

National Hospital Ambulatory Medical Care Survey: 1999 Emergency Department Summary

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Abstract

Objectives—This report describes ambulatory care visits to hospital emergency departments (ED's) in the United States. Statistics are presented on selected hospital, patient, and visit characteristics. Highlights of trends in ED utilization from 1992 through 1999 are also presented.

Methods—The data presented in this report were collected from the 1999 National Hospital Ambulatory Medical Care Survey (NHAMCS). NHAMCS is part of the ambulatory care component of the National Health Care Survey that measures health care utilization across various types of providers. NHAMCS is a national probability survey of visits to hospital emergency and outpatient departments of non-Federal, short-stay, and general hospitals in the United States. Sample data are weighted to produce annual national estimates. Trends are based on NHAMCS data for 1992, 1993–94, 1995–96, 1997–98, and 1999.

Results—During 1999, an estimated 102.8 million visits were made to hospital ED's in the United States, about 37.8 visits per 100 persons. The volume of ED visits increased by 14 percent from 1992 through 1999, though no trend was observed in the overall population-based visit rates. There was a significant increase in the visit rate for black persons 75 years of age and over. In 1999, persons 75 years of age and over had the highest ED visit rate and 41.5 percent of these patients arrived by ambulance. There were an estimated 37.6 million injury-related ED visits during 1999, or 13.8 visits per 100 persons. Seventy-four percent of injury-related ED visits were made by persons under 45 years of age. Injury visit rates were higher for males than females in each age group under 45 years. The case mix of visits at ED's changed since 1992, with a greater percent of visits presenting with illness rather than injury conditions. Abdominal pain, chest pain, fever, and headache were the leading patient complaints accounting for one-fifth of all visits. Acute upper respiratory infection was the leading illness-related diagnosis at ED visits. Increases were observed in visits where no complete diagnosis could be made (16.2 percent of visits in 1999). Diagnostic and/or screening services were provided at 89.0 percent of visits, procedures were performed at 42.5 percent of visits, and medications were provided at 72.5 percent of visits. Pain relief drugs accounted for 31.1 percent of the medications mentioned. Trend data from 1992 indicated that the use of medications at ED visits increased. In 1999, approximately 13 percent of ED visits ended in hospital admission. Facility-level data indicated that there is variation among hospital ED's with respect to case mix, number of services provided, and case disposition distributions, especially the percent admitted to the hospital.

Keywords: NHAMCS • emergency department visits • diagnoses • injury • ICD-9-CM

Introduction

The National Hospital Ambulatory Medical Care Survey (NHAMCS) was inaugurated in 1992 to gather, analyze, and disseminate information about the health care provided by hospital emergency departments (ED's) and outpatient departments (OPD's). The NHAMCS is the part of the ambulatory component of the National Health Care Survey, a family of surveys that measures health care utilization across various types of providers.

Ambulatory medical care is the predominant method of providing health care services in the United States and occurs in a wide range of settings. The largest proportion of ambulatory care services occurs in physician offices (1). Since 1973, the National Center for Health Statistics (NCHS) has collected data on patient visits to physicians' offices through the National Ambulatory Medical Care Survey (NAMCS). However, visits to hospital ED's and OPD's that represent a significant segment of ambulatory care visits are not included in the NAMCS. Furthermore, hospital ambulatory patients are known to differ from office patients in their demographic characteristics and in medical aspects (1). In addition to evaluating and treating patients for acute medical problems and severe injuries, the ED has become a safety net for patients who lack access to primary health care.

Data from the 1998 National Health Interview Survey showed that approximately 20 percent of the noninstitutionalized civilian population made at least one visit to the ED and 7 percent made two visits or more (2). Persons with Medicaid were more likely to use the ED than patients with private insurance. Other reports have indicated that there is an unmet need for emergency services as hospitals are increasingly closing their ED's due to lower reimbursements, nursing shortages, and the burden impact of the 1986 Emergency Medical Treatment and Labor Act (EMTALA) (3–6). EMTALA requires ED's to screen and treat anyone with an emergency medical condition.

This report presents data from the 1999 NHAMCS, a nationally representative survey of total hospital ED utilization. Hospital, patient, and visit characteristics are described. In addition, NHAMCS trend data on ED utilization from 1992 through 1999 are presented here. Other *Advance Data* reports highlight visits to OPD's (7) and physician offices (8). More detailed information on ED trend data was published in a separate report (9).

Data Highlights

ED utilization

- From 1992 through 1999, ED utilization rose by 14 percent from 89.8 million to 102.8 million, resulting in a daily increase of 35,000 visits among ED's in the United States. Although there was no change in the visit rate per population since 1992 (35.7 per 100 persons in 1992 versus 37.8 per 100 persons in 1999), the volume per hospital increased because the number of hospitals with ED's did not increase.

Patient characteristics

- Persons 75 years of age and over had a higher ED visit rate than persons in five other age categories. Visit rates increased by 18 percent for persons 45–64 years and 65 years of age and over during 1992–99.
- The ED utilization rate for black persons was 71 percent higher than for white persons. From 1992 through

1999, the visit rate for black persons 65 years of age and over increased by 59 percent, whereas the visit rate for white persons in this age group did not change.

Expected source of payment

- Persons with Medicaid came to the ED at a higher rate (64.3 visits per 100 persons) than persons with some other form of insurance or persons without any health insurance coverage. Medicaid accounted for one-third of ED visits by children under 18 years of age even though Medicaid covered only one-fifth of the Nation's children in 1999.
- Private insurance was listed as the dominant expected source of payment at 38.9 percent of visits although payment source varied by patient age.

Mode of arrival and immediacy of care

- At nearly 14.6 million visits (14.2 percent), the patient arrived at the ED via ambulance. About 42 percent of persons 75 years of age and over arrived at the ED by ambulance. The leading diagnosis for this mode of arrival was contusions.
- ED visits were classified as emergent or urgent at 17.1 percent and 29.7 percent, respectively. About one-half of visits with a primary diagnosis of heart disease were considered emergent.

Chief complaints and diagnoses

- Stomach and abdominal pain, chest pain, and fever were the most commonly recorded principal reasons for visit.
- There were 37.6 million ED visits made for injury or poisoning—about 13.8 visits per 100 persons. Falls accounted for one-fifth of injury-related visits.
- Approximately 1.4 million visits were for medical misadventures, which represents a 77-percent increase since 1992.
- There was no trend in the overall injury-related visit rate from 1992 through 1999; however, injury visit rates declined for persons under 25 years of age.

- The most frequently reported primary diagnoses were open wounds, contusions, acute upper respiratory infections, and abdominal pain. Among children under 15 years of age, the percent of visits with a primary diagnosis of open wounds declined 32 percent during 1992–99.

Medications and other services

- Medications were used at 72.5 percent of all ED visits. Older patients were more likely to have four medications or more mentioned at ED visits. At about 19 percent of visits made by persons 65 years of age and over, four drugs or more were prescribed. Drug utilization was also positively associated with the immediacy with which the patient should be seen.
- The drug mention rate rose by 34 percent from 132 medications per 100 ED visits in 1992 to 157 in 1999. The percent of visits using treatments with cardiovascular drugs, drugs used for pain relief, and central nervous system medications increased.
- One in ten ED visits had no diagnostic or screening services performed. Use of services was positively related to patient age and severity of condition.
- Procedures were performed at 43 percent of visits. About 58 percent of patients who arrived by ambulance had one or more procedures performed.

Wait time and disposition

- On average, patients waited 48.9 minutes to see a physician, but average waiting time varied by type of location (metropolitan statistical area (MSA) or non-MSA) and size of ED.
- About 12.9 percent of ED visits resulted in hospital admission; however, among visits with a primary diagnosis of heart disease, 60.6 percent were admitted. About 1 in 10 admissions were to a critical care unit.
- Aggregating visit data for sampled hospitals revealed much variation among hospitals in disposition, especially for percent of visits resulting in hospital admission and percent released without any follow-up planned.

Methods

The data presented in this report are from the 1999 NHAMCS, a national probability sample survey conducted by the Division of Health Care Statistics of the National Center for Health Statistics, Centers for Disease Control and Prevention. The survey was conducted from December 21, 1998, through December 19, 1999.

The target universe of the NHAMCS is in-person visits made in the United States to ED's and OPD's of non-Federal, short-stay hospitals (hospitals with an average stay of less than 30 days) or those whose specialty is general (medical or surgical) or children's general. The sampling frame consisted of hospitals listed in the April 1991 SMG Hospital Database. The data presented in this report are representative of 1999 utilization statistics for hospitals existent in 1991.

A four-stage probability sample design is used in the NHAMCS (10). The design involves samples of primary sampling units (PSU's), hospitals within PSU's, ED's within hospitals and/or clinics within outpatient departments, and patient visits within ED's and/or clinics. The PSU sample consists of 112 PSU's that comprise a probability subsample of the PSU's used in the 1985–94 National Health Interview Survey. The sample for 1999 consisted of 489 hospitals. Of this group, 404 hospitals had ED's and 376 of these participated in the survey, resulting in a hospital ED participation rate of 93 percent. Hospital staff were asked to complete Patient Record forms (see [figure I](#) in the [Technical notes](#)) for a systematic random sample of patient visits occurring during a randomly assigned 4-week reporting period. The number of Patient Record forms completed for ED's was 21,103.

Because the estimates presented in this report are based on a sample rather than on the entire universe of ED visits, they are subject to sampling variability. The [Technical notes](#) at the end of the report include an explanation of sampling errors with guidelines for judging the precision of the estimates. The standard errors reported here are calculated using Taylor approximations

in SUDAAN, which take into account the complex sample design of the NHAMCS (11).

The U.S. Bureau of the Census was responsible for data collection. Data processing operations and medical coding were performed by Analytical Sciences Inc., Durham, North Carolina. As part of the quality assurance procedure, a 10-percent quality control sample of survey records was independently keyed and coded. Coding error rates ranged between 0.1 and 1.2 percent for various survey items.

Several of the tables in this report present data on rates of ED visits. The population figures used in calculating these rates are U.S. Bureau of the Census estimates of the civilian noninstitutionalized population of the United States as of July 1, 1999, and have been adjusted for net underenumeration using the 1990 National Population Adjustment Matrix.

Trend data are presented from 1992, when the survey was initiated. Where possible, two years of data were combined to make point estimates more reliable. For details on the surveys conducted in other years, refer to the annual reports (12–18). Because the maximum number of medications recorded on the Patent Record form changed from five to six in 1995, the trend analysis was limited to the first five mentions per visit. Because there were no observed significant differences in the crude and age-adjusted utilization rates, only the crude rates are presented. The trend data presented here are highlighted from another report (9). Significance of trends was based on a weighted least-squares regression analysis at the .01 level of significance.

In order to provide facility-level estimates from the NHAMCS, visit data were aggregated by hospital to yield hospital estimates for various characteristics collected in 1999. A hospital weight was applied to make national annual estimates of hospital characteristics. Variation will be larger in hospital estimates than visit estimates because each sampled hospital provides sampled records for a randomly assigned 4-week reporting period rather than the entire year. Thus, hospital statistics are subject to seasonal

variation, which is not present in the visit statistics.

Results

While the population of the United States increased by 8 percent since 1992, the amount of ED utilization increased by 14 percent from 89.8 million to 102.8 million visits annually. However, the number of operating ED's, while varying over the last 8 years, had a net increase of only 1 percent from 5,707 in 1992 to 5,769 in 1999. This means that each ED is seeing more patients than in 1992. In fact, the operating ED's in non-Federal, short-stay hospitals in the United States accommodated 35,000 more visits each day in 1999 than in 1992. The percentage increase in ED visits for each period studied has been increasing. The average annual increase between 1992 and 1999 was about 2 percent, but in recent years the increase was closer to 5 percent.

