
- Visit rates for injury, poisoning, or adverse effects of medical treatment for black persons (22.1 visits per 100 U.S. black persons) were almost twice those for white persons (12.6 visits per 100 U.S. white persons) (Table 12).
- Of all injury-related visits, 66.1 percent were for unintentional injuries, 5.1 percent were for intentional injuries, 4.3 percent were due to adverse effects of medical treatment, 4.5 percent were related to alcohol or drug abuse, and the cause or intent of injury was unknown or undetermined for 20.0 percent (Table 13).
- The leading mentioned body sites for injuries were wrist, hand, and fingers (11.6 percent) and face (4.7 percent) (Table 14).
- There were about 365,000 ED visits for dog bites in 2007. There were about 123 ED visits for dog bites per

100,000 persons in 2007 (data not shown in tables).

## Diagnostic and screening services

- The leading tests ordered or provided at ED visits were complete blood counts (35.4 percent), x-rays (33.8 percent), and urinalyses (22.5 percent) (Table 15).
- CT scans were ordered or provided at 13.9 percent of visits, of which about one-half were of the head. MRI was ordered or provided at 0.7 percent of visits, of which about one-half were of the head (Table 15).
- Prothrombin times or INR were ordered or provided at 5.2 percent, toxicology screens at 2.7 percent, and rapid influenza tests at 1.3 percent of visits (Table 15).
- Blood cultures were ordered or provided at 3.6 percent, and wound cultures at 0.8 percent of visits (Table 15).

## Procedures

- Procedures were performed at 45.5 percent of ED visits. The leading procedure mentioned was intravenous fluid administration (26.6 percent of visits) (Table 16).
- Splints or wraps were applied at 5.7 percent and casts at 0.5 percent of ED visits (Table 16).
- Lacerations were repaired at 4.4 percent of visits. Wound debridement was performed at 1.7 percent, incision and drainage at 1.0 percent, and foreign body removal at 0.4 percent of visits (Table 16).

## Medications and immunizations

- Prescription or over-the-counter drugs, immunizations, or desensitizing medications were either given in the ED or prescribed at discharge at 76.3 percent of visits. This represents about 213 million drug mentions, or 1.8 drug mentions per visit (2.4 drug mentions per visit when any medication was given or prescribed) (Table 17).
- The leading therapeutic drug classes mentioned during ED visits were analgesics, including narcotic and nonnarcotic pain medications and nonsteroidal anti-inflammatory drugs (36.3 percent of drug mentions), and antibiotics (15.7 percent) (Table 18). Antibiotics include cephalosporins, penicillins, quinolones, macrolides, sulfonamides, and miscellaneous antibiotics from Table 18.
- Toxoids comprised 1.3 percent of drug mentions at ED visits (Table 18). There were about 1.4 million doses of tetanus toxoid and about 1.3 million doses of tetanus-diphtheria toxoid combinations administered at ED visits in 2007 (data not shown).
- The leading drugs given in the ED were acetaminophen (alone or with hydrocodone or oxycodone) (5.9 percent of drug mentions), ketorolac (3.3 percent), morphine (3.1 percent), and ibuprofen (3.0 percent) (Table 19).
- The leading drugs prescribed at discharge were acetaminophen (alone or in combination with hydrocodone or oxycodone) (8.9 percent of drug mentions) and ibuprofen (4.6 percent) (Table 19).
- Cephalosporins (1.9 percent), including ceftriaxone and cephalexin, were the leading antibiotics given in the ED. Amoxicillin (1.5 percent) was the leading antibiotic prescribed at discharge (Table 19).

## Health care providers

- Patients saw physicians at 89.7 percent, physician assistants at 9.2 percent, and nurse practitioners at 4.0 percent of ED visits (Table 20).
- Patients saw an ED attending physician at 86.9 percent; an ED resident or intern at 8.0 percent; and an on-call attending physician, fellow, or resident at 4.7 percent of visits (Table 20).

## Disposition

- Patients were referred to an outside physician or clinic at 61.7 percent, advised to return to the ED as needed or by appointment at 35.4 percent, and referred to social services at 0.8 percent of visits. No follow-up was planned at 5.4 percent of visits (Table 21).
- The patient died in the ED at 0.1 percent of visits. The number of visits at which the patient was DOA was too small to represent a reliable national estimate (Table 21).

## Hospital admissions

- Patients were admitted to the same hospital at 12.5 percent of visits (14.6 million); admitted to an observation unit at 2.1 percent of visits (2.5 million); and transferred to a different hospital at 1.8 percent of visits (2.1 million) (Table 21).
- Among visits resulting in admission, 11.5 percent of patients went to a critical care unit and 19.8 percent went to a step-down or telemetry unit (calculated from Table 21).
- Among visits resulting in admission, 4.4 percent of patients went to the operating room (calculated from Table 21). There were too few visits resulting in admission to a cardiac catheterization laboratory to make a reliable national estimate.
- Among visits resulting in admission, about 4.0 percent of patients went to a mental health or detoxification unit (calculated from Table 21).
- The mean length of the hospital stay for patients admitted from the ED was 5.3 days. Nursing home residents admitted from the ED stayed in the hospital for a mean of 7.4 days (Table 22).
- The mean hospital length of stay was 6.0 days for patients with Medicare, 5.4 days for patients with Medicaid or SCHIP, 5.2 days for patients with no insurance, and 4.9 days for patients with private insurance (Table 22).
- Among patients discharged alive from the hospital, 76.9 percent went home, 7.4 percent were transferred, and 5.1 percent were discharged to another location. The discharge disposition was unknown or blank for 10.6 percent of patients discharged alive (Table 22).

- Among those admitted from the ED, the leading principal hospital discharge diagnoses were non-ischemic heart disease (6.3 percent of admissions), chest pain (5.7 percent), pneumonia (3.5 percent), and cerebrovascular disease (3.0 percent) (Table 23).

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**Table 1. Number, percent distribution, and annual rate of emergency department visits with corresponding standard errors, by selected hospital characteristics: United States, 2007**

| Selected hospital characteristics | Number of visits in thousands | (Standard error in thousands) | Percent distribution | (Standard error of percent) | Number of visits per 100 persons per year[1–3] | (Standard error of rate) |
|---|---|---|---|---|---|---|
| All visits | 116,802 | (6,293) | 100.0 | . . . | 39.4 | (2.1) |
| Ownership | | | | | | |
| Voluntary | 87,511 | (5,727) | 74.9 | (2.8) | 29.5 | (1.9) |
| Government | 13,828 | (1,997) | 11.8 | (1.8) | 4.7 | (0.7) |
| Proprietary | 15,463 | (3,190) | 13.2 | (2.5) | 5.2 | (1.1) |
| Geographic region | | | | | | |
| Northeast | 20,484 | (1,834) | 17.5 | (1.6) | 38.0 | (3.4) |
| Midwest | 25,062 | (2,652) | 21.5 | (2.1) | 38.4 | (4.1) |
| South | 48,713 | (4,418) | 41.7 | (2.8) | 45.0 | (4.1) |
| West | 22,543 | (3,224) | 19.3 | (2.4) | 32.7 | (4.7) |
| Metropolitan status[2] | | | | | | |
| Metropolitan statistical area | 99,074 | (6,371) | 84.8 | (1.9) | 39.8 | (2.6) |
| Nonmetropolitan statistical area | 17,728 | (2,128) | 15.2 | (1.9) | 37.5 | (4.5) |
| Medical school affiliation | | | | | | |
| Yes | 62,265 | (4,943) | 53.3 | (3.0) | 21.0 | (1.7) |
| No or blank | 54,537 | (4,414) | 46.7 | (3.0) | 18.4 | (1.5) |
| Trauma center | | | | | | |
| Yes | 41,276 | (4,566) | 35.3 | (3.4) | 13.9 | (1.5) |
| No or blank | 75,526 | (5,577) | 64.7 | (3.4) | 25.5 | (1.9) |
| Season[4] | | | | | | |
| Winter | 34,667 | (4,031) | 29.7 | (2.6) | 11.7 | (1.4) |
| Spring | 30,939 | (3,576) | 26.5 | (2.6) | 10.4 | (1.2) |
| Summer | 28,674 | (3,885) | 24.5 | (3.2) | 9.7 | (1.3) |
| Fall | 22,522 | (2,554) | 19.3 | (2.2) | 7.6 | (0.9) |

. . . Category not applicable.

[1]Visit rates for region are based on the July 1, 2007, set of the estimates of the civilian noninstitutional population of the United States as developed by the Population Division, U.S. Census Bureau. See "Methods" for more details.

[2]Population estimates of metropolitan statistical area (MSA) status are based on data from the 2007 National Health Interview Survey, National Center for Health Statistics, adjusted to the U.S. Census Bureau definition of core-based statistical areas as of December 2007. See http://www.census.gov/population/www/metroareas/metrodef.html for more about MSA definitions.

[3]For geographic region and MSA, population denominators are different for each category, and thus do not add to total population rate. For other variables, the denominator is the total population for each stratum.

[4]Winter is December 22 to March 19; spring is March 20 to June 20; summer is June 21 to September 22; and fall is September 23 to December 21.

NOTE: Numbers may not add to totals because of rounding.

**Table 2. Number, percent distribution, and annual rate of emergency department visits with corresponding standard errors, by patient age, sex, and residence: United States, 2007**

| Selected patient characteristics | Number of visits in thousands | (Standard error in thousands) | Percent distribution | (Standard error of percent) | Number of visits per 100 persons per year [1] | (Standard error of rate) |
|---|---|---|---|---|---|---|
| All visits | 116,802 | (6,293) | 100.0 | . . . | 39.4 | (2.1) |
| Age | | | | | | |
| Under 15 years | 22,308 | (1,864) | 19.1 | (1.1) | 36.7 | (3.1) |
| Under 1 year | 3,766 | (426) | 3.2 | (0.3) | 88.5 | (10.0) |
| 1–4 years | 8,340 | (729) | 7.1 | (0.5) | 50.7 | (4.4) |
| 5–14 years | 10,202 | (790) | 8.7 | (0.4) | 25.4 | (2.0) |
| 15–24 years | 18,983 | (1,257) | 16.3 | (0.4) | 45.7 | (3.0) |
| 25–44 years | 33,485 | (1,843) | 28.7 | (0.5) | 41.0 | (2.3) |
| 45–64 years | 24,491 | (1,342) | 21.0 | (0.5) | 32.2 | (1.8) |
| 65 years and over | 17,535 | (1,014) | 15.0 | (0.5) | 48.4 | (2.8) |
| 65–74 years | 6,908 | (412) | 5.9 | (0.2) | 36.2 | (2.2) |
| 75 years and over | 10,627 | (645) | 9.1 | (0.3) | 62.0 | (3.8) |
| Sex and age | | | | | | |
| Female | 63,170 | (3,426) | 54.1 | (0.5) | 41.8 | (2.3) |
| Under 15 years | 10,072 | (859) | 8.6 | (0.5) | 33.9 | (2.9) |
| 15–24 years | 11,084 | (712) | 9.5 | (0.2) | 54.0 | (3.5) |
| 25–44 years | 18,698 | (1,037) | 16.0 | (0.4) | 45.4 | (2.5) |
| 45–64 years | 12,776 | (728) | 10.9 | (0.3) | 32.7 | (1.9) |
| 65–74 years | 3,723 | (255) | 3.2 | (0.1) | 36.0 | (2.5) |
| 75 years and over | 6,816 | (427) | 5.8 | (0.2) | 65.7 | (4.1) |
| Male | 53,632 | (2,968) | 45.9 | (0.5) | 37.0 | (2.0) |
| Under 15 years | 12,236 | (1,047) | 10.5 | (0.7) | 39.3 | (3.4) |
| 15–24 years | 7,899 | (594) | 6.8 | (0.3) | 37.7 | (2.8) |
| 25–44 years | 14,786 | (873) | 12.7 | (0.3) | 36.5 | (2.2) |
| 45–64 years | 11,715 | (661) | 10.0 | (0.3) | 31.7 | (1.8) |
| 65–74 years | 3,185 | (197) | 2.7 | (0.1) | 36.3 | (2.2) |
| 75 years and over | 3,811 | (261) | 3.3 | (0.2) | 56.4 | (3.9) |
| Patient residence | | | | | | |
| Private residence | 106,436 | (5,937) | 91.1 | (0.5) | 35.9 | (2.0) |
| Nursing home | 2,323 | (175) | 2.0 | (0.1) | 155.7 | (11.7) |
| Other institution | 1,077 | (126) | 0.9 | (0.1) | 42.3 | (5.0) |
| Other residence | 604 | (85) | 0.5 | (0.1) | 0.2 | (0.0) |
| Homeless | 542 | (72) | 0.5 | (0.1) | 71.8 | (9.6) |
| Unknown or blank | 5,820 | (613) | 5.0 | (0.5) | . . . | . . . |

. . . Category not applicable.

[1]Visit rates for age, sex, private residence, and other residence are based on the July 1, 2007, set of estimates of the civilian noninstitutionalized population of the United States as developed by the Population Division, U.S. Census Bureau. Visit rates for nursing home residents are based on the 2004 CDC/NCHS National Nursing Home Survey (20). Visit rate for homeless people is based on the Annual Homeless Assessment Report to Congress by the U.S. Department of Housing and Urban Development (21).

NOTE: Numbers may not add to totals because of rounding.