Patient characteristics

There were an estimated 102.8 million ED visits in 1999, about 37.8 visits per 100 persons. Trend data from 1992 indicated that the overall visit rate did not change. ED visits by patient's age, sex, and race are shown in [table 1](#). Persons 75 years of age and over had a higher ED visit rate (62.8 visits per 100 persons) than persons in the other five age categories. There was no difference in rates by sex within the various age groups. The average age of patients seen in the ED increased by 8 percent from 33.0 years in 1992 to 35.7 years in 1999. The ED utilization rate for black persons was 71 percent higher than for white persons ([figure 1](#)). Significant differences were observed by race in all age groups except for persons 75 years of age and over. Age-specific visit rates increased about 18 percent for persons 45–64 years and 65 years of age and over. But this was mainly driven by an increase in visits by black persons rather than white persons ([figure 2](#)).

Hospital characteristics

Ownership—About 74 percent of ED visits were made to voluntary

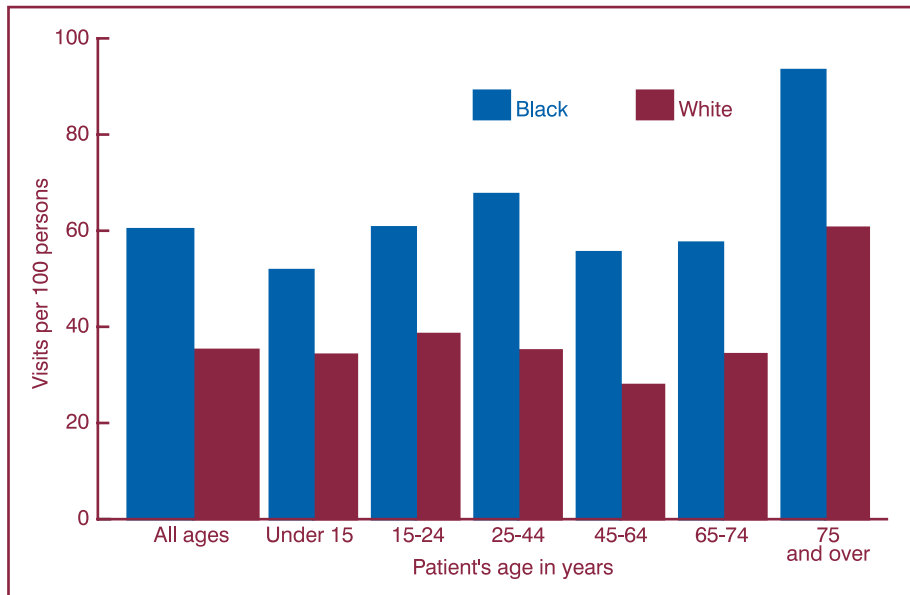


Figure 1. Annual rate of emergency department visits by patient's age and race: United States, 1999

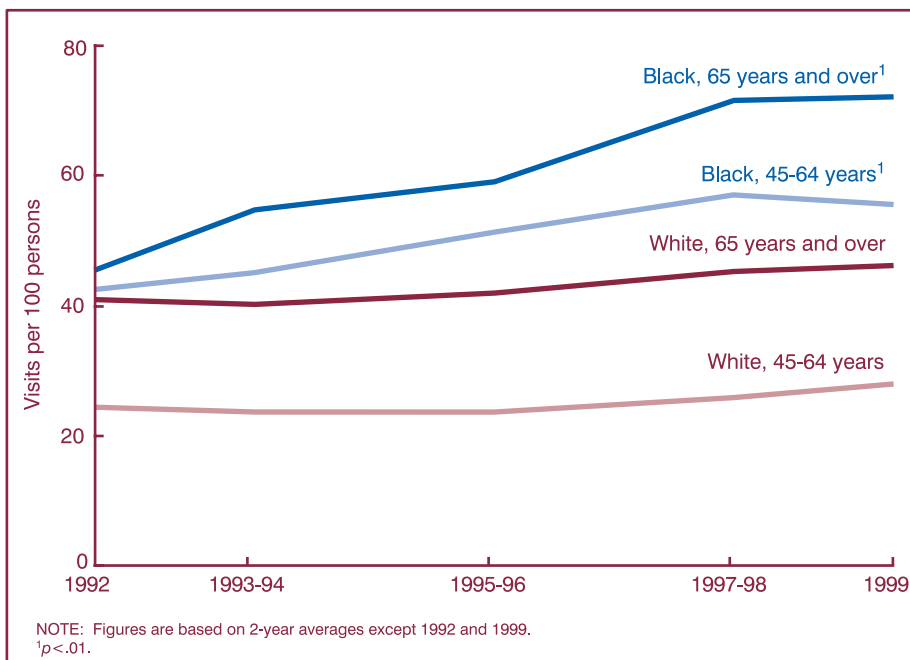


Figure 2. Trends in age-specific emergency department visit rates for persons 45 years of age and over by race: United States, 1992-99

nonprofit hospitals (table 1). The percent of visits made to non-Federal government (i.e., State, county, city) and proprietary hospitals were 18.1 percent and 7.7 percent, respectively.

Geographic region—There were no significant differences in visit rates by geographic region; however, the overall distribution of visits indicated a higher proportion of ED visits in the South (37.9 percent) than in the three

other regions (table 1). The percent of visits in the Midwest (26.1 percent) was greater than in the West and the Northeast.

Hospital size—Hospitals in urban areas tend to have a larger volume of visits than those found in rural areas. Slightly over one-half of all hospital ED's are located in MSA's, but they host 75.7 percent of the annual emergency encounters. The majority of

hospitals have fewer than 20,000 visits annually, but the largest 10 percent of hospitals serve 27.8 percent of the annual emergency encounters.

Visit characteristics

Mode of arrival—At nearly 14.6 million visits (14.2 percent), the patient arrived at the ED by ambulance (either ground or air). Over three-fourths of ED visits were made by patients who arrived at the ED by walking in, and 1.5 percent of arrivals were by public service (e.g., police, social services) (table 2). For 6.8 percent of visits, this item was recorded as unknown or left blank. About 35 percent of visits with ambulance recorded as the mode of arrival were made by persons 65 years of age and over (figure 3), and the proportion of visits made by patients who arrived by ambulance increased with age with 41.5 percent of persons 75 years of age arriving by this means.

Primary expected source of payment—Private insurance was listed as the dominant expected source of payment, occurring for 38.9 percent of ED visits (table 3). Medicaid (17.4 percent), self-payment (16.2 percent), and Medicare (15.0 percent) were also prominent. (Self-payment does not include patient copayments and deductibles.) About 3.0 percent of ED visits cited Worker's Compensation as the primary expected source of payment. Payment mechanism varied by patient age as shown in figure 4.

From 1992 through 1999, the change in case mix of patients from younger to older also altered the relative contribution of payment sources. The percent of ED visits with an expected source of payment of Medicaid declined by 23 percent while those with Medicare and self-pay rose by 14 percent and 20 percent, respectively.

Using 1999 Current Population Survey estimates of persons with various types of health insurance coverage in the denominator, comparisons of ED use rates can be made by expected source of payment (19). Persons with private health insurance comprised 71.0 percent of the population in 1999, but only 38.9 percent of ED visits had an expected source of payment as private

insurance. People with private insurance used the ED at a lower rate (20.5±1.1 visits per 100 persons) than persons with no insurance (40.4±2.2 visits per 100 persons) or Medicare (42.6±2.5 visits per 100 persons). The visit rate for Medicaid was higher than for other payment mechanisms (64.3±3.7 visits per 100 persons). In 1999, Medicaid provided health insurance to 10.2 percent of the population in the United States; however, Medicaid was the expected payment source for 17.4 percent of ED visits. Children under 18 years of age accounted for about one-half of the total Medicaid ED visits (46.5±2.0 percent). For children under 18 years of age, Medicaid accounted for one-third of the ED visits even though it covered one-fifth of the Nation's children in 1999.

Immediacy with which patient should be seen—The level of immediacy is assigned upon arrival at the ED by triage staff. The NHAMCS item categorized immediacy into four groups: Emergent (less than 15 minutes), urgent (15–60 minutes), semiurgent (between 1 and 2 hours), and nonurgent (between 2 and 24 hours). For 27.4 percent of ED visits, the hospital staff recorded this item as “unknown or no triage”; however, the demographic characteristics and the distribution by mode of arrival was similar to all visits. For more information on visits where “unknown or no triage” was recorded, see the [Technical notes](#).

As shown in [figure 5](#), 17.1 percent of ED visits were classified as emergent, 29.7 percent were urgent, 16.7 percent were semiurgent, and 9.0 percent were nonurgent. A further breakdown of these distributions by patient characteristics is presented in [table 4](#). Together, emergent and urgent visits accounted for 46.8 percent of all ED visits. As age increased, the rate of emergent visits rose while the rate of nonurgent visits declined ([figure 6](#)). There was no difference in emergent rates by gender or race.

Arrival time of visit—The volume of visits was fairly constant between 8 a.m. and midnight, with a peak occurring during the late afternoon and early evening hours (4 p.m. to 7:59 p.m.) ([figure 7](#)). Less than 7 percent

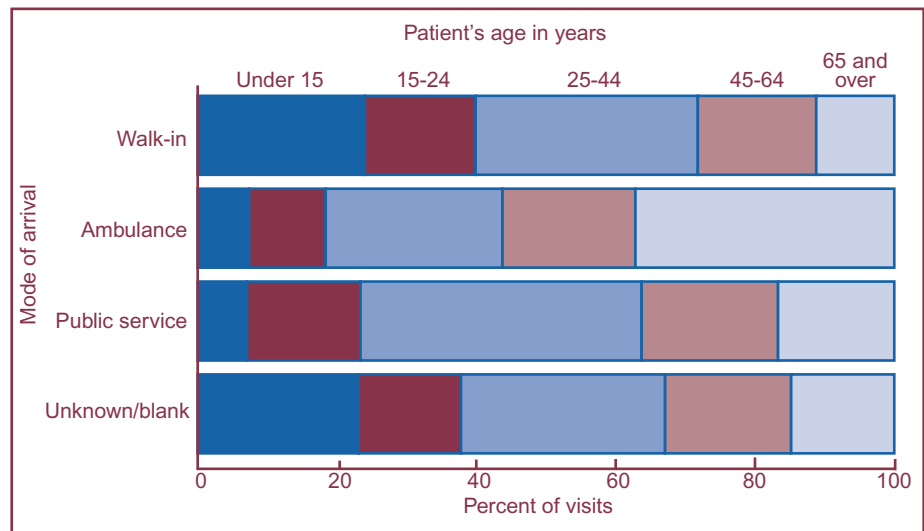


Figure 3. Percent distribution of emergency department visits by patient's age according to mode of arrival: United States, 1999

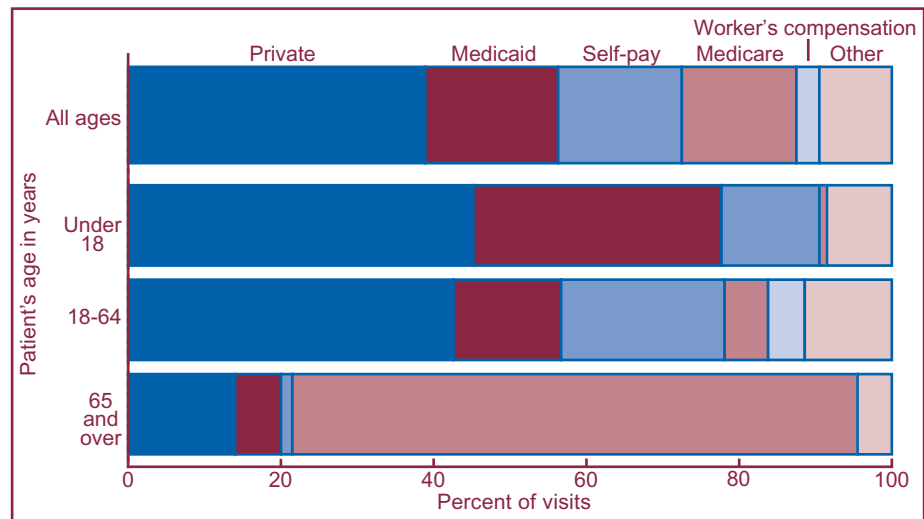


Figure 4. Percent distribution of emergency department visits by primary expected source of payment according to patient's age: United States, 1999

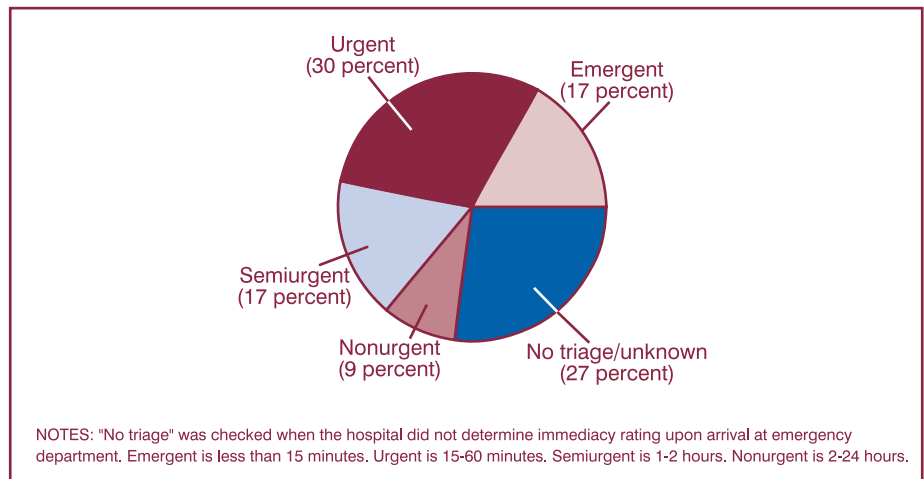


Figure 5. Percent distribution of emergency department visits by immediacy with which the patient should be seen: United States, 1999

NOTES: "No triage" was checked when the hospital did not determine immediacy rating upon arrival at emergency department. Emergent is less than 15 minutes. Urgent is 15-60 minutes. Semiurgent is 1-2 hours. Nonurgent is 2-24 hours.

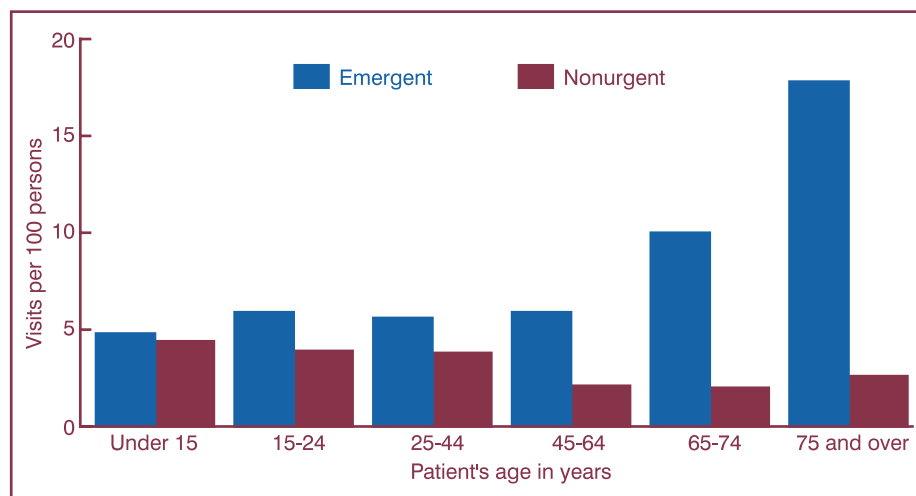


Figure 6. Annual rate of emergency department visits for emergent and nonurgent visits by patient's age: United States, 1999

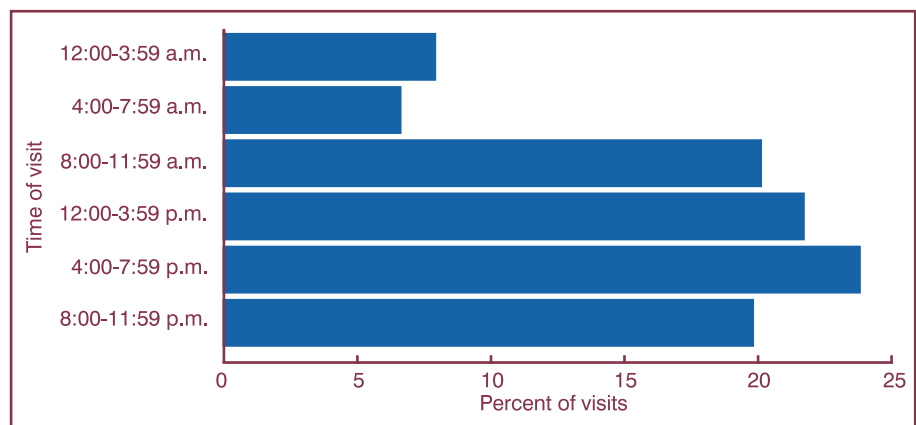


Figure 7. Percent distribution of emergency department visits by time of visit: United States, 1999

of the visits took place in the early morning hours (4 a.m. to 7:59 a.m.).

Waiting time to see the physician—On average, patients waited 48.9 ± 2.4 minutes to see a physician. As one might expect, waiting time and immediacy with which the patient should be seen by a physician are related. Patients with emergent conditions waited about 25.6 ± 2.3 minutes before seeing a physician. The waiting time for urgent, semiurgent, nonurgent, and unknown/no triage was 44.6 ± 1.9 , 58.7 ± 3.0 , 65.8 ± 4.6 , and 63.0 ± 9.5 minutes, respectively.

Patient's principal reason for visit—The principal reason is the complaint, symptom, or reason, which is the main reason why the patient came to the ED. Up to three reasons for visit were coded according to *A Reason for*

Visit Classification for Ambulatory Care (RVC) (20). The RVC is a classification scheme developed by NCHS, which has been used for over 20 years to code patient's complaints or reasons for seeking care. It is divided into eight modules or groups of reasons as shown in table 5 and includes all the reasons for which patients see their health care provider, including symptoms; follow-up for prior diagnoses; routine examinations and screening; treatment for conditions and operations; various therapies; and injuries. The symptoms module is further divided into symptoms that refer to specific body systems, such as respiratory or cardiovascular and lymphatic. Each reason is assigned a 3- or 4-digit classification code (for example, S260- "Abnormal pulsations and palpitations," is further detailed to

S260.1- "Increased heartbeat," S260.2- "Decreased heartbeat," and S260.3- "Irregular heartbeat.")

About 71 percent of ED visits were made for reasons classified in the symptom module with general symptoms, such as fever, fatigue, and pain, accounting for 15.8 percent of the total (table 5). Musculoskeletal symptoms accounted for 13.1 percent of visits, while digestive and respiratory symptoms were recorded at 12.6 and 11.5 percent of visits, respectively.

The 20 most frequently mentioned principal reasons for visit, representing almost one-half of all visits, are shown in table 6. Stomach and abdominal pain, cramps, and spasms were reported most frequently, accounting for 6.4 percent of all ED visits. Chest pain and fever accounted for 5.5 percent and 4.6 percent of visits, respectively. The percent of visits reported as emergent for patients whose principal reasons for visiting the ED were chest pain, stomach and abdominal pain, or fever was 38.7 percent, 14.1 percent, and 11.8 percent, respectively. Laceration and cuts of the upper extremity was the most frequently mentioned reason for visit in the injury module (2.4 percent). It should be noted that estimates differing in ranked order may not be significantly different from each other.

Because ED's are used primarily to treat acute medical problems and severe injuries, it is helpful to determine whether presenting cases are for illness or injury. Although there is a separate item on the Patient Record form to indicate whether the visit was for an injury or poisoning, sometimes an injury reason for visit is specified or an injury diagnosis is rendered, without the injury item being checked. Therefore, the injury checkbox is 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, Ninth Revision, Clinical Modification (ICD-9-CM)* (21). This provides a better indicator that the visit involves an injury than using the reason for visit module, ICD-9-CM injury diagnosis, or the unedited injury item alone. A more detailed discussion of this is

documented elsewhere (22). If the visit does not involve an injury, it is considered an illness visit.

When emergency encounters were classified as illness related, illness conditions and symptoms accounted for 63.4 percent of all ED visits. There was a linear trend by age in the percent of visits for illness starting with those 15 years of age and over (figure 8). Although illness visit rates increased from 21.0 to 24.0 visits per 100 persons from 1992 through 1999, there was no trend in overall injury visit rates (figure 9). Significant declines (16 percent) in injury visit rates were observed for persons under 25 years of age.

Injury-related visits—In 1999 injury- or poisoning-related visits represented 36.6 percent of all ED visits. Approximately 37.6 million ED visits were made for injury or poisoning, a rate of 13.8 visits per 100 persons (table 7). Seventy-four percent of all injury visits occurred among persons 44 years of age or under. Persons 15–24 years of age had a higher injury-related visit rate (18.3 visits per 100 persons) than persons in the other age groups except for those 75 years and over. Males had a higher injury-related visit rate than females overall and for all age groups under 45 years. The injury-related visit rate for black persons was higher than for white persons overall and among persons 25–64 years of age.

Table 8 displays data on injury-related ED visits by place of occurrence, whether the injury was intentional, and whether it was work related. Place of occurrence and whether the injury was work related had high levels of missing data (38.2 percent and 30.8 percent, respectively). Approximately 7 percent of injuries were intentional, implying that the injury was purposely inflicted. Of these, 71.1 percent were the result of an assault and 28.9 percent were self-inflicted. At least 17 percent of injury-related ED visits by persons 18–64 years of age were related to work. A work-related injury is defined as an injury that happened while the patient was engaged in work activities occurring on or off the employer's premises.

Table 9 shows ED visits by the intent and mechanism of the first-listed external cause of injury codes (E-codes).

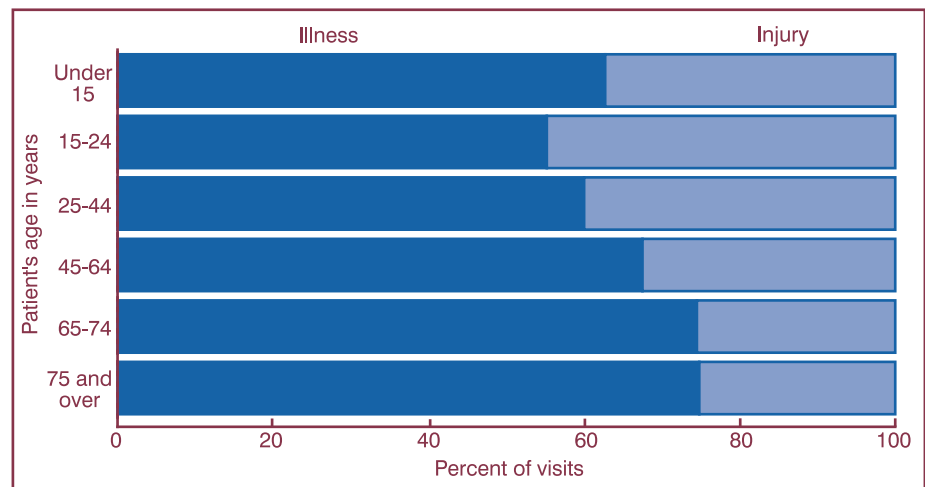


Figure 8. Percent distribution of emergency department visits by type of visit according to patient's age: United States, 1999

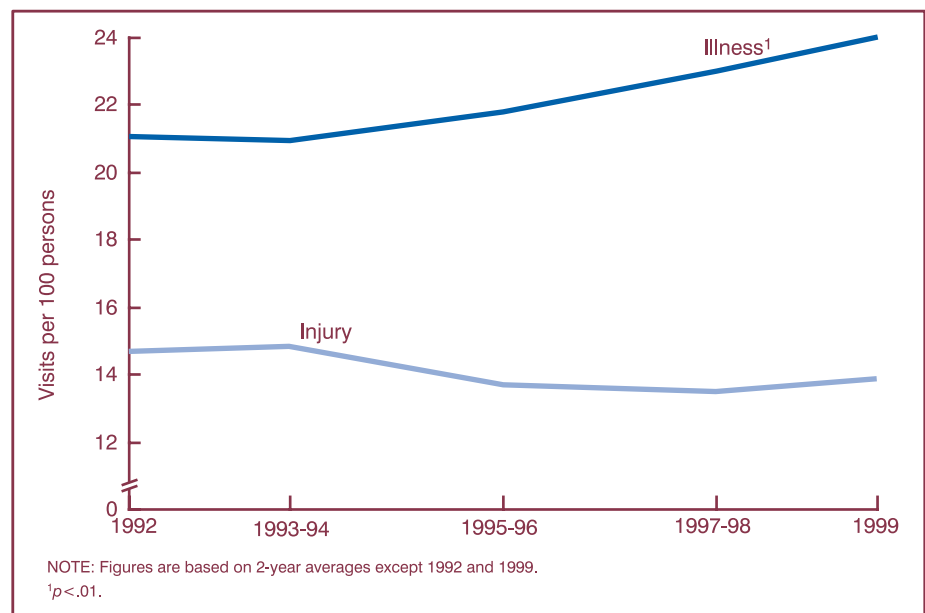


Figure 9. Trends in emergency department visit rates by illness or injury: United States, 1992-99

Up to three external causes of injury were coded according to the "Supplementary Classification of External Causes of Injury and Poisoning" in the ICD-9-CM (21). External cause was not provided for 11.0 percent of injury visits. About 80 percent of injury-related visits were due to an unintentional injury. The reader should keep in mind that the results regarding intentionality of the injury in table 9 will vary from those in table 8. In table 8 intentionality of the injury is based on responses to the checkbox item on the Patient Record form, rather than on the ICD-9-CM

groupings used in table 9. Discrepancies may arise in respondent interpretation of intent. For example, in some cases, hospital staff checked the "assault" category for dog bite injuries. However, dog bites are an unintentional injury based on the ICD-9-CM E-codes.