**Table 3. Number, percent distribution, and annual rate of emergency department visits with corresponding standard errors, by patient race and age, and ethnicity: United States, 2007**

| Patient characteristics | Reported plus imputed race or ethnicity | | | | | | Reported race or ethnicity only | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number of visits in thousands | (Standard error in thousands) | Percent distribution | (Standard error of percent) | Number of visits per 100 persons per year[1] | (Standard error of rate) | Number of visits in thousands | (Standard error in thousands) | Percent distribution | (Standard error of percent) | Number of visits per 100 persons per year[1] | (Standard error of rate) |
| All visits | 116,802 | (6,293) | 100.0 | . . . | 39.4 | (2.1) | . . . | . . . | . . . | . . . | . . . | . . . |
| Race and age[2–5] | | | | | | | | | | | | |
| Reported | 99,455 | (5,341) | 85.1 | (1.9) | 33.6 | (1.8) | 99,455 | (5,341) | 100.0 | . . . | 33.6 | (1.8) |
| Imputed (missing) | 17,347 | (2,591) | 14.9 | (1.9) | 5.9 | (0.9) | . . . | . . . | . . . | . . . | . . . | . . . |
| White | 85,171 | (5,298) | 72.9 | (1.7) | 35.9 | (2.2) | 73,001 | (4,732) | 73.4 | (1.8) | 30.7 | (2.0) |
| Under 15 years | 15,657 | (1,338) | 13.4 | (0.8) | 33.8 | (2.9) | 12,410 | (995) | 12.5 | (0.7) | 26.8 | (2.1) |
| 15–24 years | 13,257 | (1,020) | 11.4 | (0.4) | 41.3 | (3.2) | 11,275 | (878) | 11.3 | (0.5) | 35.1 | (2.7) |
| 25–44 years | 23,807 | (1,560) | 20.4 | (0.7) | 36.9 | (2.4) | 20,476 | (1,424) | 20.6 | (0.7) | 31.8 | (2.2) |
| 45–64 years | 17,913 | (1,221) | 15.3 | (0.6) | 28.4 | (1.9) | 15,797 | (1,139) | 15.9 | (0.6) | 25.1 | (1.8) |
| 65–74 years | 5,465 | (350) | 4.7 | (0.2) | 33.5 | (2.1) | 4,865 | (334) | 4.9 | (0.2) | 29.8 | (2.0) |
| 75 years and over | 9,072 | (590) | 7.8 | (0.3) | 60.0 | (3.9) | 8,179 | (556) | 8.2 | (0.3) | 54.1 | (3.7) |
| Black or African American | 27,870 | (2,229) | 23.9 | (1.6) | 74.6 | (6.0) | 23,513 | (1,867) | 23.6 | (1.7) | 63.0 | (5.0) |
| Under 15 years | 5,672 | (686) | 4.9 | (0.5) | 61.1 | (7.4) | 4,480 | (525) | 4.5 | (0.5) | 48.3 | (5.7) |
| 15–24 years | 5,164 | (450) | 4.4 | (0.3) | 83.5 | (7.3) | 4,268 | (356) | 4.3 | (0.3) | 69.0 | (5.8) |
| 25–44 years | 8,615 | (707) | 7.4 | (0.5) | 82.7 | (6.8) | 7,482 | (641) | 7.5 | (0.6) | 71.9 | (6.2) |
| 45–64 years | 5,888 | (522) | 5.0 | (0.4) | 70.1 | (6.2) | 5,233 | (482) | 5.3 | (0.5) | 62.3 | (5.7) |
| 65–74 years | 1,227 | (153) | 1.1 | (0.1) | 69.0 | (8.6) | 1,029 | (131) | 1.0 | (0.1) | 57.9 | (7.4) |
| 75 years and over | 1,304 | (174) | 1.1 | (0.1) | 100.2 | (13.4) | 1,021 | (157) | 1.0 | (0.1) | 78.5 | (12.1) |
| Asian | 2,134 | (247) | 1.8 | (0.2) | 16.0 | (1.9) | 1,626 | (201) | 1.6 | (0.2) | 12.2 | (1.5) |
| Native Hawaiian or Other Pacific Islander | 313 | (90) | *0.3 | (0.1) | 59.2 | (17.0) | *289 | (89) | *0.3 | (0.1) | *54.8 | (16.8) |
| American Indian or Alaska Native | *1,031 | (414) | *0.9 | (0.4) | *35.7 | (14.3) | *773 | (279) | *0.8 | (0.3) | *26.8 | (9.7) |
| Multiple races | 284 | (83) | *0.2 | (0.1) | 5.9 | (1.7) | *253 | (82) | *0.3 | (0.1) | *5.3 | (1.7) |
| Ethnicity[2,3,6,7] | | | | | | | | | | | | |
| Reported | 87,702 | (5,654) | 75.1 | (2.7) | 29.6 | (1.9) | 87,702 | (5,654) | 100.0 | . . . | 29.6 | (1.9) |
| Imputed (missing) | 29,100 | (3,492) | 24.9 | (2.7) | 9.8 | (1.2) | . . . | . . . | . . . | . . . | . . . | . . . |
| Hispanic or Latino | 15,804 | (1,364) | 13.5 | (1.0) | 35.1 | (3.0) | 12,202 | (1,039) | 13.9 | (1.1) | 27.1 | (2.3) |
| Not Hispanic or Latino | 100,998 | (5,681) | 86.5 | (1.0) | 40.2 | (2.3) | 75,500 | (5,196) | 86.1 | (1.1) | 30.0 | (2.1) |

. . . Category not applicable.

* Figure does not meet standards of reliability or precision.

[1]Visit rates are based on the July 1, 2007, set of estimates of the civilian noninstitutionalized population of the United States as developed by the Population Division, U.S. Census Bureau.

[2]The race groups of white, black or African American, Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, and multiple races include persons of Hispanic and not Hispanic origin. Persons of Hispanic origin may be of any race. Starting with data year 1999, race-specific estimates have been tabulated according to 1997 Standards for Federal Data on Race and Ethnicity, and are not strictly comparable with estimates for earlier years. The percent of visit records with multiple races indicated is small and lower than what is typically found for self-reported race in household surveys.

[3] For 2007, race data were missing for 14.9 percent of visits, and ethnicity data were missing for 24.9 percent of visits. Readers are therefore advised to treat these data with caution. In this table, estimates based on imputed race and ethnicity data are shown separately from comparison estimates using unimputed data. Missing race and ethnicity were imputed using a hot deck approach rather than the previously used cold deck strategy. The imputation process is described more fully in the 2007 public-use file documentation (http://www.cdc.gov/nchs/ahcd.htm). Research is currently underway to evaluate further changes to the imputation strategy for use with 2008 data.

[4]Reported plus imputed includes race that was reported directly by emergency departments and imputed values for the 14.9 percent of visits for which race was not reported.

[5]Reported only calculations are based on 99,455,000 visits with race reported directly by emergency departments. The visits for which race was missing are excluded from the denominator, so that readers may compare differences between estimates that include and exclude imputed race values.

[6]Reported plus imputed includes ethnicity that was reported directly by emergency departments and imputed values for the 24.9 percent of visits for which ethnicity was not reported.

[7]Reported only calculations are based on 87,702,000 visits with ethnicity reported directly by emergency departments. The visits for which ethnicity was missing are excluded from the denominator, so that readers may compare differences between estimates that include and exclude imputed ethnicity values.

NOTE: Numbers may not add to totals because of rounding.

**Table 4. Number and percent distribution of emergency department visits with corresponding standard errors, by time spent waiting to see a physician and time spent in the emergency department: United States, 2007**

| Visit characteristic | Number of visits in thousands | (Standard error in thousands) | Percent distribution | (Standard error of percent) |
|---|---|---|---|---|
| All visits | 116,802 | (6,293) | 100.0 | . . . |
| Time spent waiting to see a physician[1] | | | | |
| Fewer than 15 minutes | 20,803 | (1,537) | 17.8 | (1.0) |
| 15–59 minutes | 41,657 | (2,216) | 35.7 | (1.3) |
| 1 hour, but fewer than 2 hours | 16,683 | (1,080) | 14.3 | (0.6) |
| 2 hours, but fewer than 3 hours | 5,846 | (487) | 5.0 | (0.3) |
| 3 hours, but fewer than 4 hours | 2,272 | (247) | 1.9 | (0.2) |
| 4 hours, but fewer than 6 hours | 1,584 | (187) | 1.4 | (0.2) |
| 6 hours or more | 906 | (132) | 0.8 | (0.1) |
| Not seen by a physician | 10,236 | (1,136) | 8.8 | (0.7) |
| Blank | 16,815 | (2,433) | 14.4 | (1.7) |
| Time spent in the emergency department | | | | |
| Less than 1 hour | 13,256 | (934) | 11.3 | (0.6) |
| 1 hour, but fewer than 2 hours | 26,959 | (1,551) | 23.1 | (0.5) |
| 2 hours, but fewer than 4 hours | 38,732 | (2,274) | 33.2 | (0.6) |
| 4 hours, but fewer than 6 hours | 16,456 | (994) | 14.1 | (0.4) |
| 6 hours, but fewer than 10 hours | 9,410 | (609) | 8.1 | (0.4) |
| 10 hours, but fewer than 14 hours | 1,999 | (169) | 1.7 | (0.1) |
| 14 hours, but fewer than 24 hours | 1,538 | (177) | 1.3 | (0.1) |
| 24 hours or more | 606 | (123) | 0.5 | (0.1) |
| Blank | 7,845 | (1,382) | 6.7 | (1.1) |
| Patient arrived in emergency department after business hours[2] | | | | |
| Yes | 75,565 | (4,160) | 64.7 | (0.4) |
| No | 39,796 | (2,111) | 34.1 | (0.3) |
| Blank | 1,441 | (384) | 1.2 | (0.3) |

. . . Category not applicable.

[1]The median waiting time to see a physician was 33.0 minutes.

[2]Business hours defined as Monday through Friday 8 a.m. to 5 p.m.

NOTE: Numbers may not add to totals because of rounding.

**Table 5. Percent distribution of emergency department visits with corresponding standard errors, by patient mode of arrival according to patient age: United States, 2007**

| Patient age | Number of visits in thousands | Patient's mode of arrival | | | | |
|---|---|---|---|---|---|---|
| | | Total | Walk-in[1] | Ambulance | Public service[2] | Unknown[3] |
| | | Percent distribution (standard error of percent) | | | | |
| All visits | 116,802 | 100.0 | 75.2 (1.0) | 15.5 (0.6) | 2.3 (0.6) | 7.0 (0.8) |
| Age | | | | | | |
| Under 15 years | 22,308 | 100.0 | 87.6 (1.0) | 4.2 (0.5) | *1.4 (0.4) | 6.8 (0.8) |
| Under 1 year | 3,766 | 100.0 | 87.2 (1.4) | 4.1 (0.9) | * . . . | 7.1 (1.0) |
| 1–4 years | 8,340 | 100.0 | 88.1 (1.4) | 3.6 (0.6) | *1.0 (0.4) | 7.3 (1.1) |
| 5–14 years | 10,202 | 100.0 | 87.4 (1.0) | 4.6 (0.5) | 1.7 (0.5) | 6.3 (0.9) |
| 15–24 years | 18,983 | 100.0 | 80.3 (1.3) | 10.3 (0.7) | *2.5 (0.9) | 6.9 (0.9) |
| 25–44 years | 33,485 | 100.0 | 78.3 (1.1) | 11.7 (0.6) | 2.8 (0.7) | 7.1 (0.9) |
| 45–64 years | 24,491 | 100.0 | 70.9 (1.1) | 19.1 (0.7) | 2.6 (0.6) | 7.3 (0.9) |
| 65 years and over | 17,535 | 100.0 | 53.7 (1.5) | 37.6 (1.4) | 1.8 (0.4) | 6.9 (0.9) |
| 65–74 years | 6,908 | 100.0 | 63.9 (1.5) | 26.5 (1.3) | 1.6 (0.4) | 8.0 (1.2) |
| 75 years and over | 10,627 | 100.0 | 47.1 (1.8) | 44.9 (1.8) | 1.9 (0.5) | 6.2 (0.9) |

. . . Category not applicable.

* Figure does not meet standards of reliability or precision.

[1]Includes patients arriving by car, taxi, bus, or on foot.

[2]Includes patients arriving in public service vehicles such as police cars, social service vehicles, beach patrol, or escorted or carried by a public service official.

[3]The unknown category includes blanks.

NOTE: Numbers may not add to totals because of rounding.

**Table 6. Number and percentage of emergency department visits with corresponding standard errors, by expected sources of payment: United States, 2007**

| Expected sources of payment | Number of visits in thousands[1] | (Standard error in thousands) | Percent of visits | (Standard error of percent) |
|---|---|---|---|---|
| All visits | 116,802 | (6,293) | . . . | . . . |
| Private insurance | 45,580 | (2,864) | 39.0 | (1.3) |
| Medicaid or SCHIP[2] | 29,379 | (1,780) | 25.2 | (1.0) |
| Medicare | 20,133 | (1,180) | 17.2 | (0.6) |
| Medicare and Medicaid[3] | 3,478 | (276) | 3.0 | (0.2) |
| No insurance[4] | 17,926 | (1,317) | 15.3 | (0.8) |
| Self-pay | 17,037 | (1,285) | 14.6 | (0.8) |
| No charge or charity | 1,155 | (271) | 1.0 | (0.2) |
| Workers' compensation | 1,823 | (182) | 1.6 | (0.1) |
| Other | 2,764 | (311) | 2.4 | (0.3) |
| Unknown or blank | 10,484 | (2,109) | 9.0 | (1.7) |

. . . Category not applicable.
[1]Total exceeds "all visits" because more than one source of payment may be reported per visit.
[2]SCHIP is the State Children's Health Insurance Program.
[3]The visits in this category are also included in both the Medicare and the Medicaid or SCHIP categories.
[4]"No insurance" is defined as having only self-pay, no charge, or charity as payment sources.

**Table 7. Percent distribution of emergency department visits with corresponding standard errors, by immediacy with which patient should be seen according to selected patient and visit characteristics: United States, 2007**

| Patient and visit characteristics | Number of visits in thousands | Total | Immediate[1] | Emergent[2] | Urgent[3] | Semiurgent[4] | Nonurgent[5] | Unknown or no triage[6] |
|---|---|---|---|---|---|---|---|---|
| | | | Percent distribution (standard error of percent) | | | | | |
| All visits | 116,802 | 100.0 | 4.5 (0.6) | 11.3 (0.7) | 38.5 (1.4) | 21.0 (1.1) | 7.9 (0.7) | 16.9 (2.0) |
| Age | | | | | | | | |
| Under 15 years | 22,308 | 100.0 | 2.3 (0.6) | 8.2 (0.9) | 33.2 (2.5) | 26.0 (2.2) | 8.6 (1.0) | 21.6 (4.2) |
| Under 1 year | 3,766 | 100.0 | 3.5 (0.9) | 9.6 (1.5) | 32.6 (3.3) | 23.9 (3.0) | 8.5 (1.2) | 21.9 (5.3) |
| 1–4 years | 8,340 | 100.0 | *2.4 (0.7) | 7.8 (1.1) | 32.4 (2.7) | 24.4 (2.5) | 8.0 (1.1) | 25.1 (4.5) |
| 5–14 years | 10,202 | 100.0 | *1.9 (0.6) | 8.2 (0.9) | 34.0 (2.4) | 28.1 (2.0) | 9.2 (1.1) | 18.7 (3.7) |
| 15–24 years | 18,983 | 100.0 | 3.2 (0.6) | 9.3 (0.9) | 37.3 (1.8) | 23.7 (1.4) | 9.3 (0.9) | 17.3 (2.2) |
| 25–44 years | 33,485 | 100.0 | 3.6 (0.5) | 10.7 (0.8) | 39.8 (1.5) | 21.4 (1.2) | 9.2 (0.9) | 15.2 (1.8) |
| 45–64 years | 24,491 | 100.0 | 5.4 (0.7) | 13.2 (0.8) | 40.4 (1.4) | 19.3 (1.1) | 6.8 (0.7) | 15.0 (1.7) |
| 65 years and over | 17,535 | 100.0 | 8.8 (1.2) | 15.7 (1.0) | 41.5 (1.7) | 13.1 (1.0) | 4.4 (0.6) | 16.5 (2.2) |
| 65–74 years | 6,908 | 100.0 | 8.4 (1.2) | 14.0 (1.3) | 42.0 (1.9) | 15.5 (1.4) | 4.9 (0.7) | 15.1 (2.1) |
| 75 years and over | 10,627 | 100.0 | 9.1 (1.3) | 16.8 (1.2) | 41.2 (2.0) | 11.6 (1.1) | 4.0 (0.6) | 17.4 (2.3) |
| Sex | | | | | | | | |
| Female | 63,170 | 100.0 | 4.0 (0.6) | 10.9 (0.7) | 39.8 (1.5) | 20.7 (1.1) | 7.6 (0.7) | 17.0 (2.0) |
| Male | 53,632 | 100.0 | 5.0 (0.7) | 11.7 (0.7) | 36.9 (1.4) | 21.4 (1.1) | 8.2 (0.8) | 16.8 (2.0) |
| Race[7–10] | | | | | | | | |
| Reported | 99,455 | 100.0 | 4.5 (0.7) | 11.8 (0.7) | 39.3 (1.4) | 21.1 (1.2) | 8.1 (0.8) | 15.2 (1.8) |
| Imputed (missing) | 17,347 | 100.0 | 4.2 (0.9) | 8.4 (1.2) | 34.2 (3.8) | 20.4 (2.1) | 6.3 (1.1) | *26.5 (5.9) |
| Reported plus imputed | | | | | | | | |
| White | 85,171 | 100.0 | 4.6 (0.6) | 11.4 (0.7) | 38.6 (1.4) | 20.3 (1.1) | 7.6 (0.7) | 17.5 (2.0) |
| Black or African American | 27,870 | 100.0 | 4.1 (0.8) | 10.8 (1.0) | 38.2 (2.0) | 23.1 (1.7) | 9.0 (1.2) | 14.8 (2.7) |
| Other | 3,762 | 100.0 | 2.8 (0.6) | 11.1 (1.6) | 39.1 (2.0) | 21.6 (2.7) | 5.4 (1.0) | 20.0 (4.2) |
| Reported only | | | | | | | | |
| White | 73,001 | 100.0 | 4.6 (0.7) | 12.0 (0.8) | 39.3 (1.4) | 20.4 (1.1) | 7.8 (0.8) | 15.9 (1.9) |
| Black or African American | 23,513 | 100.0 | 4.3 (0.9) | 11.1 (1.0) | 39.1 (2.3) | 23.2 (2.0) | 9.4 (1.4) | 13.0 (2.7) |
| Other | 2,941 | 100.0 | 3.2 (0.7) | 12.3 (1.7) | 39.1 (2.1) | 22.1 (2.8) | 5.8 (1.1) | 17.4 (3.4) |
| Ethnicity[7,8,11,12] | | | | | | | | |
| Reported | 87,702 | 100.0 | 4.5 (0.7) | 10.9 (0.7) | 40.3 (1.5) | 21.5 (1.2) | 8.4 (0.9) | 14.5 (1.8) |
| Imputed (missing) | 29,100 | 100.0 | 4.3 (0.8) | 12.5 (1.7) | 33.1 (2.4) | 19.5 (1.9) | 6.3 (0.8) | 24.3 (4.4) |

See footnotes at end of table.

**Table 7. Percent distribution of emergency department visits with corresponding standard errors, by immediacy with which patient should be seen according to selected patient and visit characteristics: United States, 2007—Con.**

| Patient and visit characteristics | Number of visits in thousands | Total | Immediate[1] | Emergent[2] | Urgent[3] | Semiurgent[4] | Nonurgent[5] | Unknown or no triage[6] |
|---|---|---|---|---|---|---|---|---|
| Reported plus imputed | | | | | | | | |
| Hispanic or Latino | 15,804 | 100.0 | 3.2 (0.5) | 8.0 (1.0) | 37.2 (2.6) | 22.6 (1.9) | 7.5 (0.8) | 21.5 (3.9) |
| Not Hispanic or Latino | 100,998 | 100.0 | 4.6 (0.7) | 11.8 (0.7) | 38.7 (1.4) | 20.7 (1.1) | 7.9 (0.8) | 16.2 (1.9) |
| Reported only | | | | | | | | |
| Hispanic or Latino | 12,202 | 100.0 | 3.3 (0.5) | 6.9 (0.9) | 38.4 (3.0) | 23.1 (2.0) | 8.3 (1.0) | 20.1 (3.9) |
| Not Hispanic or Latino | 75,500 | 100.0 | 4.7 (0.8) | 11.5 (0.7) | 40.6 (1.4) | 21.2 (1.3) | 8.4 (0.9) | 13.6 (1.8) |
| Expected sources of payment[13] | | | | | | | | |
| Private insurance | 45,580 | 100.0 | 4.0 (0.5) | 12.3 (0.8) | 40.1 (1.5) | 20.8 (1.2) | 6.9 (0.7) | 15.9 (1.8) |
| Medicaid or SCHIP[14] | 29,379 | 100.0 | 3.8 (0.7) | 11.7 (1.0) | 38.5 (1.7) | 22.5 (1.6) | 8.5 (0.9) | 15.0 (2.2) |
| Medicare | 20,133 | 100.0 | 8.4 (1.1) | 15.7 (1.0) | 40.3 (1.5) | 14.4 (1.0) | 5.3 (0.6) | 15.9 (2.0) |
| Medicare and Medicaid[15] | 3,478 | 100.0 | 7.0 (1.4) | 16.7 (1.6) | 40.2 (2.5) | 14.3 (1.7) | 6.7 (1.2) | 15.1 (2.7) |
| No insurance[16] | 17,926 | 100.0 | 4.2 (0.6) | 8.9 (0.8) | 37.3 (2.0) | 22.7 (1.6) | 10.0 (1.1) | 17.1 (2.5) |
| Workers' compensation | 1,823 | 100.0 | * * | 9.6 (1.6) | 33.9 (3.5) | 25.8 (2.7) | 10.4 (2.1) | 16.7 (3.2) |
| Other | 2,764 | 100.0 | *8.7 (3.0) | 11.7 (1.6) | 32.5 (3.0) | 19.7 (2.7) | 8.9 (1.7) | 18.5 (3.1) |
| Unknown or blank | 10,484 | 100.0 | 3.4 (0.9) | 7.8 (1.2) | 32.8 (4.9) | 19.4 (2.9) | 8.4 (1.9) | *28.2 (8.8) |

* Figure does not meet standards of reliability or precision.

[1]A visit in which the patient should be seen in less than 1 minute.

[2]A visit in which the patient should be seen in 1–14 minutes.

[3]A visit in which the patient should be seen within 15–60 minutes.

[4]A visit in which the patient should be seen within 61–120 minutes.

[5]A visit in which the patient should be seen within 121 minutes–24 hours.

[6]A visit in which there is no mention of triage level or immediacy rating in the medical record, the hospital did not perform triage, or the patient was dead on arrival.

[7]Other race includes Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, and persons of multiple races. All race categories include visits by persons of Hispanic origin and not Hispanic origin. Persons of Hispanic origin may be of any race. Starting with data year 1999, race-specific estimates have been tabulated according to 1997 Standards for Federal Data on Race and Ethnicity and are not strictly comparable with estimates for earlier years. The percentage of visit records with multiple races indicated is small and lower than what is typically found for self-reported race.

[8]For 2007, race data were missing for 14.9 percent of visits, and ethnicity data were missing for 24.9 percent of visits. Readers are therefore advised to treat these data with caution. In this table, estimates based on imputed race and ethnicity data are shown separately from comparison estimates using unimputed data. Missing race and ethnicity were imputed using a hot deck approach rather than the previously used cold deck strategy. The imputation process is described more fully in the 2007 public-use file documentation (http://www.cdc.gov/nchs/ahcd.htm). Research is currently underway to evaluate further changes to the imputation strategy for use with 2008 data.

[9]"Reported plus imputed" includes race that was reported directly by emergency departments and imputed values for the 14.9 percent of visits for which race was not reported.

[10]"Reported only" calculations are based on 99,455,000 visits with race reported directly by emergency departments. The visits for which race was missing are excluded from the denominator, so that readers can compare differences between estimates that include and exclude imputed race values.

[11]"Reported plus imputed" includes ethnicity that was reported directly by emergency departments and imputed values for the 24.9 percent of visits for which ethnicity was not reported.

[12]"Reported only" calculations are based on 87,702,000 visits with ethnicity reported directly by emergency departments. The visits for which ethnicity was missing are excluded from the denominator so that readers can compare differences between estimates that include and exclude imputed ethnicity values.

[13]Total exceeds "all visits" because more than one source of payment may be reported per visit.

[14]SCHIP is the State Children's Health Insurance Program.

[15]The visits in this category are also included in both the Medicare and the Medicaid or SCHIP categories.

[16]"No insurance" is defined as having only self-pay, no charge, or charity as payment sources.

NOTE: Numbers may not add to totals because of rounding.

**Table 8. Number and percent distribution of emergency department visits with corresponding standard errors, by initial vital signs, episode of care, prior visits, and prior hospital discharges: United States, 2007**

| Visit characteristic | Number of visits in thousands | (Standard error in thousands) | Percent distribution | (Standard error of percent) |
|---|---|---|---|---|
| All visits | 116,802 | (6,293) | 100.0 | . . . |
| Temperature | | | | |
| Febrile: >38.0 °C or >100.4 °F | 5,629 | (424) | 4.8 | (0.3) |
| Normal: 35.1–38.0 °C or 95.1–100.4 °F | 102,622 | (5,603) | 87.9 | (0.6) |
| Hypothermic: :<35.0 °C or <95.0 °F | 517 | (77) | 0.4 | (0.1) |
| Unknown or blank | 8,034 | (831) | 6.9 | (0.6) |
| Pulse oximetry[1] | | | | |
| 95–100% | 78,690 | (5,133) | 67.4 | (1.9) |
| 90–94% | 5,319 | (519) | 4.6 | (0.3) |
| 90% | 2,789 | (603) | 2.4 | (0.5) |
| Unknown or blank | 30,004 | (2,485) | 25.7 | (1.9) |
| Oriented to time, place, and person | | | | |
| Yes | 85,811 | (4,437) | 73.5 | (1.5) |
| No | 2,541 | (209) | 2.2 | (0.2) |
| Unknown or blank | 28,451 | (2,748) | 24.4 | (1.6) |
| Presenting level of pain | | | | |
| None | 23,955 | (1,382) | 20.5 | (0.7) |
| Mild | 14,370 | (885) | 12.3 | (0.5) |
| Moderate | 27,187 | (1,666) | 23.3 | (0.8) |
| Severe | 26,196 | (1,616) | 22.4 | (0.6) |
| Unknown or blank | 25,094 | (2,389) | 21.5 | (1.5) |
| Episode of care | | | | |
| Initial visit | 92,065 | (4,965) | 78.8 | (1.3) |
| Follow-up visit | 8,341 | (701) | 7.1 | (0.4) |
| Unknown or blank | 16,396 | (1,722) | 14.0 | (1.2) |
| Patient seen in this emergency department within the last 72 hours | | | | |
| Yes | 4,463 | (391) | 3.8 | (0.2) |
| No | 86,681 | (5,128) | 74.2 | (1.9) |
| Unknown or blank | 25,658 | (2,742) | 22.0 | (2.0) |
| Patient discharged from any hospital within the last 7 days | | | | |
| Yes | 2,701 | (228) | 2.3 | (0.2) |
| No | 65,459 | (4,881) | 56.0 | (2.3) |
| Unknown or blank | 48,642 | (3,360) | 41.6 | (2.3) |

. . . Category not applicable.
[1]Normal oxygen saturation as measured by pulse oximetry is 95% or more. An oxygen saturation less than 90% is consistent with severe hypoxemia.

NOTE: Numbers may not add to totals because of rounding.

**Table 9. Number and percent distribution of visits with corresponding standard errors, by the 10 leading principal reasons for emergency department visits, according to age and sex: United States, 2007**

| Principal reason for visit and RVC code[1] | Number of visits in thousands | (Standard error in thousands) | Percent distribution | (Standard error of percent) |
|---|---|---|---|---|
| All visits | 116,802 | (6,293) | . . . | . . . |
| All visits under age 15 | 22,308 | (1,864) | 100.0 | . . . |
| Female | 10,072 | (859) | 45.2 | (0.9) |
| Fever .S010 | 1,637 | (215) | 7.3 | (0.5) |
| Vomiting .S530 | 687 | (105) | 3.1 | (0.4) |
| Cough .S440 | 614 | (84) | 2.8 | (0.3) |
| Stomach pain, cramps, and spasms .S545 | 451 | (69) | 2.0 | (0.3) |
| Skin rash .S860 | 357 | (52) | 1.6 | (0.2) |
| Symptoms referable to throat .S455 | 350 | (47) | 1.6 | (0.2) |
| Earache or ear infection .S355 | 330 | (44) | 1.5 | (0.2) |
| Injury, other and unspecified type—head, neck, and face .J505 | 247 | (41) | 1.1 | (0.2) |
| Headache, pain in head .S210 | 202 | (38) | 0.9 | (0.2) |
| Facial area .J210 | 198 | (40) | 0.9 | (0.2) |
| All other reasons[2] | 5,000 | (434) | 22.4 | (0.7) |

See footnotes at end of table.