The unintentional injuries due to falls (20.0 percent), striking against or struck accidentally by objects or persons (11.3 percent), and motor vehicle traffic-related injuries (10.9 percent) accounted for the largest proportion of injury-related ED visits. About 4.1 percent of injury-related ED visits were due to assaults. An unarmed fight

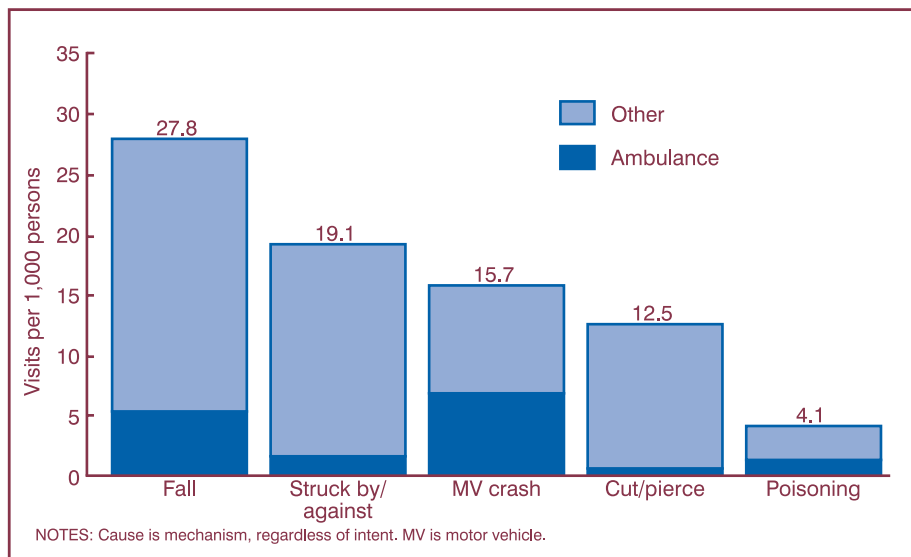


Figure 10. Annual rate of emergency department visits by mode of arrival and selected causes of injury: United States, 1999

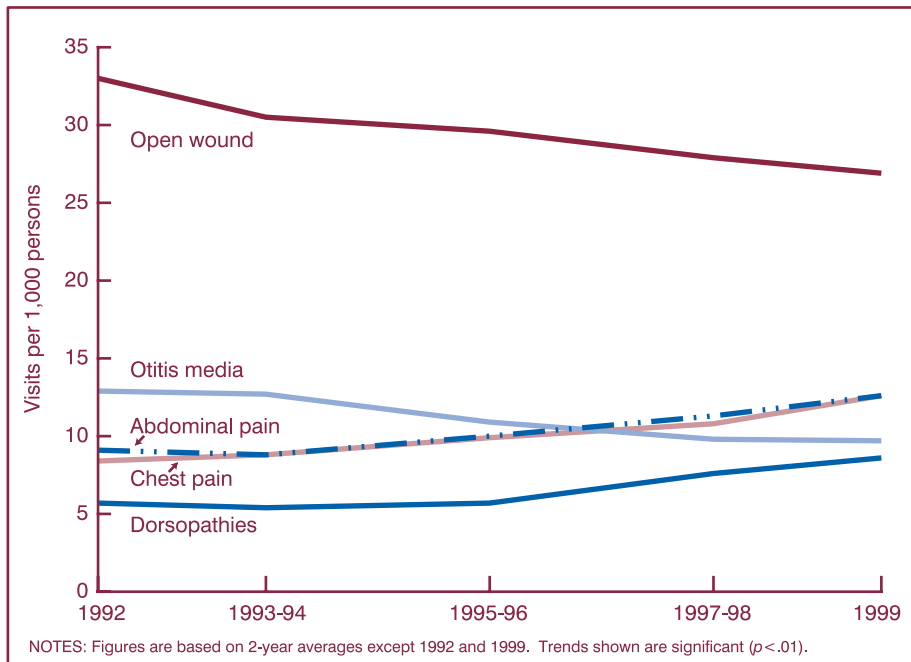


Figure 11. Trends in emergency department visit rates by selected primary diagnosis groups: United States, 1992–99

or brawl was the leading reason for assault-related injuries (2.5 percent). Self-inflicted injuries resulted in 429,000 ED visits (1.1 percent) with poisoning being the most frequent cause (0.9 percent).

Adverse effects of medical treatment or surgical procedures represented 3.7 percent of injury- or poisoning-related ED visits. There were approximately 1.4 million ED visits for adverse effects. This included adverse

drug reactions and complications from surgical and medical procedures. The percent of injury- or poisoning-related visits that were for adverse effects increased by 77 percent since 1992, but a larger increase was observed for persons 65 years of age and over.

Injuries represented 40.5 percent of the patients arriving by ambulance. Examination of the causes of the injuries and poisonings for patients presenting to the ED indicate that a

greater proportion of the visits for motor vehicle traffic crashes and poisonings have the patient arriving by ambulance compared with other causes. Figure 10 shows the visit rates for selected mechanisms causing injuries regardless of intent, by whether the patient arrived via ambulance or not.

Primary diagnosis—The Patient Record form contains an item on diagnosis where hospital staff were asked to record the primary diagnosis or problem associated with the patient's most important reason for the current visit as well as any other significant current diagnoses. Up to three diagnoses were coded according to the ICD-9-CM (21). Displayed in table 10 are ED visits by primary diagnosis using the major disease categories specified by the ICD-9-CM. Injury and poisoning diagnoses accounted for 29.3 percent of all visits; symptoms, signs, and ill-defined conditions and diseases of the respiratory system accounted for 16.2 percent and 12.9 percent, respectively. Some of the most frequently reported primary diagnoses for 1999 are shown in table 11. These categories are based on the ICD-9-CM. Open wounds and contusions lead the list (4.7 percent and 4.3 percent, respectively), followed by acute upper respiratory infections (3.7 percent) and abdominal pain (3.3 percent). Increasing trends from 1992 through 1999 were observed for all of the leading illness-related diagnoses (i.e., chest pain, abdominal pain, dorsopathies, and asthma) rendered at ED visits. Decreasing trends were found for open wounds and otitis media (figure 11).

For visits with a primary diagnosis of heart disease (including ischemic—ICD-9-CM codes 391–392.0, 393–398, 402, 404, 410–416, 420–429), 36.2 percent arrived by ambulance as did 27.9 percent for pneumonia (ICD-9-CM codes 480–486), 20.6 percent for chest pain (ICD-9-CM code 786.5), and 19.8 percent for fracture (ICD-9-CM codes 800–829). The visit rates by mode of arrival are shown in figure 12. For patients who arrived by ambulance, the five leading diagnoses were heart disease (including ischemic) (6.1 percent), contusions

(ICD-9-CM codes 920-924) (5.6 percent), chest pain (4.9 percent), sprains and strains of neck and back (ICD-9-CM codes 846-847) (4.2 percent), and other injuries (ICD-9-CM codes 830-839, 860-869, 900-909, 925-959) (4.1 percent). The five most frequent diagnoses at emergent visits were chest pain (7.5 percent), heart disease (7.0 percent), open wound (ICD-9-CM codes 870-897) (5.7 percent), fracture (3.7 percent), and contusions (3.7 percent). About one-half of visits with a primary diagnosis of heart disease (including ischemic) were considered emergent, as were 38.3 percent of the visits for chest pain. In contrast, about one-seventh of visits for contusion (14.7 percent) and open wound (13.7 percent) were considered emergent.

Diagnostic and screening services—Statistics on various diagnostic and screening services ordered or provided by hospital staff during an ED visit are displayed in table 12. As in previous years, the most frequently mentioned diagnostic service was blood pressure check, recorded at 74.4 percent of visits. Other frequently mentioned services included any imaging (39.6 percent), complete blood count (CBC) (25.3 percent), “other blood test” (22.7 percent), pulse oximetry (21.2 percent), chest x ray (16.7 percent), and urinalysis (16.2 percent). Note that for items related to diagnostic and screening services, procedures, providers seen, and disposition, hospital staff were asked to check all of the applicable categories for each item. Therefore multiple responses could be coded for each visit. Trend data from 1992 through 1999 showed an increase in the percent of visits involving CAT scans (from 2.4 percent to 4.7 percent) and mental status examinations (from 5.9 to 13.0 percent).

Eleven percent of ED visits had no diagnostic or screening services. About 52 percent of these visits were for children under 15 years of age, and 33.1 percent of visits were for persons ages 15-44 years. Immediacy of care was positively related to the number of diagnostic and screening services ordered or provided. Patients received

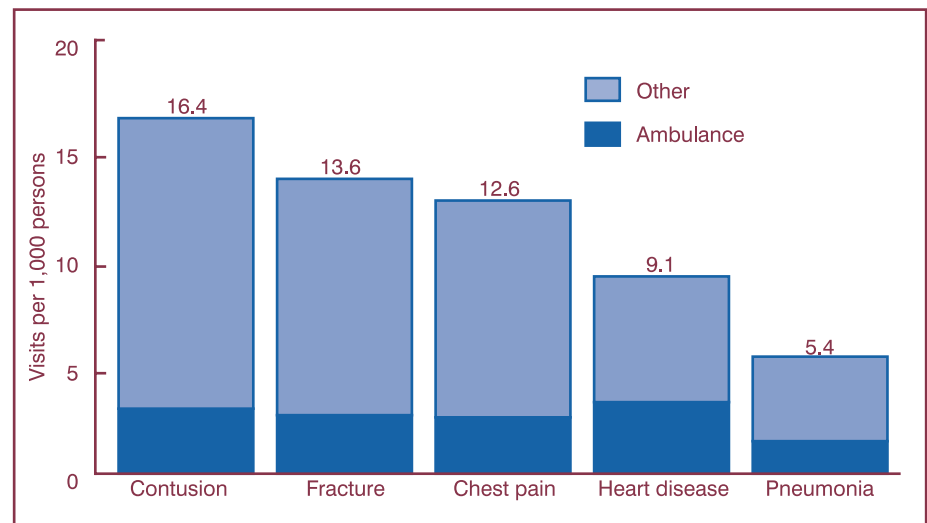


Figure 12. Annual rate of emergency department visits by mode of arrival and primary diagnosis: United States, 1999

four services or more at 28.2 percent of emergent visits, compared with just 4.5 percent of nonurgent visits.

Procedures—Procedures were provided at 42.5 percent of ED visits (table 13). For visits with procedures, 88.9 percent had only one procedure recorded. The most frequently mentioned procedures were the administration of intravenous fluids (18.3 percent), wound care (12.2 percent), and orthopedic care (7.1 percent). From 1992 through 1999, the use of intravenous fluids increased by 27 percent. Immediacy of care was positively related to the percent of visits with procedures. More than one-half (54.8 percent) of emergent visits included at least one procedure, compared with 37.1 percent of nonurgent visits. About 58 percent of patients who arrived by ambulance had one or more procedures.

Medication therapy—Hospital staff were instructed to record all new or continued medications ordered, supplied, or administered at the visit, including prescription and nonprescription preparations, immunizations, desensitizing agents, and anesthetics. Up to six medications, referred to in this survey as drug mentions, were coded per visit according to a classification system developed at NCHS. A report describing the method and instruments used to collect and process drug information is available (23). As used in

the NHAMCS, the term “drug” is interchangeable with the term “medication.” Visits with one or more drug mentions are termed “drug visits” in the NHAMCS.

There were 161.4 million drugs mentioned at ED visits during 1999. Medications were used at 72.5 percent of all ED visits (table 14). There was an average of 1.6 drug mentions per ED visit. For those visits where medications were mentioned, there was an average 2.2 drugs provided per visit. For the trend analysis, the number of drug mentions was limited to five, because the maximum number of medications on the Patient Record form changed from five to six in 1995. The number of drug mentions increased by 34 percent from 118.5 million in 1992 to 158.8 million in 1999. Correspondingly, the drug mention rate rose from 132 to 157 medications per 100 ED visits (figure 13).

Although the percent of visits with at least one medication did not differ significantly by age, the number of medications did. There was a linear trend by age in the percent of visits where four drugs or more were prescribed. Approximately 19 percent of visits made by persons 65 years and over cited four medications or more, compared with 4.0 percent of visits by those under age 15 years (table 15). Drug utilization was also positively associated with immediacy of care.

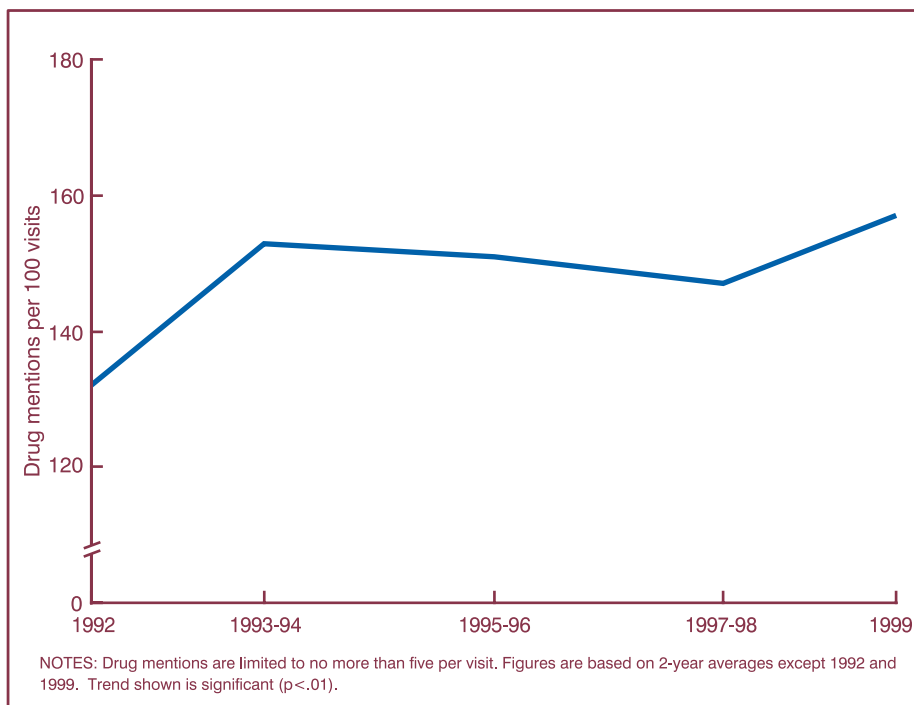


Figure 13. Trends in drug mention rates at emergency department visits: United States, 1992–99

About 17 percent of emergent visits mentioned four drugs or more compared with 7.5 percent of nonurgent visits. Of patients who arrived by ambulance, 15.8 percent had four medications or more prescribed and the patients were more likely to be elderly.

Drug mentions are shown by therapeutic class in figure 14. This classification is based on the therapeutic

categories used in the *National Drug Code Directory*, 1995 edition (NDC) (24). It should be noted that some drugs have more than one therapeutic application. In these cases, the drug was classified under its primary therapeutic use. Drugs used for pain relief were listed most frequently, accounting for about one-third of all drug mentions. The second and third

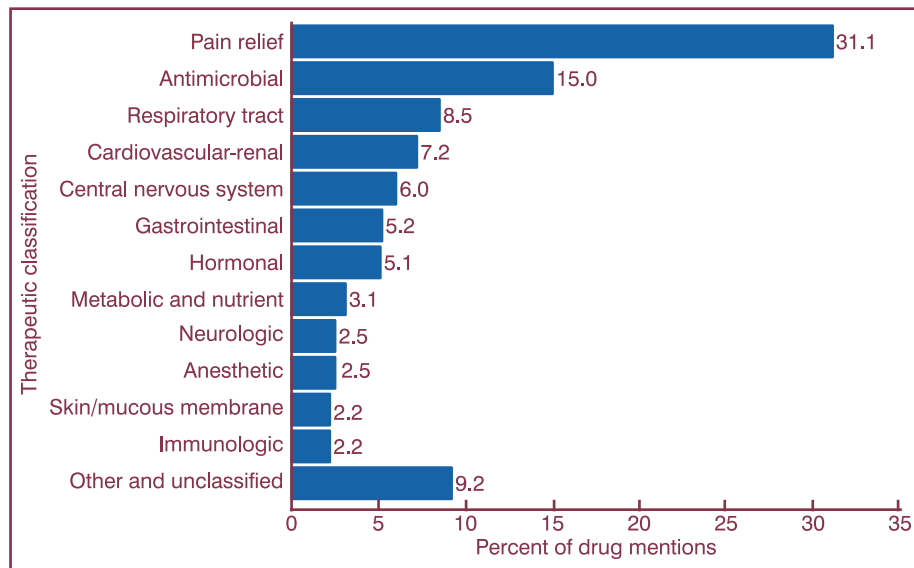


Figure 14. Percent distribution of drug mentions at emergency department visits by therapeutic classification: United States, 1999

most frequent drug classes were antimicrobial agents (15.0 percent) and respiratory tract drugs (8.5 percent). Increases were observed for several of the major therapeutic classes employed in the treatment for ED patients from 1992 through 1999. The percent of visits with mention of cardiovascular drugs, drugs used for the relief of pain, and central nervous system medications rose from 5.7 percent, 32.5 percent, and 6.1 percent, respectively in 1992 to 7.4 percent, 38.1 percent, and 8.0 percent, respectively in 1999. For children under 15 years of age, the percent of visits where an antimicrobial was prescribed declined from 32.9 percent in 1993–94 to 28.2 percent in 1999. Antimicrobials are no longer the most frequent therapeutic class of drugs administered at visits by children under 15 years of age. The percent of visits with prescriptions for pain relief drugs increased by 16 percent from 29.4 to 34.0 percent, making it the most frequent drug class used at ED visits for children in 1999, while prescriptions for respiratory drugs decreased by 16 percent (figure 15).

The 20 most frequently used generic substances for 1999 are shown in table 16. Drug products containing more than one ingredient (combination products) are included in the data for each ingredient. For example, acetaminophen with codeine is included in the count for acetaminophen and the count for codeine. The most frequently occurring generic substance in drugs mentioned at ED visits was acetaminophen, which was recorded in 13.8 percent of the drug mentions. Ibuprofen occurred in 6.9 percent of the drug mentions. Other frequent generic substances were hydrocodone (4.4 percent) and promethazine (3.2 percent).

The 20 most frequently mentioned medications are shown in table 17 according to the name written on the ED Patient Record form by hospital staff. This could be a brand name, generic name, or therapeutic effect. Tylenol, which is classified as a nonnarcotic analgesic, was the drug most frequently mentioned, accounting for 5.9 percent of all ED drug visits. Motrin, which is classified as a

nonsteroidal anti-inflammatory drug, was prescribed at 4.2 percent of ED drug visits. Other most frequent drug mentions were Phenergan (3.0 percent), Vicodin (2.9 percent), and Toradol (2.7 percent).

Providers seen—In this item, staff were asked to check all of the providers seen by the patient. Multiple responses could be coded per visit. A physician was seen at 94.0 percent of visits with a staff physician and registered nurse attending the patient at 88.4 percent and 87.7 percent of ED visits, respectively (table 18). A resident and/or intern was seen at 7.1 percent of visits. For 8.5 percent of visits, a physician other than a staff physician or a resident and/or intern was seen. For 1.4 percent of visits, the provider item was not checked.

A physician was not seen at 6.2 million ED visits (6.0 percent); patients received care from other health care providers. Care was provided by physician assistants at 27.5 percent of such visits, while 13.7 percent cited a nurse practitioner. In general, of the total number of ED visits at which care was provided by a physician assistant, 36.0 percent did not include a physician. Of all visits at which a nurse practitioner was listed, 54.9 percent were not attended by a physician. Trend data showed that the percent of cases where a physician was not seen rose by 68 percent and the percent of cases where a mid-level provider was seen rose by a similar percent (56 percent). The latter increase was primarily due to an increase in visits where a physician assistant was seen.

Visit disposition—Staff were asked to record all applicable dispositions and instructed that multiple responses could be coded for this item. About 47.3 percent of ED visits resulted in a referral to another physician or clinic (table 19). At 23.7 percent of visits, patients were told to return to the ED as needed or by appointment. Patients were told to return to the referring physician at 15.3 percent of visits.

About 12.9 percent of ED visits resulted in hospital admission. This included direct admissions to the intensive care unit, critical care unit, or coronary care unit, which occurred in about 1 in 10 admissions. As might be

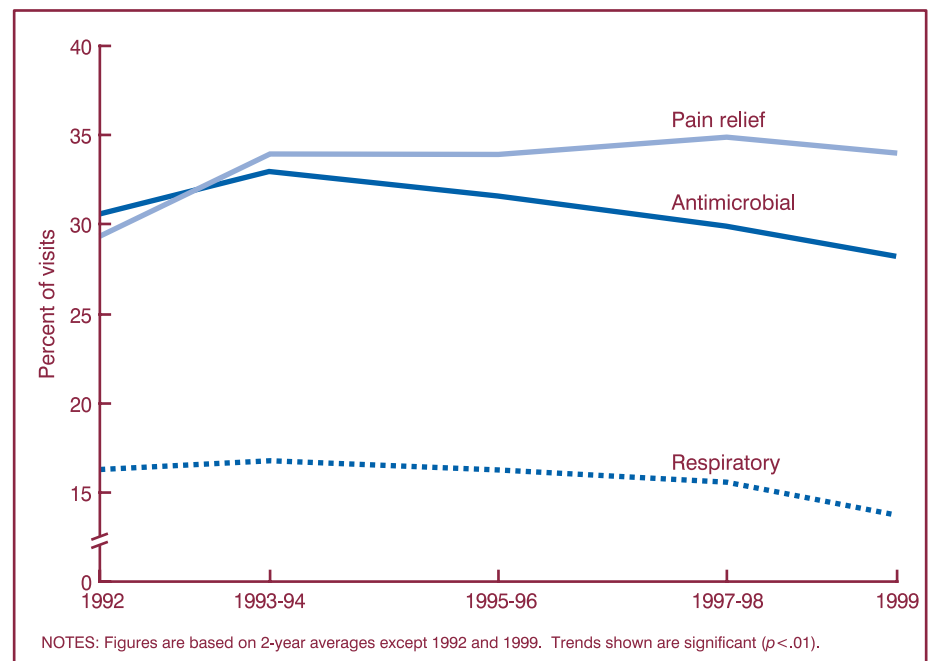


Figure 15. Trends in the percent of emergency department visits by children under 15 years of age with prescriptions for medications in leading therapeutic classes: United States, 1992-99

expected, in visits resulting in hospitalization, patients had higher numbers of diagnostic and screening services and procedures compared with patients at all other visits. The average age of patients whose visits resulted in hospitalization was 55.9 ± 0.7 years compared with 32.7 ± 0.4 years for patients who were not admitted to the hospital. Heart disease and chest pain were the primary diagnoses rendered most frequently at visits resulting in hospitalization. Together they accounted for 19.6 percent of such visits. Hospital admission varied by diagnosis. For example, 60.6 percent of heart disease (including ischemic) visits resulted in hospital admission, as did 49.0 percent for pneumonia and 31.9 percent for chest pain. Of patients who arrived by ambulance, 33.4 percent were admitted. As might be expected, immediacy is related to hospital admission. About 26 percent of emergent visits resulted in hospital admission, compared with only 3.4 percent of nonurgent visits.