**Table 9. Number and percent distribution of visits with corresponding standard errors, by the 10 leading principal reasons for emergency department visits, according to age and sex: United States, 2007—Con.**

| Principal reason for visit and RVC code[1] | Number of visits in thousands | (Standard error in thousands) | Percent distribution | (Standard error of percent) |
|---|---|---|---|---|
| Male | 12,236 | (1,047) | 54.8 | (0.9) |
| Fever .S010 | 1,888 | (212) | 8.5 | (0.5) |
| Cough .S440 | 876 | (106) | 3.9 | (0.3) |
| Vomiting .S530 | 668 | (96) | 3.0 | (0.3) |
| Injury, other and unspecified type—head, neck, and face .J505 | 442 | (70) | 2.0 | (0.3) |
| Earache or ear infection .S355 | 440 | (68) | 2.0 | (0.3) |
| Facial area .J210 | 368 | (44) | 1.7 | (0.2) |
| Skin rash .S860 | 350 | (50) | 1.6 | (0.2) |
| Stomach pain, cramps, and spasms .S545 | 306 | (40) | 1.4 | (0.1) |
| Symptoms referable to throat .S455 | 234 | (38) | 1.1 | (0.2) |
| Labored or difficult breathing (dyspnea) .S420 | 220 | (44) | 1.0 | (0.2) |
| All other reasons[2] | 6,445 | (594) | 28.9 | (0.9) |
| All visits, age 15–64 years | 76,959 | (4,249) | 100.0 | . . . |
| Female | 42,559 | (2,372) | 55.3 | (0.6) |
| Stomach pain, cramps, and spasms .S545 | 4,585 | (331) | 6.0 | (0.3) |
| Chest pain and related symptoms .S050 | 2,285 | (187) | 3.0 | (0.2) |
| Headache, pain in head .S210 | 1,784 | (137) | 2.3 | (0.1) |
| Back symptoms .S905 | 1,460 | (142) | 1.9 | (0.1) |
| Problems of pregnancy and the post-partum period .S790 | 1,303 | (130) | 1.7 | (0.1) |
| Pain, site not referable to a specific body system .S055 | 1,260 | (109) | 1.6 | (0.1) |
| Symptoms referable to throat .S455 | 949 | (98) | 1.2 | (0.1) |
| Shortness of breath .S415 | 905 | (84) | 1.2 | (0.1) |
| Nausea .S525 | 815 | (102) | 1.1 | (0.1) |
| Uterine and vaginal bleeding .S755 | 759 | (79) | 1.0 | (0.1) |
| All other reasons[2] | 26,453 | (1,443) | 34.4 | (0.4) |
| Male | 34,400 | (1,963) | 44.7 | (0.6) |
| Chest pain and related symptoms .S050 | 2,159 | (187) | 2.8 | (0.2) |
| Stomach pain, cramps, and spasms .S545 | 2,031 | (148) | 2.6 | (0.1) |
| Back symptoms .S905 | 1,273 | (113) | 1.7 | (0.1) |
| Pain, site not referable to a specific body system .S055 | 1,219 | (117) | 1.6 | (0.1) |
| Headache, pain in head .S210 | 1,004 | (117) | 1.3 | (0.1) |
| Lacerations and cuts—upper extremity .J225 | 971 | (88) | 1.3 | (0.1) |
| Shortness of breath .S415 | 669 | (64) | 0.9 | (0.1) |
| Symptoms referable to throat .S455 | 639 | (74) | 0.8 | (0.1) |
| Low back symptoms .S910 | 633 | (71) | 0.8 | (0.1) |
| Leg symptoms .S920 | 589 | (69) | 0.8 | (0.1) |
| All other reasons[2] | 23,213 | (1,332) | 30.2 | (0.5) |
| All visits, age 65 years and over | 17,535 | (1,014) | 100.0 | . . . |
| Female | 10,539 | (643) | 60.1 | (0.8) |
| Chest pain and related symptoms .S050 | 894 | (92) | 5.1 | (0.4) |
| Shortness of breath .S415 | 666 | (91) | 3.8 | (0.4) |
| Stomach pain, cramps, and spasms .S545 | 629 | (66) | 3.6 | (0.3) |
| Accident, not otherwise specified .J810 | 379 | (56) | 2.2 | (0.3) |
| General weakness .S020 | 374 | (49) | 2.1 | (0.3) |
| Vertigo—dizziness .S225 | 276 | (36) | 1.6 | (0.2) |
| Nausea .S525 | 256 | (39) | 1.5 | (0.2) |
| Labored or difficult breathing (dyspnea) .S420 | 246 | (44) | 1.4 | (0.2) |
| Leg symptoms .S920 | 242 | (39) | 1.4 | (0.2) |
| Cough .S440 | 223 | (35) | 1.3 | (0.2) |
| All other reasons[2] | 6,354 | (389) | 36.2 | (0.9) |
| Male | 6,996 | (414) | 39.9 | (0.8) |
| Chest pain and related symptoms .S050 | 585 | (56) | 3.3 | (0.3) |
| Shortness of breath .S415 | 439 | (54) | 2.5 | (0.3) |
| Stomach pain, cramps, and spasms .S545 | 391 | (57) | 2.2 | (0.3) |
| General weakness .S020 | 266 | (41) | 1.5 | (0.2) |
| Vertigo—dizziness .S225 | 218 | (34) | 1.2 | (0.2) |
| Other urinary dysfunctions .S660 | 161 | (32) | 0.9 | (0.2) |
| Accident, not otherwise specified .J810 | 144 | (30) | 0.8 | (0.2) |
| Labored or difficult breathing (dyspnea) .S420 | 140 | (32) | 0.8 | (0.2) |
| Lacerations and cuts—upper extremity .J225 | 138 | (35) | 0.8 | (0.2) |
| Abnormal pulsations and palpitations .S260 | 124 | (36) | 0.7 | (0.2) |
| All other reasons[2] | 4,390 | (277) | 25.0 | (0.7) |

. . . Category not applicable. [1]Based on A Reason for Visit Classification for Ambulatory Care (RVC)(13).
[2]Category includes all other reasons not listed above as well as unknown and blanks.

NOTE: Numbers may not add to totals because of rounding.

**Table 10. Number and percent distribution of emergency department visits with corresponding standard errors, by the 10 leading primary diagnosis groups, according to age and sex: United States, 2007**

| Primary diagnosis group and ICD–9–CM code(s)[1] | Number of visits in thousands | (Standard error in thousands) | Percent distribution | (Standard error of percent) |
|---|---|---|---|---|
| All visits | 116,802 | (6,293) | 100.0 | . . . |
| All visits, age under 15 years | 22,308 | (1,864) | 100.0 | . . . |
| Female | 10,072 | (859) | 45.2 | (0.9) |
| Acute upper respiratory infections, excluding pharyngitis .460–461,463–466 | 929 | (137) | 4.2 | (0.5) |
| Otitis media and Eustachian tube disorders .381–382 | 614 | (92) | 2.8 | (0.3) |
| Unspecified viral and Chlamydia infection .079.9 | 503 | (124) | 2.3 | (0.4) |
| Contusion with intact skin surface .920–924 | 451 | (63) | 2.0 | (0.3) |
| Pyrexia of unknown origin .780.6 | 433 | (67) | 1.9 | (0.3) |
| Open wound of head .870–873 | 370 | (55) | 1.7 | (0.2) |
| Acute pharyngitis .462 | 357 | (45) | 1.6 | (0.2) |
| Abdominal pain .789.0 | 307 | (58) | 1.4 | (0.2) |
| Noninfectious enteritis and colitis .555–558 | 264 | (62) | 1.2 | (0.3) |
| Fractures, excluding lower limb .800–819 | 204 | (45) | 0.9 | (0.2) |
| All other diagnoses[2] | 5,640 | (482) | 25.3 | (0.7) |
| Male | 12,236 | (1,047) | 54.8 | (0.9) |
| Acute upper respiratory infections, excluding pharyngitis .460–461,463–466 | 1,250 | (174) | 5.6 | (0.6) |
| Otitis media and Eustachian tube disorders .381–382 | 946 | (120) | 4.2 | (0.4) |
| Open wound of head .870–873 | 651 | (71) | 2.9 | (0.3) |
| Contusion with intact skin surface .920–924 | 583 | (61) | 2.6 | (0.3) |
| Pyrexia of unknown origin .780.6 | 541 | (62) | 2.4 | (0.2) |
| Open wound, excluding head .874–897 | 434 | (63) | 1.9 | (0.2) |
| Asthma .493 | 375 | (62) | 1.7 | (0.2) |
| Fractures, excluding lower limb .800–819 | 364 | (47) | 1.6 | (0.2) |
| Unspecified viral and Chlamydia infection .079.9 | 351 | (48) | 1.6 | (0.2) |
| Acute pharyngitis .462 | 292 | (38) | 1.3 | (0.2) |
| All other diagnoses[2] | 6,450 | (618) | 28.9 | (0.9) |
| All visits, age 15–64 years | 76,959 | (4,249) | 100.0 | . . . |
| Female | 42,559 | (2,372) | 55.3 | (0.6) |
| Abdominal pain .789.0 | 2,597 | (225) | 3.4 | (0.2) |
| Complications of pregnancy, childbirth, and the puerperium .630–677 | 1,794 | (145) | 2.3 | (0.2) |
| Chest pain .786.5 | 1,572 | (158) | 2.0 | (0.2) |
| Contusion with intact skin surface .920–924 | 1,503 | (102) | 2.0 | (0.1) |
| Spinal disorders .720–724 | 1,202 | (139) | 1.6 | (0.2) |
| Sprains and strains of neck and back .846,847 | 1,187 | (129) | 1.5 | (0.1) |
| Acute upper respiratory infections, excluding pharyngitis .460–461,463–466 | 1,160 | (127) | 1.5 | (0.1) |
| Urinary tract infection, site not specified .599.0 | 1,124 | (104) | 1.5 | (0.1) |
| Cellulitis and abscess .681–682 | 992 | (107) | 1.3 | (0.1) |
| Sprains and strains, excluding ankle and back .840–844,845.1,848 | 896 | (93) | 1.2 | (0.1) |
| All other diagnoses[2] | 28,532 | (1,579) | 37.1 | (0.5) |
| Male | 34,400 | (1,963) | 44.7 | (0.6) |
| Open wound, excluding head .874–897 | 1,816 | (151) | 2.4 | (0.1) |
| Contusion with intact skin surface .920–924 | 1,425 | (120) | 1.9 | (0.1) |
| Chest pain .786.5 | 1,421 | (141) | 1.8 | (0.1) |
| Cellulitis and abscess .681–682 | 1,118 | (102) | 1.5 | (0.1) |
| Spinal disorders .720–724 | 1,112 | (108) | 1.4 | (0.1) |
| Sprains and strains, excluding ankle and back .840–844,845.1,848 | 1,026 | (95) | 1.3 | (0.1) |
| Abdominal pain .789.0 | 1,009 | (104) | 1.3 | (0.1) |
| Sprains and strains of neck and back .846,847 | 948 | (96) | 1.2 | (0.1) |
| Fractures, excluding lower limb .800–819 | 911 | (85) | 1.2 | (0.1) |
| Drug dependence and nondependence abuse of drugs .304–305 | 690 | (74) | 0.9 | (0.1) |
| All other diagnoses[2] | 22,924 | (1,314) | 29.8 | (0.5) |
| All visits, age 65 years and over | 17,535 | (1,014) | 100.0 | . . . |
| Female | 10,539 | (643) | 60.1 | (0.8) |
| Chest pain .786.5 | 576 | (76) | 3.3 | (0.3) |
| Contusion with intact skin surface .920–924 | 548 | (67) | 3.1 | (0.4) |
| Heart disease, excluding ischemic.391–392.0,393–398,402,404,415–416,420–429 | 520 | (55) | 3.0 | (0.3) |
| Urinary tract infection, site not specified .599.0 | 391 | (57) | 2.2 | (0.3) |
| Abdominal pain .789.0 | 322 | (44) | 1.8 | (0.2) |
| Fractures, excluding lower limb .800–819 | 293 | (46) | 1.7 | (0.2) |
| Cerebrovascular disease .430–438 | 266 | (41) | 1.5 | (0.2) |
| Fracture of the lower limb .820–829 | 233 | (41) | 1.3 | (0.2) |
| Pneumonia .480–486 | 232 | (39) | 1.3 | (0.2) |
| Spinal disorders .720–724 | 229 | (41) | 1.3 | (0.2) |
| All other diagnoses[2] | 6,929 | (425) | 39.5 | (0.9) |

See footnotes at end of table.

**Table 10. Number and percent distribution of emergency department visits with corresponding standard errors, by the 10 leading primary diagnosis groups, according to age and sex: United States, 2007—Con.**

| Primary diagnosis group and ICD–9–CM code(s)[1] | Number of visits in thousands | (Standard error in thousands) | Percent distribution | (Standard error of percent) |
|---|---|---|---|---|
| Male | 6,996 | (414) | 39.9 | (0.8) |
| Heart disease, excluding ischemic.391–392.0,393–398,402,404,415–416,420–429 | 461 | (60) | 2.6 | (0.3) |
| Chest pain .786.5 | 422 | (46) | 2.4 | (0.2) |
| Pneumonia .480–486 | 225 | (37) | 1.3 | (0.2) |
| Cellulitis and abscess .681–682 | 206 | (39) | 1.2 | (0.2) |
| Open wound, excluding head .874–897 | 197 | (42) | 1.1 | (0.2) |
| Abdominal pain .789.0 | 176 | (34) | 1.0 | (0.2) |
| Cerebrovascular disease .430–438 | 171 | (32) | 1.0 | (0.2) |
| Syncope and collapse .780.2 | 169 | (29) | 1.0 | (0.2) |
| Contusion with intact skin surface .920–924 | 168 | (33) | 1.0 | (0.2) |
| Symptoms involving the urinary system .788 | 163 | (31) | 0.9 | (0.2) |
| All other diagnoses[2] | 4,638 | (285) | 26.5 | (0.8) |

. . . Category not applicable.

[1]Based on the *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD–9–CM) (14). However, certain codes have been combined in this table to better describe the use of ambulatory care services.

[2]Category includes all other diagnoses not listed above as well as unknown and blanks.

NOTE: Numbers may not add to totals because of rounding.

**Table 11. Number, percent distribution, and annual rate of emergency department visits with corresponding standard errors, by injury, poisoning, or adverse effects of medical treatment, according to patient age and sex, hospital ownership, geographic area, and metropolitan status: United States, 2007**

| Selected patient and hospital characteristics | Number of visits in thousands | (Standard error in thousands) | Percent distribution | (Standard error of percent) | Number of visits per 100 persons per year[1] | (Standard error of rate) |
|---|---|---|---|---|---|---|
| All injury-related visits[2] | 39,395 | (2,089) | 100.0 | . . . | 13.3 | (0.7) |
| **Patient characteristics** | | | | | | |
| Age: | | | | | | |
| Under 15 years | 7,303 | (516) | 18.5 | (0.9) | 12.0 | (0.8) |
| Under 1 year | 405 | (62) | 1.0 | (0.1) | 9.5 | (1.5) |
| 1–4 years | 2,429 | (198) | 6.2 | (0.4) | 14.8 | (1.2) |
| 5–14 years | 4,469 | (324) | 11.3 | (0.5) | 11.1 | (0.8) |
| 15–24 years | 7,112 | (466) | 18.1 | (0.5) | 17.1 | (1.1) |
| 25–44 years | 11,633 | (691) | 29.5 | (0.7) | 14.2 | (0.8) |
| 45–64 years | 8,119 | (457) | 20.6 | (0.6) | 10.7 | (0.6) |
| 65 years and over | 5,227 | (328) | 13.3 | (0.6) | 14.4 | (0.9) |
| 65–74 years | 1,963 | (148) | 5.0 | (0.3) | 10.3 | (0.8) |
| 75 years and over | 3,265 | (213) | 8.3 | (0.4) | 19.1 | (1.2) |
| Sex and age: | | | | | | |
| Female | 18,449 | (996) | 46.8 | (0.6) | 12.2 | (0.7) |
| Under 15 years | 3,076 | (233) | 7.8 | (0.4) | 10.4 | (0.8) |
| 15–24 years | 3,103 | (200) | 7.9 | (0.3) | 15.1 | (1.0) |
| 25–44 years | 5,082 | (331) | 12.9 | (0.5) | 12.3 | (0.8) |
| 45–64 years | 3,947 | (252) | 10.0 | (0.4) | 10.1 | (0.6) |
| 65–74 years | 1,063 | (102) | 2.7 | (0.2) | 10.3 | (1.0) |
| 75 years and over | 2,178 | (161) | 5.5 | (0.3) | 21.0 | (1.6) |
| Male | 20,946 | (1,141) | 53.2 | (0.6) | 14.4 | (0.8) |
| Under 15 years | 4,227 | (332) | 10.7 | (0.6) | 13.6 | (1.1) |
| 15–24 years | 4,009 | (301) | 10.2 | (0.4) | 19.1 | (1.4) |
| 25–44 years | 6,550 | (405) | 16.6 | (0.5) | 16.2 | (1.0) |
| 45–64 years | 4,173 | (252) | 10.6 | (0.4) | 11.3 | (0.7) |
| 65–74 years | 900 | (85) | 2.3 | (0.2) | 10.3 | (1.0) |
| 75 years and over | 1,087 | (89) | 2.8 | (0.2) | 16.1 | (1.3) |
| **Hospital characteristics** | | | | | | |
| Ownership: | | | | | | |
| Voluntary | 29,333 | (1,849) | 74.5 | (3.0) | 9.9 | (0.6) |
| Proprietary | 5,206 | (1,189) | 13.2 | (2.7) | 1.8 | (0.4) |
| Government | 4,856 | (712) | 12.3 | (1.9) | 1.6 | (0.2) |
| Geographic region: | | | | | | |
| Northeast | 7,248 | (654) | 18.4 | (1.6) | 13.5 | (1.2) |
| Midwest | 8,627 | (795) | 21.9 | (1.9) | 13.2 | (1.2) |
| South | 15,541 | (1,382) | 39.4 | (2.7) | 14.4 | (1.3) |
| West | 7,980 | (1,221) | 20.3 | (2.6) | 11.6 | (1.8) |
| **Metropolitan status[3]** | | | | | | |
| MSA[4] | 33,175 | (2,129) | 84.2 | (1.9) | 13.3 | (0.9) |
| Non-MSA[4] | 6,220 | (687) | 15.8 | (1.9) | 13.2 | (1.5) |

. . . Category not applicable.

[1]Visit rates for age, sex, and region are based on the July 1, 2007, set of estimates of the civilian noninstitutionalized population of the United States as developed by the Population Division, U.S. Census Bureau.

[2]Injury-related includes injuries, poisoning, and adverse effects, accounting for 33.7 percent (SE=0.6) of all visits.

[3]Population estimates of metropolitan statistical area (MSA) status are based on estimates of the civilian noninstitutionalized population of the United States from the 2007 National Heath Interview Survey, National Center for Health Statistics, compiled according to the December 2006 Office of Management and Budget definitions of core-based statistical areas. See: http://www.census.gov/population/www/metroareas/metrodef.html for more about MSA definitions.

[4]MSA is metropolitan statistical area.

NOTE: Numbers may not add to totals because of rounding.

**Table 12. Number, percent distribution, and annual rate of emergency department visits with corresponding standard errors, by injury, poisoning, or adverse effects of medical treatment, according to race and age, and ethnicity: United States, 2007**

| Patient characteristics | Reported plus imputed | | | | | | Reported only | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number of visits in thousands | (Standard error in thousands) | Percent distribution | (Standard error of percent) | Number of visits per 100 persons per year[1] | (Standard error of rate) | Number of visits in thousands | (Standard error in thousands) | Percent distribution | (Standard error of percent) | Number of visits per 100 persons per year[1] | (Standard error of rate) |
| All injury-related visits[2] | 39,395 | (2,089) | 100.0 | . . . | 13.3 | (0.7) | . . . | . . . | . . . | . . . | . . . | . . . |
| Race and age[3–6] | | | | | | | | | | | | |
| Reported | 33,478 | (1,817) | 85.0 | (2.0) | 11.3 | (0.6) | 33,478 | (1,817) | 100.0 | . . . | 11.3 | (0.6) |
| Imputed (missing) | 5,917 | (893) | 15.0 | (2.0) | 2.0 | (0.3) | . . . | . . . | . . . | . . . | . . . | . . . |
| White: | 29,894 | (1,789) | 75.9 | (1.5) | 12.6 | (0.8) | 25,583 | (1,629) | 76.4 | (1.6) | 10.8 | (0.7) |
| Under 15 years | 5,396 | (376) | 13.7 | (0.6) | 11.6 | (0.8) | 4,393 | (320) | 13.1 | (0.6) | 9.5 | (0.7) |
| 15–24 years | 5,236 | (408) | 13.3 | (0.6) | 16.3 | (1.3) | 4,438 | (360) | 13.3 | (0.6) | 13.8 | (1.1) |
| 25–44 years | 8,748 | (597) | 22.2 | (0.7) | 13.6 | (0.9) | 7,513 | (550) | 22.4 | (0.8) | 11.7 | (0.9) |
| 45–64 years | 6,131 | (414) | 15.6 | (0.6) | 9.7 | (0.7) | 5,320 | (370) | 15.9 | (0.6) | 8.4 | (0.6) |
| 65–74 years | 1,565 | (122) | 4.0 | (0.2) | 9.6 | (0.7) | 1,363 | (111) | 4.1 | (0.2) | 8.3 | (0.7) |
| 75 years and over | 2,817 | (188) | 7.2 | (0.4) | 18.6 | (1.2) | 2,557 | (179) | 7.6 | (0.4) | 16.9 | (1.2) |
| Black or African American | 8,264 | (664) | 21.0 | (1.4) | 22.1 | (1.8) | 6,929 | (547) | 20.7 | (1.5) | 18.6 | (1.5) |
| Under 15 years | 1,656 | (207) | 4.2 | (0.5) | 17.9 | (2.2) | 1,342 | (173) | 4.0 | (0.5) | 14.5 | (1.9) |
| 15–24 years | 1,639 | (152) | 4.2 | (0.3) | 26.5 | (2.4) | 1,387 | (117) | 4.1 | (0.3) | 22.4 | (1.9) |
| 25–44 years | 2,519 | (205) | 6.4 | (0.5) | 24.2 | (2.0) | 2,156 | (182) | 6.4 | (0.5) | 20.7 | (1.7) |
| 45–64 years | 1,721 | (166) | 4.4 | (0.4) | 20.5 | (2.0) | 1,489 | (143) | 4.4 | (0.4) | 17.7 | (1.7) |
| 65–74 years | 337 | (62) | 0.9 | (0.1) | 19.0 | (3.5) | 280 | (51) | 0.8 | (0.1) | 15.7 | (2.9) |
| 75 years and over | 392 | (70) | 1.0 | (0.2) | 30.1 | (5.4) | 276 | (59) | 0.8 | (0.2) | 21.2 | (4.6) |
| Asian | 747 | (84) | 1.9 | (0.2) | 5.6 | (0.6) | 549 | (64) | 1.6 | (0.2) | 4.1 | (0.5) |
| Native Hawaiian or Other Pacific Islander | 76 | (21) | *0.2 | (0.1) | 14.3 | (4.1) | 72 | (21) | *0.2 | (0.1) | 13.6 | (4.0) |
| American Indian or Alaska Native | *328 | (125) | *0.8 | (0.3) | *11.4 | (4.3) | *269 | (92) | *0.8 | (0.3) | *9.3 | (3.2) |
| Multiple races | *87 | (27) | *0.2 | (0.1) | *1.8 | (0.6) | *76 | (26) | *0.2 | (0.1) | *1.6 | (0.6) |
| Ethnicity[3,4,7,8] | | | | | | | | | | | | |
| Reported | 29,153 | (1,825) | 74.0 | (2.7) | 9.8 | (0.6) | 29,153 | (1,825) | 100.0 | . . . | 9.8 | (0.6) |
| Imputed (missing) | 10,242 | (1,243) | 26.0 | (2.7) | 3.5 | (0.4) | ... | . . . | . . . | . . . | . . . | . . . |
| Hispanic or Latino | 4,732 | (417) | 12.0 | (0.9) | 10.5 | (0.9) | 3,532 | (320) | 12.1 | (1.0) | 7.9 | (0.7) |
| Not Hispanic or Latino | 34,663 | (1,908) | 88.0 | (0.9) | 13.8 | (0.8) | 25,621 | (1,691) | 87.9 | (1.0) | 10.2 | (0.7) |

. . . Category not applicable.

* Figure does not meet standards of reliability or precision.

[1]Visit rates are based on the July 1, 2007, estimates of the civilian noninstitutionalized population of the United States as developed by the Population Division, U.S. Census Bureau.

[2]Injury-related includes injuries, poisoning, and adverse effects, accounting for 33.7 percent (SE=0.6) of all visits.

[3]The race groups of white, black or African American, Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, and multiple races, include persons of Hispanic and not Hispanic origin. Persons of Hispanic origin may be of any race. Starting with data year 1999, race-specific estimates have been tabulated according to 1997 Standards for Federal Data on Race and Ethnicity and are not strictly comparable with estimates for earlier years. The percentage of visit records with multiple races indicated is small and lower than what is typically found for self-reported race in household surveys.

[4]For 2007, race data were missing for 14.9 percent of visits, and ethnicity data were missing for 24.9 percent of visits. Readers are therefore advised to treat these data with caution. In this table, estimates based on imputed race and ethnicity data are shown separately from comparison estimates using unimputed data. Missing race and ethnicity were imputed using a hot deck approach rather than the previously used cold deck strategy. The imputation process is described more fully in the 2007 public-use file documentation (http://www.cdc.gov/nchs/ahcd.htm). Research is currently underway to evaluate further changes to the imputation strategy for use with 2008 data.

[5]Reported plus imputed includes race reported by emergency departments, and imputed values for the 15.0% of injury-related visits for which race was not reported.

[6]Reported only calculations are based on 33,478,000 injury-related visits with race reported directly by emergency departments. The visits for which race was missing are excluded from the denominator so that readers can compare differences between estimates that include and exclude imputed race values.

[7]Reported plus imputed includes ethnicity reported by emergency departments, and imputed values for the 26.0% of injury-related visits for which ethnicity was not reported.

[8]Reported only calculations are based on 29,153,000 visits with ethnicity reported directly by emergency departments. The visits for which ethnicity was missing are excluded from the denominator, so that readers can compare differences between estimates that include and exclude imputed ethnicity values.

NOTE: Numbers may not add to totals because of rounding.

**Table 13. Number and percent distribution of emergency department visits with corresponding standard errors, by injuries, poisoning, and adverse effects of medical treatment according to intent and mechanism of external cause: United States, 2007**

| Intent and mechanism[1] | Number of visits in thousands | (Standard error in thousands) | Percent distribution | (Standard error of percent) |
|---|---|---|---|---|
| All injury-related visits | 39,395 | (2,089) | 100.0 | . . . |
| Unintentional injuries | 26,036 | (1,379) | 66.1 | (0.9) |
| Falls | 8,898 | (536) | 22.6 | (0.6) |
| Motor vehicle traffic | 3,836 | (264) | 9.7 | (0.5) |
| Struck against or struck accidentally by objects or persons | 3,044 | (198) | 7.7 | (0.4) |
| Overexertion and strenuous movements | 2,116 | (130) | 5.4 | (0.3) |
| Cutting or piercing instruments or objects | 2,089 | (147) | 5.3 | (0.3) |
| Natural and environmental factors | 1,522 | (106) | 3.9 | (0.2) |
| Foreign body | 638 | (67) | 1.6 | (0.1) |
| Poisoning | 486 | (64) | 1.2 | (0.1) |
| Motor vehicle, nontraffic, and other | 451 | (46) | 1.1 | (0.1) |
| Fire and flames, hot substances or object, caustic or corrosive, and steam | 416 | (59) | 1.1 | (0.1) |
| Caught accidentally in or between objects | 359 | (48) | 0.9 | (0.1) |
| Pedal cycle, nontraffic | 330 | (48) | 0.8 | (0.1) |
| Machinery | 280 | (42) | 0.7 | (0.1) |
| Other transportation | 209 | (38) | 0.5 | (0.1) |
| Other mechanism[2] | 1,182 | (122) | 3.0 | (0.2) |
| Mechanism unspecified | 179 | (28) | 0.5 | (0.1) |
| Intentional injuries | 1,998 | (122) | 5.1 | (0.2) |
| Assault | 1,447 | (98) | 3.7 | (0.2) |
| Unarmed fight or brawl, striking by blunt or thrown object | 784 | (66) | 2.0 | (0.1) |
| Cutting or piercing instrument | 76 | (20) | *0.2 | (0.1) |
| Other and unspecified mechanism[3] | 587 | (57) | 1.5 | (0.1) |
| Self-inflicted | 472 | (51) | 1.2 | (0.1) |
| Poisoning by solid or liquid substances, gases, and vapors | 294 | (40) | 0.7 | (0.1) |
| Other and unspecified mechanism[4] | 178 | (26) | 0.5 | (0.1) |
| Other causes of violence | 79 | (18) | 0.2 | (0.0) |
| Injuries of undetermined intent | 293 | (54) | 0.7 | (0.1) |
| Adverse effects of medical treatment | 1,684 | (151) | 4.3 | (0.3) |
| Medical and surgical complications | 968 | (110) | 2.5 | (0.2) |
| Adverse drug effects | 716 | (78) | 1.8 | (0.2) |
| Alcohol and drug use[5] | 1,766 | (152) | 4.5 | (0.3) |
| Unknown[6] | 7,618 | (559) | 19.3 | (0.8) |

. . . Category not applicable.

* Figure does not meet standards of reliability or precision.

0.0 Quantity more than zero but less than 0.05.

[1]First-mentioned of three possible causes, based on the "Supplementary Classification of External Cause of Injury and Poisoning," International Classification of Diseases, 9th Revision, Clinical Modification (ICD–9–CM) (14). A detailed description of the ICD–9–CM E-codes used to create the grouping in this table can be found in the 2003 Advance Data report (15).