Hospital admission is a critical indicator of the severity of the patient's condition. In 1999, data from the National Hospital Discharge Survey indicated that there were 32 million hospital inpatient stays (25). Using the

estimates from the NHAMCS for admitted cases, it appears that for over 40 percent of inpatient stays, patients are admitted through the ED. The percent of visits resulting in hospital admission declined from 13.5 in 1992 to 12.9 in 1999, but this difference was not significant at the .05 level. However, the percent of visits where the patient was treated and released from the ED with no follow-up planned increased by 51 percent, from 6.0 percent to 9.0 percent (figure 16).

Hospital variation

NHAMCS data can be used to make estimates of the variation in hospitals on patient and visit characteristics. Table 20 indicates the mean of selected visit characteristics based on aggregation of visit data by hospital. The 25th percentile, median, and 75th percentile are shown as indicators of the variability of estimates by hospital. Such data may be used by hospitals as benchmarks for how their utilization differs from others in the Nation. Of the characteristics studied, those showing the greatest variability include visit volume, presentations for adverse effects of medical treatment, percent admitted to the hospital, and

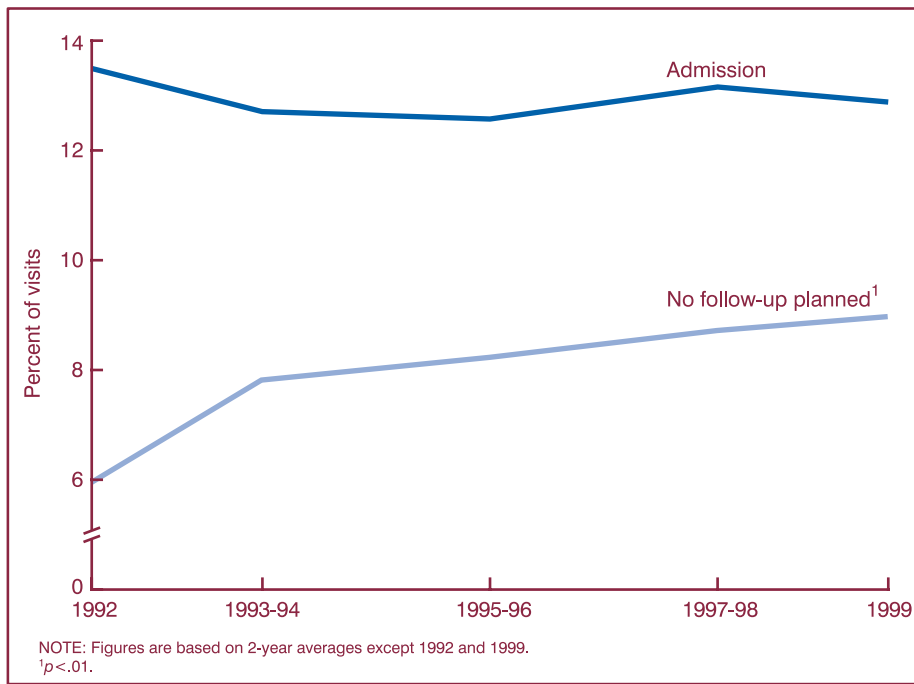


Figure 16. Trends in the percent of emergency department visits by disposition: United States, 1992–99

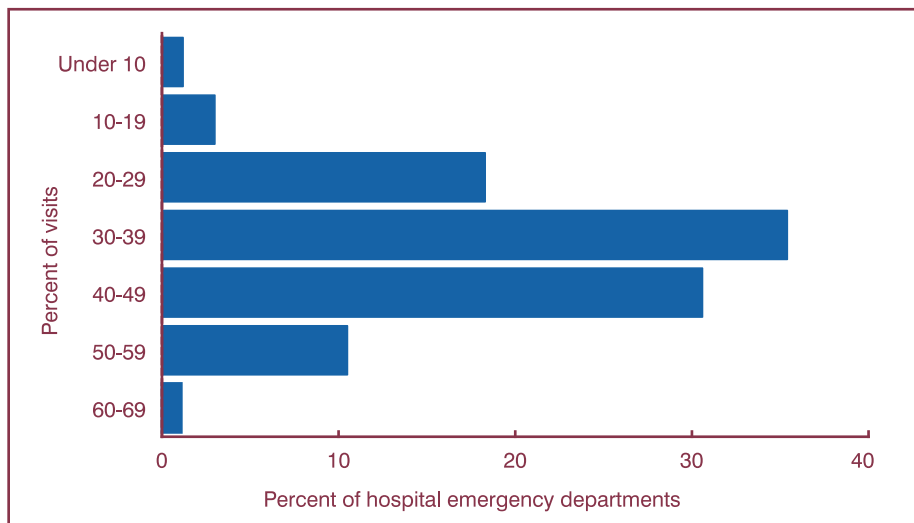


Figure 17. Distribution of hospital emergency departments on the percent of visits for injuries: United States, 1999

percent released with no follow-up planned. The distribution of hospitals is seldom normally distributed. For most of the variables studied, the distributions were positively skewed, with the estimates in most hospitals toward the lower range and a tail extending toward the upper range for a few hospitals. Figure 17 shows that the percent of visits in each hospital for injury was fairly normally distributed. The average of the hospital estimates is close to the

national estimate of percent of visits that are for injuries, even though the proportion of visits for injuries tends to increase during the warmer months (April–September). But this distribution is atypical of most estimates. Figure 18 shows that the average time waiting to see the physician is positively skewed with most hospitals having an average waiting time less than 45 minutes, but there are a few hospitals whose average

waiting time extends upwards to more than 90 minutes.

Hospital data were examined to try to explain the observed variation in mean waiting times with data available about hospital volume and staffing. A logistic regression modeling the likelihood that the mean waiting time in hospitals was greater than 45 minutes found that 29 percent of the variation in having a mean waiting time of greater than 45 minutes was explained by MSA status, size of ED, geographic region, ownership, teaching status, medical school affiliation, use of mid-level providers, the percent of visits in the hospital with patients arriving by ambulance, and percent with no triage performed ($X^2=105.3$, $df=13$, $p<.001$). MSA status and ED size were the strongest predictors. The odds that a hospital’s mean waiting time was greater than 45 minutes (after adjusting for the aforementioned variables) was 4.3 times greater in MSA locations compared with non-MSA locations (95-percent confidence interval: 1.6, 11.3). Small ED’s (annual volume <20,000 visits) were less likely to have mean waiting times greater than 45 minutes (OR=0.18, 95-percent confidence interval: 0.07, 0.50). Visit statistics corroborate these findings; the mean waiting time for patients was 55.3 ± 3.0 minutes in MSA locations and 30.1 ± 2.3 minutes in non-MSA locations. The mean waiting time for patients in small ED’s was 31.1 ± 2.6 minutes and 60.1 ± 3.8 minutes in large ED’s (annual volume $\geq 50,000$ visits).

Additional information about ED utilization is available from the NCHS Ambulatory Health Care Web site: <http://www.cdc.gov/nchs/about/major/ahcd/ahcd1.htm>. Individual-year reports and public-use data files are available for download from the Web site. Data from the 1999 NHAMCS will also be available on a public-use data tape and CD-ROM. These and other products can be obtained by contacting the NCHS Ambulatory Care Statistics Branch at (301) 458–4600. Queries regarding NHAMCS data may be sent to NCHS via nchsquery@cdc.gov.

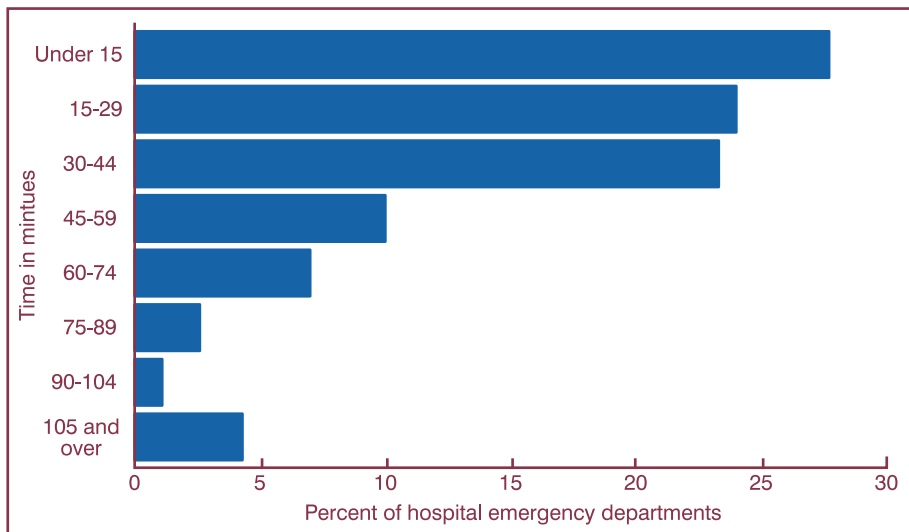


Figure 18. Distribution of hospital emergency departments on the average waiting time for the patient to see a physician: United States, 1999

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Table 1. Number, percent distribution, and annual rate of emergency department visits with corresponding standard errors, by selected patient and hospital characteristics: United States, 1999

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 ^{1,2}	Standard error of rate
All visits	102,765	4,493	100.0	...	37.8	1.7
Patient characteristics						
Age:						
Under 15 years	21,882	1,314	21.3	0.8	36.4	2.2
15–24 years	15,535	837	15.1	0.4	40.9	2.2
25–44 years	31,802	1,396	31.0	0.5	38.5	1.7
45–64 years	17,886	903	17.4	0.4	30.5	1.5
65–74 years	6,455	394	6.3	0.3	36.3	2.2
75 years and over	9,205	497	9.0	0.3	62.8	3.4
Sex and age:						
Female	54,219	2,394	52.8	0.5	38.9	1.7
Under 15 years	10,173	643	9.9	0.5	34.6	2.2
15–24 years	8,456	488	8.2	0.3	44.9	2.6
25–44 years	16,647	755	16.2	0.4	39.6	1.8
45–64 years	9,596	557	9.3	0.3	31.7	1.8
65–74 years	3,633	233	3.5	0.2	37.2	2.4
75 years and over	5,714	349	5.6	0.2	63.9	3.9
Male	48,546	2,207	47.2	0.5	36.6	1.7
Under 15 years	11,710	760	11.4	0.5	38.0	2.5
15–24 years	7,079	405	6.9	0.2	37.1	2.1
25–44 years	15,155	741	14.8	0.4	37.4	1.8
45–64 years	8,290	430	8.1	0.2	29.2	1.5
65–74 years	2,822	210	2.8	0.2	35.1	2.6
75 years and over	3,490	212	3.4	0.2	61.0	3.7
Race and age:						
White	78,581	3,991	76.5	1.2	35.2	1.8
Under 15 years	16,126	1,051	16.2	0.7	34.2	2.2
15–24 years	11,596	715	11.6	0.4	38.5	2.4
25–44 years	23,602	1,202	23.7	0.5	35.1	1.8
45–64 years	13,902	821	13.9	0.4	27.9	1.6
65–74 years	5,350	347	5.4	0.2	34.3	2.2
75 years and over	8,005	457	8.0	0.3	60.6	3.5
Black	21,119	1,190	20.6	1.1	60.3	3.4
Under 15 years	5,001	477	5.0	0.5	51.8	4.9
15–24 years	3,469	227	3.5	0.2	60.7	4.0
25–44 years	7,304	440	7.3	0.4	67.6	4.1
45–64 years	3,450	224	3.5	0.2	55.5	3.6
65–74 years	939	107	0.9	0.1	57.5	6.6
75 years and over	1,028	131	1.0	0.1	93.4	11.9
Asian/Native Hawaiian/Other Pacific Islander	2,052	328	2.0	0.3	18.8	3.0
American Indian/Alaska Native	*899	305	*0.9	0.3	*36.8	12.5
Hospital characteristics						
Ownership:						
Voluntary	76,348	4,436	74.3	2.6	28.1	1.6
Government	18,548	2,696	18.1	2.5	6.8	1.0
Proprietary	7,869	1,652	7.7	1.6	2.9	0.6
Geographic region:						
Northeast	19,446	1,676	18.9	1.6	37.0	3.2
Midwest	26,766	2,394	26.1	2.0	40.1	3.6
South	38,949	3,046	37.9	2.3	40.4	3.2
West	17,603	1,850	17.1	1.6	31.5	3.3
Metropolitan status:						
MSA ³	77,817	3,776	75.7	2.2	36.1	1.8
Non-MSA ³	24,948	2,601	24.3	2.2	44.5	4.6

... Category not applicable.