[2]Category includes suffocation, drowning, firearms, and other mechanism.

[3]Category includes assaults by firearms and explosive, and other mechanism.

[4]Category includes injury by cutting and piercing instrument, and other and unspecified mechanism.

[5]Alcohol and drug abuse are not contained in the ''Supplementary Classification of External Causes of Injury and Poisoning,'' but are frequently recorded as a cause of injury or poisoning.

[6]Category includes illegible entries and blanks.

NOTE: Numbers may not add to totals because of rounding.

**Table 14. Number and percent distribution of emergency department visits with corresponding standard errors, by body site of primary injury-related diagnosis: United States, 2007**

| Body site[1] | Number of visits in thousands | (Standard error in thousands) | Percent distribution | (Standard error of percent) |
|---|---|---|---|---|
| All injury visits | 39,395 | (2,089) | 100.0 | . . . |
| Head and neck | 5,411 | (355) | 13.7 | (0.5) |
| Traumatic brain injury | 373 | (48) | 0.9 | (0.1) |
| Other head | 1,383 | (151) | 3.5 | (0.3) |
| Face | 1,855 | (164) | 4.7 | (0.3) |
| Eye | 454 | (43) | 1.2 | (0.1) |
| Head, face, and neck unspecified | 1,346 | (103) | 3.4 | (0.2) |
| Vertebral column | 2,083 | (192) | 5.3 | (0.4) |
| Cervical | 1,087 | (117) | 2.8 | (0.2) |
| Thoracic and dorsal | 189 | (42) | 0.5 | (0.1) |
| Lumbar | 765 | (88) | 1.9 | (0.2) |
| Torso | 1,809 | (134) | 4.6 | (0.2) |
| Chest | 732 | (70) | 1.9 | (0.2) |
| Abdomen | 168 | (33) | 0.4 | (0.1) |
| Pelvis and urogenital | 242 | (39) | 0.6 | (0.1) |
| Trunk | 173 | (29) | 0.4 | (0.1) |
| Back and buttocks | 494 | (60) | 1.3 | (0.1) |
| Upper extremity | 7,335 | (480) | 18.6 | (0.6) |
| Shoulder and upper arm | 1,326 | (122) | 3.4 | (0.3) |
| Forearm and elbow | 1,008 | (93) | 2.6 | (0.2) |
| Wrist, hand, and fingers | 4,582 | (306) | 11.6 | (0.4) |
| Other and unspecified upper extremity | 418 | (64) | 1.1 | (0.2) |
| Lower extremity | 5,754 | (340) | 14.6 | (0.4) |
| Hip | 488 | (63) | 1.2 | (0.2) |
| Upper leg and thigh | 203 | (36) | 0.5 | (0.1) |
| Knee | 507 | (58) | 1.3 | (0.1) |
| Lower leg and ankle | 1,601 | (131) | 4.1 | (0.2) |
| Foot and toes | 1,294 | (107) | 3.3 | (0.2) |
| Other and unspecified lower extremity | 1,661 | (136) | 4.2 | (0.3) |
| Systemwide | 1,316 | (110) | 3.3 | (0.2) |
| Other and unspecified body site injuries | 1,855 | (174) | 4.7 | (0.3) |
| Adverse effects and medical complications | 1,208 | (109) | 3.1 | (0.2) |
| All other diagnoses[2] | 11,735 | (639) | 29.8 | (0.8) |
| Unknown[3] | 881 | (95) | 2.2 | (0.2) |

. . .Category not applicable.

[1]Based on the International Classification of Diseases, Ninth Revision, Clinical Modification (14). A detailed description of the Barell Injury Diagnosis Matrix: Classification by Region of Body and Nature of the Injury can be found in the 2003 Advance Data report (15). Three additional categories were added that were not in the Barell Injury Diagnosis Matrix to account for all injury-related visits: illness diagnoses, supplementary classification, and other adverse effects and medical complications.

[2]All other diagnoses include musculoskeletal system (710–739), symptoms and ill-defined conditions (780–799), skin and subcutaneous tissue (680–709), mental disorders (290–319), nervous system and sense organs (320–389), other illnesses (001–289, 390–677, 740–779), and supplementary classification (V01-V82).

[3]Category includes blank, uncodable, and illegible diagnoses.

NOTE: Numbers may not add to totals because of rounding.

**Table 15. Number and percentage of emergency department visits with corresponding standard errors, by diagnostic services ordered or provided: United States, 2007**

| Diagnostic and screening services ordered or provided | Number of visits in thousands[1] | (Standard error in thousands) | Percent of visits | (Standard error of percent) |
|---|---|---|---|---|
| All visits | 116,802 | (6,293) | . . . | . . . |
| One or more diagnostic or screening service listed[2] | 77,561 | (4,295) | 66.4 | (0.9) |
| None | 36,071 | (2,263) | 30.9 | (0.9) |
| Blank | 3,169 | (508) | 2.7 | (0.4) |
| Blood tests | | | | |
| Complete blood count | 41,341 | (2,442) | 35.4 | (0.9) |
| Blood urea nitrogen or creatinine | 25,801 | (1,968) | 22.1 | (1.1) |
| Glucose | 22,836 | (1,734) | 19.6 | (1.0) |
| Electrolytes | 22,752 | (1,913) | 19.5 | (1.2) |
| Cardiac enzymes | 14,177 | (1,203) | 12.1 | (0.7) |
| Liver function tests | 9,226 | (895) | 7.9 | (0.6) |
| Prothrombin time or international normalized ratio (INR) | 6,121 | (576) | 5.2 | (0.4) |
| Blood culture | 4,202 | (349) | 3.6 | (0.2) |
| Toxicology screen | 3,181 | (321) | 2.7 | (0.2) |
| Arterial blood gases | 2,795 | (374) | 2.4 | (0.3) |
| Blood alcohol concentration | 1,910 | (203) | 1.6 | (0.2) |
| Other blood test | 21,061 | (1,433) | 18.0 | (0.8) |
| Any blood test listed | 46,476 | (2,700) | 39.8 | (0.9) |
| Imaging | | | | |
| X-ray | 39,460 | (2,272) | 33.8 | (0.8) |
| Computed tomography scan | 16,186 | (1,052) | 13.9 | (0.5) |
| Head | 7,839 | (553) | 6.7 | (0.3) |
| Other than head | 7,815 | (600) | 6.7 | (0.4) |
| Ultrasound | 3,537 | (308) | 3.0 | (0.2) |
| Magnetic resonance imaging scan | 763 | (92) | 0.7 | (0.1) |
| Head | 308 | (48) | 0.3 | (0.0) |
| Other than head | 357 | (52) | 0.3 | (0.0) |
| Other imaging | 1,181 | (139) | 1.0 | (0.1) |
| Any imaging | 51,862 | (2,984) | 44.4 | (0.9) |
| Examinations and tests | | | | |
| Urinalysis | 26,267 | (1,494) | 22.5 | (0.6) |
| Electrocardiogram | 19,435 | (1,157) | 16.6 | (0.5) |
| Cardiac monitor | 9,387 | (820) | 8.0 | (0.5) |
| Pregnancy test | 5,577 | (463) | 4.8 | (0.3) |
| Rapid flu or influenza test | 1,485 | (382) | 1.3 | (0.3) |
| Wound culture | 969 | (127) | 0.8 | (0.1) |
| Other test or service | 13,034 | (1,256) | 11.2 | (1.0) |

. . . Category not applicable.
0.0 Quantity more than zero but less than 0.05.
[1]Total exceeds "all visits" because more than one service may be reported per visit.
[2]Does not include medical screening and mental status exams, which were removed from the survey in 2005.

**Table 16. Number and percentage of emergency department visits with corresponding standard errors, by selected procedures: United States, 2007**

| Procedure performed | Number of visits in thousands | (Standard error in thousands) | Percent of visits | (Standard error of percent) |
|---|---|---|---|---|
| All visits | 116,802 | (6,293) | . . . | . . . |
| One or more procedure listed | 53,090 | (3,219) | 45.5 | (1.3) |
| None[1] | 57,911 | (3,475) | 49.6 | (1.3) |
| Blank[2] | 5,801 | (702) | 5.0 | (0.5) |
| Intravenous fluids | 31,045 | (2,021) | 26.6 | (0.9) |
| Splint or wrap | 6,681 | (466) | 5.7 | (0.2) |
| Laceration repair | 5,125 | (319) | 4.4 | (0.2) |
| Nebulizer therapy | 3,048 | (245) | 2.6 | (0.2) |
| Bladder catheter | 2,576 | (279) | 2.2 | (0.2) |
| Wound debridement | 1,967 | (234) | 1.7 | (0.2) |
| Incision and drainage | 1,174 | (127) | 1.0 | (0.1) |
| Cast | 529 | (69) | 0.5 | (0.1) |
| Foreign body removal | 450 | (51) | 0.4 | (0.0) |
| Nasogastric tube gastric suction | 365 | (84) | *0.3 | (0.1) |
| Endotracheal intubation | 269 | (70) | *0.2 | (0.1) |
| Other | 9,706 | (1,371) | 8.3 | (1.1) |

. . . Category not applicable.
* Figure does not meet standards of reliability or precision.
0.0 Quantity more than zero but less than 0.05.
[1]The None checkbox was marked on the Patient Record form (PRF).
[2]No checkboxes were marked on the PRF.

**Table 17. Number and percent distribution of emergency department visits with corresponding standard errors, by medications provided or prescribed: United States, 2007**

| Medication therapy[1] | Number of visits in thousands | (Standard error in thousands) | Percent distribution | (Standard error of percent) |
|---|---|---|---|---|
| All visits | 116,802 | (6,293) | 100.0 | . . . |
| Visits with mention of medication[2] | 89,108 | (4,832) | 76.3 | (0.7) |
| Number of medications provided or prescribed[3] | | | | |
| 1 | 30,658 | (1,752) | 26.2 | (0.5) |
| 2 | 25,695 | (1,410) | 22.0 | (0.4) |
| 3 | 15,775 | (975) | 13.5 | (0.3) |
| 4 | 8,340 | (547) | 7.1 | (0.2) |
| 5 | 4,440 | (348) | 3.8 | (0.2) |
| 6 | 2,052 | (190) | 1.8 | (0.1) |
| 7 | 1,043 | (116) | 0.9 | (0.1) |
| 8 | 1,106 | (186) | 0.9 | (0.2) |
| Visits without mention of medication | 27,694 | (1,742) | 23.7 | (0.7) |

. . . Category not applicable.
[1]Includes prescription drugs, over-the-counter preparations, immunizations, and desensitizing agents.
[2]Visits at which one or more medications were provided or prescribed.
[3]There were 213,387,000 drug mentions at emergency department visits in 2007. The average drug mention rate was 1.8 mentions per ED visit (standard error = 0.04). For visits with at least one drug mention, the average rate was 2.4 drugs per visit (standard error = 0.04).

NOTE: Numbers may not add to totals because of rounding.

**Table 18. Number and percentage of drug mentions at emergency department visits, with corresponding standard errors, by the 20 most frequently occurring drug categories: United States, 2007**

| Drug category[1] | Number of mentions in thousands | (Standard error in thousands) | Percent of drug mentions[2] | (Standard error of percent) |
|---|---|---|---|---|
| Analgesics[3] | 77,545 | (4,631) | 36.3 | (0.4) |
| Antiemetic/antivertigo agents | 23,234 | (1,553) | 10.9 | (0.3) |
| Antihistamines | 12,100 | (775) | 5.7 | (0.2) |
| Anxiolytics, sedatives, and hypnotics | 9,199 | (548) | 4.3 | (0.1) |
| Cephalosporins | 8,041 | (650) | 3.8 | (0.2) |
| Minerals and electrolytes | 7,684 | (794) | 3.6 | (0.3) |
| Bronchodilators | 7,296 | (473) | 3.4 | (0.2) |
| Penicillins | 7,132 | (515) | 3.3 | (0.2) |
| Adrenal cortical steroids | 6,267 | (419) | 2.9 | (0.1) |
| Miscellaneous antibiotics | 5,899 | (403) | 2.8 | (0.1) |
| Anticonvulsants | 5,581 | (384) | 2.6 | (0.1) |
| Quinolones | 5,105 | (342) | 2.4 | (0.1) |
| Miscellaneous respiratory agents | 5,047 | (720) | 2.4 | (0.3) |
| Macrolide derivatives | 4,231 | (310) | 2.0 | (0.1) |
| Muscle relaxants | 4,066 | (297) | 1.9 | (0.1) |
| Antiplatelet agents | 3,838 | (317) | 1.8 | (0.1) |
| Dermatological agents | 3,417 | (322) | 1.6 | (0.1) |
| Antiparkinson agents | 3,108 | (212) | 1.5 | (0.1) |
| Sulfonamides | 3,053 | (266) | 1.4 | (0.1) |
| Toxoids[4] | 2,730 | (192) | 1.3 | (0.1) |

[1]Based on Multum Lexicon second-level therapeutic drug category (see: http://www.multum.com/Lexicon.htm).
[2]Based on an estimated 213,387,000 drug mentions at visits in 2007.
[3]Includes narcotic and nonnarcotic analgesics and nonsteroidal anti-inflammatory drugs.
[4]Includes tetanus toxoids and combinations containing tetanus and diptheria toxoids.

**Table 19. Number and percent distribution of drug mentions at emergency department visits, with corresponding standard errors, by generic equivalents with therapeutic categories, according to whether the drug was given in the emergency department or prescribed at discharge: United States, 2007**

| Drug name[1] | Number of drug mentions in thousands | (Standard error in thousands) | Percent distribution | (Standard error of percent) | Percent of mentions (Standard error of percent) | | | Therapeutic drug category[2] |
|---|---|---|---|---|---|---|---|---|
| | | | | | Given in emergency department | Prescribed at discharge | Unknown | |
| All drug mentions | 213,387 | (12,070) | 100.0 | . . . | 62.3 (1.1) | 44.2 (1.1) | 2.7 (0.4) | . . . |
| Ibuprofen | 14,607 | (992) | 6.8 | (0.3) | 3.0 (0.1) | 4.6 (0.2) | 0.2 (0.0) | Analgesics |
| Acetaminophen-hydrocodone | 13,114 | (1,032) | 6.1 | (0.3) | 2.1 (0.1) | 4.9 (0.2) | 0.1 (0.0) | Analgesics |
| Acetaminophen | 10,430 | (717) | 4.9 | (0.2) | 2.8 (0.1) | 2.4 (0.2) | 0.2 (0.0) | Analgesics |
| Promethazine | 7,446 | (564) | 3.5 | (0.2) | 2.8 (0.2) | 1.1 (0.1) | 0.1 (0.0) | Antiemetic/antivertigo agents or antihistamines |
| Ketorolac | 7,335 | (529) | 3.4 | (0.2) | 3.3 (0.2) | 0.2 (0.0) | 0.1 (0.0) | Analgesics |
| Morphine | 6,747 | (523) | 3.2 | (0.2) | 3.1 (0.2) | *0.1 (0.0) | 0.1 (0.0) | Analgesics |
| Ondansetron | 6,064 | (615) | 2.8 | (0.2) | 2.7 (0.2) | 0.3 (0.0) | 0.0 (0.0) | Antiemetic/antivertigo agents |
| Hydromorphone | 5,074 | (502) | 2.4 | (0.2) | 2.3 (0.2) | 0.1 (0.0) | 0.1 (0.0) | Analgesics |
| Sodium chloride | 4,940 | (721) | 2.3 | (0.3) | 2.2 (0.3) | 0.0 (0.0) | 0.1 (0.0) | Minerals and electrolytes or miscellaneous respiratory agents |
| Acetaminophen-oxycodone | 4,557 | (424) | 2.1 | (0.2) | 1.0 (0.1) | 1.6 (0.1) | *0.0 (0.0) | Analgesics |
| Albuterol | 4,190 | (261) | 2.0 | (0.1) | 1.2 (0.1) | 1.0 (0.1) | *0.1 (0.0) | Bronchodilators |
| Azithromycin | 3,591 | (259) | 1.7 | (0.1) | 0.7 (0.0) | 1.2 (0.1) | *0.0 (0.0) | Macrolide derivatives |
| Amoxicillin | 3,509 | (332) | 1.6 | (0.1) | 0.4 (0.0) | 1.5 (0.1) | *0.0 (0.0) | Penicillins |
| Aspirin | 3,449 | (292) | 1.6 | (0.1) | 1.4 (0.1) | 0.2 (0.0) | 0.1 (0.0) | Analgesics or antiplatelet agents |
| Ceftriaxone | 3,369 | (302) | 1.6 | (0.1) | 1.5 (0.1) | 0.1 (0.0) | *0.0 (0.0) | Cephalosporins |
| Cephalexin | 3,276 | (285) | 1.5 | (0.1) | 0.4 (0.0) | 1.3 (0.1) | 0.0 (0.0) | Cephalosporins |
| Sulfamethoxazole-trimethoprim | 3,008 | (265) | 1.4 | (0.1) | 0.4 (0.0) | 1.2 (0.1) | *0.0 (0.0) | Miscellaneous antibiotics or sulfonamides |
| Diphenhydramine | 2,992 | (208) | 1.4 | (0.1) | 1.1 (0.1) | 0.5 (0.0) | 0.0 (0.0) | Antiemetic/antivertigo agents or antihistamines; anti-Parkinson agents; or anxiolytics, sedatives, and hypnotics |
| Lorazepam | 2,795 | (213) | 1.3 | (0.1) | 1.1 (0.1) | 0.2 (0.0) | *0.0 (0.0) | Anticonvulsants; antiemetic/antivertigo agents; or anxiolytics, sedatives, and hypnotics |
| Levofloxacin | 2,666 | (250) | 1.2 | (0.1) | 0.9 (0.1) | 0.5 (0.1) | *0.0 (0.0) | Quinolones |
| All other | 100,228 | (5,444) | 47.0 | (0.6) | 28.0 (0.6) | 21.3 (0.7) | 1.4 (0.3) | . . . |

. . . Category not applicable.
0.0 Quantity more than zero but less than 0.05.
* Figure does not meet standards of reliability or precision.
[1]Based on Multum Lexicon terminology, the drug name reflects the active ingredients of a drug mention.
[2]Based on Multum Lexicon second-level therapeutic drug category (see: http://www.multum.com/lexicon.htm).

**Table 20. Number and percentage of emergency department visits with corresponding standard errors, by providers seen: United States, 2007**

| Type of provider | Number of visits in thousands[1] | (Standard error in thousands) | Percent of visits | (Standard error of percent) |
|---|---|---|---|---|
| All visits | 116,802 | (6,293) | . . . | . . . |
| Registered nurse or licensed practical nurse | 105,923 | (6,002) | 90.7 | (1.1) |
| Any physician | 104,718 | (5,495) | 89.7 | (0.8) |
| Emergency department attending physician | 101,554 | (5,335) | 86.9 | (1.1) |
| Emergency department resident or intern | 9,290 | (1,141) | 8.0 | (1.0) |
| Other on-call attending physician, fellow, or resident | 5,500 | (861) | 4.7 | (0.7) |
| Physician assistant | 10,717 | (1,546) | 9.2 | (1.1) |
| Nurse practitioner | 4,724 | (696) | 4.0 | (0.5) |
| Emergency medical technician | 10,053 | (1,138) | 8.6 | (0.8) |
| Other | 28,600 | (2,814) | 24.5 | (2.0) |
| Blank | 1,848 | (248) | 1.6 | (0.2) |

. . . Category not applicable.
[1]Total exceeds all visits because more than one provider may be reported per visit.

**Table 21. Number and percentage of emergency department visits with corresponding standard errors, by visit disposition: United States, 2007**

| Disposition | Number of visits in thousands[1] | (Standard error in thousands) | Percent of visits | (Standard error of percent) |
|---|---|---|---|---|
| All visits | 116,802 | (6,293) | . . . | . . . |
| Admitted, transferred, or died | | | | |
| Admitted to hospital | 14,641 | (1,033) | 12.5 | (0.6) |
| Stepdown or telemetry unit | 2,895 | (308) | 2.5 | (0.2) |
| Critical care unit[2] | 1,689 | (154) | 1.4 | (0.1) |
| Operating room | 649 | (71) | 0.6 | (0.1) |
| Mental health or detoxification unit | 581 | (80) | 0.5 | (0.1) |
| Cardiac catheterization lab | * | * | * | * |
| Other bed or unit | 7,184 | (579) | 6.2 | (0.4) |
| Unknown or blank | 1,551 | (244) | 1.3 | (0.2) |
| Admitted to observation unit | 2,453 | (354) | 2.1 | (0.3) |
| Transferred to different hospital | 2,147 | (222) | 1.8 | (0.2) |
| Died in emergency department | 139 | (29) | 0.1 | (0.0) |
| Outpatient follow-up | | | | |
| Return or refer to physician or clinic for follow-up | 72,108 | (4,050) | 61.7 | (1.3) |
| Return to emergency department as needed or by appointment | 41,332 | (3,079) | 35.4 | (1.8) |
| Refer to social services | 925 | (107) | 0.8 | (0.1) |
| No follow-up planned | 6,311 | (1,033) | 5.4 | (0.7) |
| Left or referred out from triage | | | | |
| Left before medical screening exam | 1,928 | (183) | 1.7 | (0.1) |
| Left against medical advice | 1,381 | (143) | 1.2 | (0.1) |
| Left after medical screening exam | 1,289 | (200) | 1.1 | (0.2) |
| Other | 639 | (113) | 0.5 | (0.1) |
| Blank | 1,396 | (300) | 1.2 | (0.3) |

. . . Category not applicable.
* Figure does not meet standards of reliability or precision.
0.0 Quantity more than zero, but less than 0.05.
[1]Total exceeds all visits because more than one disposition may be reported per visit.
[2]Critical care units include intensive care and coronary care units.

**Table 22. Number and percent distribution of emergency department visits resulting in hospital admission, with corresponding standard errors, by selected characteristics: United States, 2007**

| Selected characteristics | Number of visits in thousands | (Standard error in thousands) | Percent distribution | (Standard error of percent) | Mean length of stay in days[1] | (Standard error in days) | Admissions as percent of visits | (Standard error of percent) |
|---|---|---|---|---|---|---|---|---|
| All admissions | 14,641 | (1,033) | 100.0 | ... | 5.3 | (0.1) | 12.5 | (0.9) |
| Age | | | | | | | | |
| Under 15 years | 663 | (107) | 4.5 | (0.7) | 4.7 | (0.5) | 3.0 | (0.5) |
| 15–24 years | 838 | (94) | 5.7 | (0.5) | 4.5 | (0.5) | 4.4 | (0.5) |
| 25–44 years | 2,780 | (264) | 19.0 | (0.9) | 4.2 | (0.2) | 8.3 | (0.8) |
| 45–64 years | 4,164 | (309) | 28.4 | (0.8) | 5.2 | (0.2) | 17.0 | (1.3) |
| 65–74 years | 1,917 | (152) | 13.1 | (0.6) | 5.9 | (0.4) | 27.8 | (2.2) |
| 75 years and over | 4,279 | (334) | 29.2 | (1.0) | 6.2 | (0.2) | 40.3 | (3.1) |
| Residence | | | | | | | | |
| Private residence | 12,076 | (853) | 82.5 | (1.0) | 5.0 | (0.1) | 11.3 | (0.8) |
| Nursing home | 1,133 | (112) | 7.7 | (0.6) | 7.4 | (0.6) | 48.8 | (4.8) |
| Other institution | 200 | (35) | 1.4 | (0.2) | 6.8 | (1.1) | 18.6 | (3.3) |
| Other residence | 173 | (38) | 1.2 | (0.2) | 6.8 | (1.3) | 28.6 | (6.4) |
| Homeless | 63 | (17) | 0.4 | (0.1) | 6.0 | (1.4) | 11.6 | (3.2) |
| Unknown or blank | 996 | (152) | 6.8 | (0.8) | 5.7 | (0.5) | 17.1 | (2.6) |
| Expected sources of payment[2] | | | | | | | | |
| Private insurance | 5,914 | (472) | 40.4 | (1.9) | 4.9 | (0.2) | 13.0 | (1.0) |
| Uninsured[3] | 1,650 | (271) | 11.3 | (1.6) | 5.2 | (0.3) | 7.6 | (1.2) |
| Medicare | 6,327 | (496) | 43.2 | (1.4) | 6.0 | (0.1) | 31.4 | (2.5) |
| Medicaid or SCHIP[4] | 2,915 | (238) | 19.9 | (1.1) | 5.4 | (0.2) | 9.9 | (0.8) |
| Mode of arrival | | | | | | | | |
| Ambulance | 5,692 | (461) | 38.9 | (1.3) | 6.0 | (0.2) | 31.5 | (2.5) |
| Other | 8,949 | (646) | 61.1 | (1.3) | 4.9 | (0.1) | 9.1 | (0.7) |
| Triage category | | | | | | | | |
| Immediate or emergent[5] | 5,017 | (440) | 34.3 | (1.8) | 5.8 | (0.3) | 27.3 | (2.4) |
| Other | 9,624 | (732) | 65.7 | (1.8) | 5.1 | (0.1) | 9.8 | (0.7) |
| Patient seen in this emergency department within the last 72 hours | | | | | | | | |
| Yes | 639 | (76) | 4.4 | (0.4) | 6.0 | (0.6) | 14.3 | (1.7) |
| No, unknown, or blank | 14,003 | (995) | 95.6 | (0.4) | 5.3 | (0.1) | 12.5 | (0.9) |
| Patient discharged from any hospital within the last 7 days | | | | | | | | |
| Yes | 894 | (102) | 6.1 | (0.6) | 6.5 | (0.5) | 33.1 | (3.8) |
| No, unknown, or blank | 13,747 | (977) | 93.9 | (0.6) | 5.2 | (0.1) | 12.0 | (0.9) |
| Length of stay | | | | | | | | |
| 1–2 days | 2,841 | (314) | 19.4 | (1.3) | ... | ... | ... | ... |
| 3–4 days | 4,440 | (349) | 30.3 | (1.2) | ... | ... | ... | ... |
| 5–6 days | 2,254 | (188) | 15.4 | (0.8) | ... | ... | ... | ... |
| 7–8 days | 1,397 | (140) | 9.5 | (0.7) | ... | ... | ... | ... |
| 9–10 days | 624 | (75) | 4.3 | (0.4) | ... | ... | ... | ... |
| More than 10 days | 1,040 | (111) | 7.1 | (0.6) | ... | ... | ... | ... |
| Unknown or blank | 2,045 | (362) | 14.0 | (2.3) | ... | ... | ... | ... |
| Hospital discharge status | | | | | | | | |
| Alive | 12,246 | (942) | 83.6 | (2.2) | 5.2 | (0.1) | ... | ... |
| Home or residence | 9,411 | (683) | 76.9 | (2.4) | 4.9 | (0.1) | ... | ... |
| Transferred to another hospital | 904 | (107) | 7.4 | (0.8) | 7.1 | (0.5) | ... | ... |
| Other | 629 | (80) | 5.1 | (0.6) | 8.1 | (1.1) | ... | ... |
| Unknown or blank | 1,301 | (392) | 10.6 | (2.8) | 4.0 | (0.5) | | |
| Died | 333 | (47) | 2.3 | (0.3) | 8.0 | (0.8) | ... | ... |
| Unknown or blank | 2,063 | (348) | 14.1 | (2.2) | 5.3 | (0.5) | ... | ... |

... Category not applicable.

[1]Denominator for length of stay is 12,596,000 visits where this variable was known. Length of stay was unknown in 14.0 percent of visits resulting in admission.

[2]Total exceeds "all admissions" because more than one source of payment may be reported. Workers' compensation, other, and unknown sources of payment are not included in this table, but account for 10.7 percent of expected sources of payment.

[3]No insurance is defined as having only self-pay, no charge, or charity as payment sources.

[4]SCHIP is the State Children's Health Insurance Program.

[5]Emergent is needing to be seen within 1–14 minutes.

NOTE: Numbers may not add to totals because of rounding.