*Figure does not meet standard of reliability or precision.

¹Based on U.S. Bureau of the Census monthly postcensal estimates of the civilian noninstitutionalized population of the United States as of July 1, 1999. Figures are consistent with the downloadable series, "U.S. Population Estimates by Age, Sex, Race, and Hispanic Origin: 1980–99 (with short-term projection to dates in 2000)" available at the U.S. Bureau of the Census Internet site: http://ftp.census.gov/population/www/estimates/nat_90s_4.html. Figures have been adjusted for net underenumeration using the 1990 National Population Adjustment Matrix.

²Regional and metropolitan area estimates were provided by the Division of Health Interview Statistics (DHIS), NCHS, and are based on U.S. Bureau of the Census estimates of the civilian noninstitutionalized population as of July 1, 1999. DHIS estimates may differ slightly from monthly postcensal estimates because of differences in the adjustment process.

³MSA is metropolitan statistical area.

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

Table 2. Percent distribution of emergency department visits with corresponding standard errors, by patient's mode of arrival according to patient's age: United States, 1999

Patient's age	Number of visits in thousands	Patient's mode of arrival				
		Total	Walk-in	Ambulance	Public service	Unknown/blank
		Percent distribution				
All visits	102,765	100.0	77.6	14.2	1.5	6.8
Age						
Under 15 years	21,882	100.0	87.3	4.9	*0.5	7.3
15–24 years	15,535	100.0	81.5	10.3	1.7	6.6
25–44 years	31,802	100.0	80.0	11.6	2.0	6.4
45–64 years	17,886	100.0	75.7	15.5	1.7	7.0
65–74 years	6,455	100.0	68.3	24.5	*	6.1
75 years and over	9,205	100.0	49.5	41.5	2.1	6.9
		Standard error of percent				
All visits . . . . .	...	...	0.9	0.6	0.2	0.6
Age						
Under 15 years . . . . .	...	...	1.3	0.5	0.2	1.1
15–24 years . . . . .	...	...	1.0	0.7	0.3	0.8
25–44 years . . . . .	...	...	0.9	0.7	0.2	0.7
45–64 years . . . . .	...	...	1.1	0.8	0.3	0.8
65–74 years . . . . .	...	...	2.0	1.7	...	1.0
75 years and over . . . . .	...	...	1.7	1.4	0.6	0.9

... Category not applicable.

*Figure does not meet standard of reliability of precision.

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

Table 3. Number and percent distribution of emergency department visits with corresponding standard errors, by primary expected source of payment: United States, 1999

Visit characteristics	Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent
All visits	102,765	4,493	100.0	...
Primary expected source of payment				
Private insurance	39,938	2,064	38.9	0.9
Medicaid	17,923	1,041	17.4	0.7
Self-pay	16,649	921	16.2	0.6
Medicare	15,373	891	15.0	0.5
Workers compensation	3,079	239	3.0	0.2
No charge	*547	290	*0.5	0.3
Other	3,328	426	3.2	0.4
Unknown and/or blank	5,926	700	5.8	0.6

... Category not applicable.

*Figure does not meet standard of reliability or precision.

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

Table 4. Percent distribution of emergency department visits with corresponding standard errors, by immediacy with which patient should be seen according to patient's age, sex, and race: United States, 1999

Patient's age, sex, and race	Number of visits in thousands	Immediacy with which patient should be seen					
		Total	Emergent ¹	Urgent ²	Semi-urgent ³	Non-urgent ⁴	Unknown/no triage ⁵
		Percent distribution					
All visits	102,765	100.0	17.1	29.7	16.7	9.0	27.4
Age							
Under 15 years	21,882	100.0	13.3	28.1	19.2	12.1	27.3
15–24 years	15,535	100.0	14.5	30.4	17.8	9.6	27.8
25–44 years	31,802	100.0	14.5	31.3	16.9	9.8	27.5
45–64 years	17,886	100.0	19.2	29.1	17.0	7.0	27.7
65–74 years	6,455	100.0	27.4	30.1	12.1	5.6	24.8
75 years and over	9,205	100.0	28.4	27.9	11.2	4.1	28.4
Sex and age							
Female	54,219	100.0	16.8	30.8	17.1	8.8	26.6
Under 15 years	10,173	100.0	13.1	29.4	20.3	11.4	25.8
15–24 years	8,456	100.0	13.0	30.3	18.2	9.6	28.8
25–44 years	16,647	100.0	14.4	32.2	17.7	9.7	26.0
45–64 years	9,596	100.0	18.3	31.1	16.9	7.1	26.6
65–74 years	3,633	100.0	25.5	30.1	12.3	6.5	25.6
75 years and over	5,714	100.0	27.6	30.1	11.1	4.1	27.0
Male	48,546	100.0	17.6	28.5	16.3	9.2	28.4
Under 15 years	11,710	100.0	13.6	27.0	18.2	12.7	28.6
15–24 years	7,079	100.0	16.3	30.6	17.2	9.5	26.5
25–44 years	15,155	100.0	14.7	30.3	16.0	9.9	29.1
45–64 years	8,290	100.0	20.2	26.7	17.2	6.9	29.1
65–74 years	2,822	100.0	30.0	30.2	11.7	*	23.6
75 years and over	3,490	100.0	29.7	24.4	11.3	*	30.7
Race and age							
White	78,581	100.0	18.2	30.7	16.6	8.6	26.0
Under 15 years	16,126	100.0	13.9	30.0	19.4	11.3	25.4
15–24 years	11,596	100.0	14.2	31.3	17.7	9.4	27.5
25–44 years	23,602	100.0	15.4	32.9	16.8	9.8	25.1
45–64 years	13,902	100.0	20.8	29.1	16.6	6.7	26.7
65–74 years	5,350	100.0	28.7	29.6	12.4	5.4	23.9
75 years and over	8,005	100.0	28.8	28.3	11.1	3.8	28.0
Black	21,190	100.0	14.0	26.8	17.2	10.9	31.1
Under 15 years	5,001	100.0	11.8	23.2	16.9	14.6	33.6
15–24 years	3,469	100.0	14.7	28.2	19.1	11.0	27.0
25–44 years	7,304	100.0	12.5	26.9	17.3	10.4	33.0
45–64 years	3,450	100.0	14.2	30.1	18.6	8.5	28.6
65–74 years	939	100.0	23.3	31.4	*	*	26.7
75 years and over	1,028	100.0	24.9	23.3	12.9	*	32.7
Other	2,994	100.0	12.2	25.3	17.7	6.0	38.8
Standard error of percent							
All visits . . . . .	...	...	1.3	1.5	1.2	1.1	2.4
Age							
Under 15 years . . . . .	...	...	1.6	1.7	1.8	1.5	3.1
15–24 years . . . . .	...	...	1.4	2.0	1.7	1.2	2.6
25–44 years . . . . .	...	...	1.3	1.8	1.3	1.2	2.5
45–64 years . . . . .	...	...	1.4	1.7	1.5	1.1	2.5
65–74 years . . . . .	...	...	2.3	2.0	1.6	1.0	2.6
75 years and over . . . . .	...	...	2.3	1.8	1.3	0.7	3.0

Table 4. Percent distribution of emergency department visits with corresponding standard errors, by immediacy with which patient should be seen according to patient's age, sex, and race: United States, 1999—Continued

Patient's age, sex, and race	Number of visits in thousands	Immediacy with which patient should be seen					
		Total	Emergent ¹	Urgent ²	Semi-urgent ³	Non-urgent	Unknown/no triage ⁵
Standard error of percent							
Sex and age							
Female	1.4	1.6	1.3	1.1	2.4
Under 15 years	2.0	1.8	2.0	1.6	3.0
15–24 years	1.6	2.3	1.8	1.4	2.9
25–44 years	1.5	2.0	1.4	1.3	2.6
45–64 years	1.7	1.8	1.5	1.3	2.6
65–74 years	2.4	2.3	1.8	1.5	2.7
75 years and over	2.6	2.1	1.3	0.8	3.0
Male	1.3	1.6	1.3	1.1	2.5
Under 15 years	1.5	2.0	1.9	1.7	3.4
15–24 years	1.6	2.1	1.9	1.4	2.5
25–44 years	1.4	1.8	1.4	1.3	2.6
45–64 years	1.6	2.1	1.8	1.1	2.7
65–74 years	3.2	2.7	2.1	...	3.2
75 years and over	2.9	2.4	1.7	...	3.6
Race and age							
White	1.5	1.6	1.4	1.1	2.5
Under 15 years	1.6	1.9	2.0	1.5	3.0
15–24 years	1.7	2.1	1.9	1.3	2.9
25–44 years	1.5	2.0	1.4	1.3	2.6
45–64 years	1.7	1.9	1.6	1.2	2.6
65–74 years	2.5	2.1	1.8	1.1	2.7
75 years and over	2.4	1.8	1.4	0.7	3.0
Black	1.5	1.7	1.6	1.6	3.1
Under 15 years	3.2	2.4	2.2	2.9	4.8
15–24 years	1.9	2.7	2.4	1.7	3.1
25–44 years	1.4	2.3	1.9	1.6	3.6
45–64 years	2.0	2.1	2.0	1.9	3.1
65–74 years	4.2	4.3	...	...	4.5
75 years and over	4.7	3.9	2.3	...	6.0
Other	2.5	2.7	3.8	1.9	6.4

... Category not applicable.

*Figure does not meet standard of reliability of precision.

¹A visit in which the patient should be seen in less than 15 minutes.

²A visit in which the patient should be seen within 15–60 minutes.

³A visit in which the patient should be seen within 60–120 minutes.

⁴A visit in which the patient should be seen within 2–24 hours.

⁵A visit to an emergency department that normally does not determine the level of immediacy of need for care upon a patient's arrival.

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

Table 5. Number and percent distribution of emergency department visits with corresponding standard errors, by patient's principal reason for visit: United States, 1999

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	102,765	4,493	100.0	...
Symptom module S001–S999	72,527	3,371	70.6	0.6
General symptoms S001–S099	16,274	841	15.8	0.4
Symptoms referable to psychological/mental disorders S100–S199	1,892	151	1.8	0.1
Symptoms referable to the nervous system (excluding sense organs) S200–S259	6,094	330	5.9	0.2
Symptoms referable to the cardiovascular/lymphatic system S260–S299	839	84	0.8	0.1
Symptoms referable to the eyes and ears S300–S399	3,581	235	3.5	0.2
Symptoms referable to the respiratory system S400–S499	11,838	664	11.5	0.3
Symptoms referable to the digestive system S500–S639	12,934	676	12.6	0.3
Symptoms referable to the genitourinary system S640–S829	3,111	201	3.0	0.2
Symptoms referable to the skin, hair, and nails S830–S899	2,511	217	2.4	0.2
Symptoms referable to the musculoskeletal system S900–S999	13,456	723	13.1	0.4
Disease module D001–D999	4,151	306	4.0	0.3
Diagnostic/screening and preventive module X100–X599	706	83	0.7	0.1
Treatment module T100–T899	2,484	182	2.4	0.1
Injuries and adverse effects module J001–J999	21,717	992	21.1	0.5
Test results module R100–R700	254	47	0.3	0.0
Administrative module A100–A140	201	44	0.2	0.0
Other ² U990–U999	291	185	0.3	0.2

... Category not applicable.