**Table 23. Number and percent distribution of emergency department visits with corresponding standard errors, by the 20 leading principal hospital discharge diagnosis groups: United States, 2007**

| Principal diagnosis group and ICD–9–CM codes[1] | Number of visits in thousands | (Standard error in thousands) | Percent distribution | (Standard error of percent) |
|---|---|---|---|---|
| All visits | 14,641 | (1,033) | 100.0 | . . . |
| Heart disease, excluding ischemic .391–392.0,393–398,402,404,415–416,420–429 | 923 | (86) | 6.3 | (0.5) |
| Chest pain .786.5 | 829 | (128) | 5.7 | (0.7) |
| Pneumonia .480–486 | 507 | (61) | 3.5 | (0.4) |
| Cerebrovascular disease .430–438 | 446 | (59) | 3.0 | (0.3) |
| Ischemic heart disease .410–414.9 | 423 | (73) | 2.9 | (0.4) |
| Psychoses, excluding major depressive disorder .290–295,296.0–296.1,296.4–299 | 357 | (57) | 2.4 | (0.4) |
| Cellulitis and abscess .681–682 | 334 | (55) | 2.3 | (0.3) |
| Malignant neoplasms .140–208,230–234 | 269 | (45) | 1.8 | (0.3) |
| Fracture of the lower limb .820–829 | 244 | (36) | 1.7 | (0.2) |
| Syncope and collapse .780.2 | 223 | (41) | 1.5 | (0.2) |
| Diabetes mellitus .250 | 218 | (39) | 1.5 | (0.2) |
| Fractures, excluding lower limb .800–819 | 216 | (37) | 1.5 | (0.3) |
| Gastrointestinal hemorrhage .578 | 209 | (40) | 1.4 | (0.3) |
| Anemia .280–285 | 208 | (39) | 1.4 | (0.2) |
| Urinary tract infection, site not specified .599.0 | 203 | (40) | 1.4 | (0.3) |
| Noninfectious enteritis and colitis .555–558 | 195 | (37) | 1.3 | (0.2) |
| Complications of pregnancy, childbirth, and the puerperium .630–677 | 191 | (46) | 1.3 | (0.3) |
| Abdominal pain .789.0 | 186 | (33) | 1.3 | (0.2) |
| Disorder of gallbladder and biliary tract .574–576 | 186 | (43) | 1.3 | (0.3) |
| Asthma .493 | 158 | (30) | 1.1 | (0.2) |
| All other diagnoses[2] | 8,116 | (605) | 55.4 | (1.6) |

. . . Category not applicable.

[1]Based on the *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD–9–CM) (14). However, certain codes have been combined in this table to better describe the use of ambulatory care services.

[2]All other diagnoses includes blanks and the 16.7 percent of hospital discharges in which the discharge diagnosis was unknown.

NOTE: Numbers may not add to totals because of rounding.

# Technical Notes

## Data source

The NHAMCS data collection is authorized under Section 306 of the Public Health Service Act (Title 42 U.S. Code), 242k. Participation is voluntary. The U.S. Census Bureau was responsible for data collection. Data collected in NHAMCS are consistent with the Privacy Rule of the Health Insurance Portability and Accountability Act (HIPAA). No personally identifying information, such as patient's name, address, or Social Security number, is collected in NHAMCS. All information collected is held in the strictest confidence as referenced by law [Section 308(d) of the Public Health Service Act (42, U.S. Code, 242m (d))] and the Confidential Information Protection and Statistical Efficiency Act (Title 5 of PL 107–347). Approval for the NHAMCS protocol was renewed by the NCHS Research Ethics Review Board in February 2007. Waivers of the requirements to obtain informed consent of patients and patient authorization for release of patient medical record data by health care providers were granted.

The target universe of NHAMCS is in-person visits made in the United States to EDs and OPDs of nonfederal, short-stay hospitals (hospitals with an average stay of fewer than 30 days) and those whose specialty is general (medical or surgical) or children's general. EDs that operate 24 hours a day are considered within the scope of the ED component; EDs that operate fewer than 24 hours are included in the OPD component of NHAMCS.

## Data processing and coding

Data processing and medical coding were performed by SRA International, Inc., Durham, North Carolina. As part of the quality assurance procedure, a 10 percent quality control sample of ED survey records was independently keyed and coded, with an error rate of 0.8 percent.

New data definitions used in the 2007 report and verbatim medical data collected in the survey were coded as follows:

- *Pediatric versus general EDs*—An ED was classified as pediatric if its ESA type was coded as "pediatric" in the NHAMCS Hospital Induction Interview Form. All others including unknowns were classified as general. Since the sample size of children's hospital EDs was too small to permit reliable estimates, pediatric EDs were not further broken down by whether they were located in children's versus general hospitals.
- *Patient's reason for visit*—The patient's main complaint, symptom, or reason for visiting the ED was coded according to "A Reason for Visit Classification for Ambulatory Care" (RVC) (13). Up to three reasons could be coded per visit.
- *Temperature*—Recorded values were coded into febrile, normal, hypothermic, and missing bands. Normal temperature was between 35.0–38.0° C or 95.0–100.4° F. Temperatures greater than normal were febrile (http://www.nlm.nih.gov/medlineplus/ency/article/003090.htm). Temperatures less than normal were hypothermic (http://www.nlm.nih.gov/medlineplus/ency/article/000038.htm).
- *Injury, poisoning, or adverse effect of medical treatment*—Although there was a separate item on the PRF to indicate whether the visit was for an injury, poisoning, or adverse effect of medical treatment, sometimes an injury reason for visit was specified or an injury diagnosis recorded without the injury item being checked. Therefore, the visit was counted as an injury visit and the checkbox was coded to "yes" if any of the three reasons for visit were in the injury module, or any of the three diagnoses were in the injury or poisoning chapter of the International Classification of Diseases, 9th Revision, Clinical Modification (ICD–9–CM) or any external cause of injury was recorded. The injury intents and mechanisms in Table 13 are from the first-mentioned of three possible causes, based on the "Supplementary Classification of External Cause of Injury and Poisoning" in the ICD–9–CM (14). A detailed description of the cause of injury codes used to create the grouping in Table 13 can be found in the 2003 Advance Data report (15). The injury body sites in Table 14 are based on the Barell Injury Diagnosis Matrix (16) using ICD–9–CM codes. A detailed description of these codes can also be found in the 2003 Advance Data report (15). Three additional categories were added that were not in the Barell Injury Diagnosis Matrix to account for all injury-related visits: illness diagnoses, supplementary classification, and other adverse effects and medical complications.
- *Diagnosis*—Hospital staff was asked to record the primary diagnosis, and up to two additional diagnoses, associated with the patient's reason for the current visit. The text of the diagnoses was then coded according to the ICD–9–CM (14).
- *Medications including immunizations*—Hospital staff was instructed to record all new or continued medications ordered, supplied, or administered in the ED or prescribed at discharge. This included prescription and nonprescription preparations, immunizations, desensitizing agents, and anesthetics. In this survey, recorded medications are referred to as drug mentions and are coded according to a system developed at NCHS (17). As used in NHAMCS, the term "drug" is interchangeable with the term "medication." The term "prescribing" is used broadly to mean ordering or providing any medication, whether prescription or over-the-counter. Visits with one or more drug mentions are termed "drug visits" in NHAMCS. Medications, including immunizations, were coded using the Multum Lexicon, a proprietary drug classification system used by NCHS beginning with the 2006 ambulatory care reports. Therapeutic classification of drugs is based on the Multum Lexicon's second-level therapeutic categories,

including any drug mentions coded at third-level therapeutic categories (http://www.multum.com/Lexicon.htm). Drugs may have more than one therapeutic application. Although Multum allows up to five therapeutic categories per drug, in this report a maximum of four therapeutic categories for each drug is examined because the number of drugs with five therapeutic categories is small. Generic ingredients of drug mentions were coded according to the drug_id nomenclature included in Multum. Tetanus toxoid was coded as Multum drug_id d01168. Combinations containing both tetanus and diphtheria toxoids included diphtheria/tetanus (d05338), diphtheria/pertussis/tetanus (d03110), Pediarix (a10978), and diphtheria/haemophilus B/acellular pertussis/tetanus (a11631). No other possible diphtheria/tetanus combination in Multum had mentions in the 2007 ED database.

## Estimation

Because of the complex multistage design of NHAMCS, a sample weight is computed for each sampled visit that takes all stages of design into account. The survey data are inflated or weighted to produce unbiased national annual estimates. The visit weight includes four basic components: inflation by reciprocals of selection probabilities, adjustment for nonresponse, population ratio adjustments, and weight smoothing. Starting in 2004, changes were made to the nonresponse adjustment factor to account for the seasonality of the reporting period. Extra weights for nonresponding hospitals were shifted to responding hospitals in reporting periods within the same quarter of the year. The shift in nonresponse adjustment did not significantly affect any of the overall annual estimates. Detailed information on NHAMCS estimation can be found elsewhere (18).

The standard error is primarily a measure of the sampling variability that occurs by chance because only a sample rather than an entire universe is surveyed. Estimates of the sampling variability for this report were calculated using Taylor approximations in SUDAAN, which take into account the complex sample design of NHAMCS. A description of the software and its approach has been published (19). The standard errors of statistics presented in this report are included in each of the tables.

## Nonsampling errors

As in any survey, results are subject to both sampling and nonsampling errors. Nonsampling errors include reporting and processing errors as well as biases due to nonresponse and incomplete response. The magnitude of the nonsampling errors cannot be computed. However, these errors were kept to a minimum by procedures built into the operation of the survey. To eliminate ambiguities and to encourage uniform reporting, attention was given to the phrasing of items, terms, and definitions. Also, pretesting of most data items and survey procedures was performed. Quality control procedures and consistency and edit checks reduced errors in data coding and processing.

## Nonresponse rates and imputation

Item nonresponse rates in NHAMCS are generally low (5 percent or less). However, levels of nonresponse can vary considerably in the survey. Most nonresponse occurs when the needed information is not available in the medical record or is unknown to the person filling out the survey instrument. Nonresponse can also result when the information is available, but survey procedures are not followed and the item is left blank. In this report, some tables include a combined entry of unknown or blank to display missing data. For items with nonresponse greater than 50 percent, data are not presented. For items where combined item nonresponse is between 30 and 50 percent, percent distributions are not discussed in the text. However, the information is shown in the tables. These data should be interpreted with caution. If nonresponse is random, the observed distribution for the reported item (i.e., excluding cases for which the information is unknown) would be close to the true distribution. However, if nonresponse is not random, the observed distribution could vary significantly from the actual distribution. Researchers need to decide how best to treat items with high levels of missing responses.

Weighted item nonresponse rates (i.e., if the item was left blank or the unknown box was marked) were 5.0 percent or less for all data items with the following exceptions. Visit-level item nonresponse rates included discharge time (6.2 percent); time spent in the ED (6.7 percent); temperature (6.9 percent); mode of arrival (7.0 percent); expected source of payment (9.0 percent); respiratory rate (10.1 percent); pulse (10.5 percent); systolic blood pressure (13.3 percent); diastolic blood pressure (13.4 percent); episode of care (14.0 percent); length of hospital stay (14.0 percent of admissions); hospital discharge status (14.1 percent of admissions); time spent waiting to see a physician (14.4 percent); race (14.9 percent); hospital discharge diagnosis (16.7 percent of admissions); cause of injury (19.3 percent of injury visits); pain level (21.5 percent); seen in ED within last 72 hours (22.0 percent); time seen by physician (22.8 percent); oriented to time, place, and person (24.4 percent); ethnicity (24.9 percent); and pulse oximetry (25.7 percent).

ED-level item nonresponse rates included boarded outside of ED (5.2 percent), administrative placement of observation unit (7.9 percent), bed coordinator (6.9 percent), ambulance diversion managed on regional or hospital level (15.5 percent), elective surgery days per week (16.3 percent), plans to expand ED physical space in the next 2 years (18.0 percent), elective surgery during ambulance diversion (19.2 percent), and ambulance diversion in 2006 (23.3 percent).

Items with nonresponse rates between 30 and 50 percent included patient discharged from hospital within the last 7 days (41.6 percent) (Table 9), and number of times patient seen in the

ED in the last year (45.7 percent) (not shown). There were no items with nonresponse greater than 50 percent.

For some items, missing values were imputed by randomly assigning a value from a PRF with similar characteristics. Imputations were performed for the following variables: birth year (1.9 percent), sex (0.7 percent), immediacy (3.6 percent), race (14.9 percent), and ethnicity (24.9 percent). Weighted imputation rates are shown.

Imputation for birth year and sex was based on ED volume, geographic region, immediacy with which patient should be seen, and the three-digit ICD–9–CM code for primary diagnosis. Imputation for immediacy with which the patient should be seen was based on ED volume, geographic region, and three-digit ICD–9–CM code for primary diagnosis. (Note that only blank values were imputed for immediacy and imputation included the use of checkbox responses of ''unknown'' from donor files.)

A new method was used to impute race and ethnicity. Race and ethnicity assignments were based, where possible, on diagnosis and patient's locality (ZIP Code or state or county of residence). A hot deck approach (i.e., filling in missing values on incomplete records using values from similar but complete records of the same dataset) was employed rather than the previously used cold deck strategy (i.e., filling in missing values on incomplete records using values from similar but complete records of the dataset from the previous year), except in cases where a matching record could not be obtained from the current data. When race or ethnicity data could not be assigned using patient locality, the new method attempted to impute within the same facility wherever possible. Failing that, imputation was based on diagnosis, hospital, type of emergency service area, immediacy, and, as a last resort, on a randomly selected record. An internal NCHS evaluation study found that this approach was more likely to correctly identify patients' race and ethnicity than was the previous method. Further refinements to the imputation strategy are being studied for future use. Because of the high percentages of missing data for race and ethnicity in 2007, readers are advised to treat these data with caution. In the tables, both imputed and nonimputed race and ethnicity data are presented.

## Use of tables

The tables present only the first-listed reason for visit and first-listed diagnosis. It should be noted that estimates differing in ranked order may not be significantly different from each other. For items related to diagnostic and screening services, procedures, providers seen, and disposition, hospital staff was asked to check all of the applicable categories for each item. Therefore, multiple responses could be coded for each visit.

In this report, estimates are not presented if they are based on fewer than 30 cases in the sample data; only an asterisk (*) appears in the tables. The relative standard error (RSE) of an estimate is obtained by dividing the standard error by the estimate itself. The result is then expressed as a percentage of the estimate. Estimates based on 30 or more cases include an asterisk if the RSE of the estimate exceeds 30 percent.

In the tables, estimates of ED visits have been rounded to the nearest thousand. Consequently, estimates will not always add to totals. Rates and percentages were calculated from original unrounded figures and do not necessarily agree with figures calculated from rounded data.

## Population estimates

Several of the tables in this report present rates of ED visits per population. The population figures used in calculating these rates are based on Census Bureau monthly postcensal estimates of the civilian noninstitutional population of the United States as of July 1, 2007. These population estimates are based on postcensal estimates from the 2000 census and are available from the Census Bureau.

Denominators used in computing estimates of visit rates for nursing home residents are from the 2004 National Nursing Home Survey (20). Denominators for computing visit rates for homeless people are from a report by the U.S. Department of Housing and Urban Development (21). Estimates presented in the tables and figure for specific race categories reflect visits where only a single race was reported. Denominators used in computing estimates of visit rates by expected source of payment were obtained from the 2007 NHIS. Individuals reporting multiple insurance categories in NHIS were counted in each category they reported, except for Medicaid and SCHIP, which were combined into a single category.


**Figure I. 2007 Emergency Department Patient Record**

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