0.0 Quantity more than zero but less than 0.05.

¹Based on *A Reason for Visit Classification for Ambulatory Care (RVC) (20)*.

²Includes problems and complaints not elsewhere classified, entries of "none," blanks, and illegible entries.

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

Table 6. Number and percent distribution of emergency department visits with corresponding standard errors, by the 20 principal reasons for visit most frequently mentioned by patients: United States, 1999

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	102,765	4,493	100.0	...
Stomach and abdominal pain, cramps, and spasms S545	6,610	368	6.4	0.2
Chest pain and related symptoms S050	5,608	339	5.5	0.2
Fever S010	4,678	362	4.6	0.3
Headache, pain in head S210	2,809	183	2.7	0.1
Cough S440	2,596	220	2.5	0.2
Shortness of breath S415	2,575	178	2.5	0.1
Laceration and cuts—upper extremity J225	2,462	162	2.4	0.1
Back symptoms S905	2,445	182	2.4	0.1
Vomiting S530	2,319	185	2.3	0.1
Pain, site not referable to a specified body system S055	2,058	162	2.0	0.1
Symptoms referable to throat S455	1,957	174	1.9	0.1
Accident, NOS ² J810	1,928	171	1.9	0.1
Earache or ear infection S355	1,707	133	1.7	0.1
Motor vehicle accident, type of injury unspecified J805	1,546	149	1.5	0.1
Labored or difficult breathing (dyspnea) S420	1,527	135	1.5	0.1
Laceration and cuts—facial area J210	1,328	112	1.3	0.1
Skin rash S860	1,309	138	1.3	0.1
Vertigo—dizziness S225	1,306	120	1.3	0.1
Injury, other and unspecified type—hand and finger(s) J570	1,278	116	1.2	0.1
Injury, other and unspecified type—head, neck, and face J505	1,277	104	1.2	0.1
All other reasons	53,443	2,367	52.0	0.5

... Category not applicable.

¹Based on *A Reason for Visit Classification for Ambulatory Care (RVC) (20)*.

²NOS is not otherwise specified.

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

Table 7. Number, percent distribution, and annual rate of injury-related emergency department visits with corresponding standard errors, by patient's age, sex, and race: United States, 1999

Patient's age, sex, and race	Number of visit 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	37,611	1,663	100.0	...	13.8	0.6
Age						
Under 15 years	8,160	476	21.7	0.9	13.6	0.8
15–24 years	6,962	413	18.5	0.7	18.3	1.1
25–44 years	12,725	636	33.8	0.8	15.4	0.8
45–64 years	5,805	299	15.4	0.5	9.9	0.5
65–74 years	1,643	154	4.4	0.3	9.2	0.9
75 years and over	2,317	169	6.2	0.4	15.8	1.2
Sex and age						
Female	17,176	831	45.7	0.7	12.3	0.6
Under 15 years	3,597	244	9.6	0.5	12.2	0.8
15–24 years	2,784	211	7.4	0.4	14.8	1.1
25–44 years	5,485	315	14.6	0.5	13.1	0.7
45–64 years	2,998	194	8.0	0.4	9.9	0.6
65–74 years	901	93	2.4	0.2	9.2	1.0
75 years and over	1,409	119	3.8	0.3	15.8	1.3
Male	20,435	914	54.3	0.7	15.4	0.7
Under 15 years	4,562	279	12.1	0.6	14.8	0.9
15–24 years	4,177	256	11.1	0.5	21.9	1.3
25–44 years	7,239	402	19.3	0.7	17.9	1.0
45–64 years	2,806	167	7.5	0.3	9.9	0.6
65–74 years	742	96	2.0	0.2	9.2	1.2
75 years and over	907	84	2.4	0.2	15.9	1.5
Race and age						
White	29,661	1,504	78.9	1.1	13.3	0.7
Under 15 years	6,396	401	17.6	0.8	13.6	0.9
15–24 years	5,465	365	15.0	0.6	18.1	1.2
25–44 years	9,823	554	27.0	0.8	14.6	0.8
45–64 years	4,625	274	12.7	0.5	9.3	0.5
65–74 years	1,344	132	3.7	0.3	8.6	0.8
75 years and over	2,007	157	5.5	0.4	15.2	1.2
Black	6,772	402	18.0	1.0	19.3	1.1
Under 15 years	1,508	171	4.1	0.5	15.6	1.8
15–24 years	1,238	101	3.4	0.3	21.7	1.8
25–44 years	2,537	176	7.0	0.5	23.5	1.6
45–64 years	976	78	2.7	0.2	15.7	1.3
65–74 years	231	46	0.6	0.1	14.2	2.8
75 years and over	281	58	0.8	0.2	25.6	5.2
Other	1,179	176	3.1	0.5	8.8	1.3

... Category not applicable.

¹Based on U.S. Bureau of the Census monthly postcensal estimates of the civilian noninstitutionalized population of the United States as of July 1, 1999. Figures are consistent with the downloadable series, "U.S. Population Estimates by Age, Sex, Race, and Hispanic Origin: 1980–99 (with short-term projection to dates in 2000)" available at the U.S. Bureau of the Census Internet site: http://ftp.census.gov/population/www/estimates/nat_90s_4.html. Figures have been adjusted for net underenumeration using the 1990 National Population Adjustment Matrix.

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 selected characteristics of the injury according to patient's age: United States, 1999

Selected characteristics of the injury	All ages		Under 18 years		18–64 years		65 years and over	
	Number of visits in thousands	Percent distribution	Number of visits in thousands	Percent distribution	Number of visits in thousands	Percent distribution	Number of visits in thousands	Percent distribution
All injury-related visits	37,611	100.0	10,232	100.0	23,419	100.0	3,960	100.0
Place of occurrence								
Residence	10,994	29.2	3,558	34.8	5,558	23.7	1,879	47.4
Street or highway	5,117	13.6	1,145	11.2	3,652	15.6	320	8.1
Industrial places	2,188	5.8	*	*	2,107	9.0	*	*
Recreation/sports area	1,941	5.2	933	9.1	955	4.1	*	*
Other public building	1,077	2.9	*	*	794	3.4	*	*
School	689	1.8	564	5.5	*	*	*	*
Other	1,228	3.3	217	2.1	935	4.0	*	*
Unknown	14,378	38.2	3,603	35.2	9,294	39.7	1,481	37.4
Intentionality								
Yes (self-inflicted)	706	1.9	*	*	605	2.6	*	*
Yes (assault)	1,735	4.6	317	3.1	1,369	5.8	*	*
No, unintentional	31,421	83.5	9,080	88.7	18,872	80.6	3,469	87.6
Unknown/blank	3,749	10.0	738	7.2	2,573	11.0	438	11.1
Work related								
Yes	4,178	11.1	*	*	4,030	17.2	*	*
No	21,837	58.1	7,566	73.9	11,779	50.3	2,492	62.9
Unknown/blank	11,596	30.8	2,572	25.1	7,610	32.5	1,414	35.7
Standard errors								
	Standard error in thousands	Standard error of percent	Standard error in thousands	Standard error of percent	Standard error in thousands	Standard error of percent	Standard error in thousands	Standard error of percent
All injury-related visits	1,663	...	576	...	1,092	...	273	...
Place of occurrence								
Residence	630	1.0	264	1.7	346	1.0	159	2.2
Street or highway	303	0.6	100	0.8	242	0.7	50	1.2
Industrial places	186	0.4	...	...	135	0.6	...	...
Recreation/sports area	193	0.4	100	0.8	182	0.5	...	...
Other public building	115	0.3	...	...	87	0.3	...	...
School	95	0.2	76	0.7	...	...	...	...
Other	106	0.3	39	0.4	93	0.4	...	...
Unknown	750	1.2	280	1.8	497	1.3	134	2.2
Intentionality								
Yes (self-inflicted)	99	0.2	...	...	93	0.4	...	...
Yes (assault)	130	0.3	47	0.4	110	0.4	...	...
No, unintentional	1,393	0.6	525	0.9	899	0.8	231	1.4
Unknown/blank	286	0.6	95	0.8	204	0.7	69	1.4
Work related								
Yes	273	0.6	...	...	269	0.8	...	...
No	1,089	1.0	474	1.5	628	1.1	195	2.2
Unknown/blank	618	1.1	198	1.5	420	1.1	129	2.2

... Category not applicable.

*Figure does not meet standard of reliability or precision.

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

Table 9. Number and percent distribution of injury-related emergency department visits with corresponding standard errors, by intent and mechanism of external cause: United States, 1999

Intent and mechanism ¹	Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent
All injury-related visits	37,611	1,663	100.0	...
Unintentional injuries	29,898	1,332	79.5	0.7
Falls	7,538	409	20.0	0.6
Struck against or struck accidentally by objects or persons	4,239	288	11.3	0.6
Motor vehicle traffic	4,081	246	10.9	0.5
Cutting or piercing instruments or objects	3,155	219	8.4	0.4
Overexertion and strenuous movements	1,813	132	4.8	0.3
Natural and environmental factors	1,682	151	4.5	0.3
Poisoning by drugs, medical substances, biologicals, other solid and liquid substances, gases, and vapors	735	71	2.0	0.2
Pedal cycle, nontraffic and other	590	78	1.6	0.2
Fire and flames, hot substance or object, caustic or corrosive material and steam	558	70	1.5	0.2
Machinery	430	62	1.1	0.2
Motor vehicle, nontraffic	360	48	1.0	0.1
Other transportation	187	38	0.5	0.1
Other mechanism ²	2,444	175	6.5	0.4
Mechanism unspecified	2,084	174	5.5	0.4
Intentional injuries	2,004	150	5.3	0.3
Assault	1,548	118	4.1	0.3
Unarmed fight or brawl, striking by blunt or thrown object	925	90	2.5	0.2
Cutting or piercing instrument	126	26	0.3	0.1
Other and unspecified mechanism ³	498	64	1.3	0.2
Self-inflicted	429	70	1.1	0.2
Poisoning by solid or liquid substances, gases, and vapors	323	61	0.9	0.2
Other and unspecified mechanism ⁴	*	...	*	...
Other causes of violence	*	...	*	...
Injuries of undetermined intent	169	33	0.4	0.1
Adverse effects of medical treatment	1,404	118	3.7	0.3
Blank cause ⁵	4,136	311	11.0	0.6

... Category not applicable.

*Figure does not meet standard of reliability or precision.

¹Based on the "Supplementary Classification of External Cause of Injury and Poisoning," *International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) (21)*. A detailed description of the ICD-9-CM E-codes used to create the groupings in this table is provided in the Technical notes.

²Includes drowning, suffocation, firearms, and other mechanism.

³Includes assault by firearms and explosives, and other mechanism.

⁴Includes injury by cutting and piercing instrument, and other and unspecified mechanism.

⁵Includes illegible entries 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 primary diagnosis: United States, 1999

Major disease category and ICD-9-CM code range ¹	Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent
All visits	102,765	4,493	100.0	. . .
Infectious and parasitic diseases 001-139	2,866	194	2.8	0.2
Neoplasms 140-239	346	63	0.3	0.1
Endocrine, nutritional and metabolic diseases, and immunity disorders 240-279	1,779	138	1.8	0.1
Mental disorders 290-319	2,903	215	2.9	0.2
Diseases of the nervous system and sense organs 320-389	5,863	388	5.8	0.2
Diseases of the circulatory system 390-459	4,397	273	4.4	0.2
Diseases of the respiratory system 460-519	12,991	765	12.9	0.4
Diseases of the digestive system 520-579	5,947	366	5.9	0.2
Diseases of the genitourinary system 580-629	4,372	249	4.3	0.2
Diseases of the skin and subcutaneous tissue 680-709	2,826	220	2.8	0.2
Diseases of the musculoskeletal system and connective tissue 710-739	5,578	359	5.5	0.2
Symptoms, signs, and ill-defined conditions 780-799	16,377	888	16.2	0.5
Injury and poisoning 800-999	29,586	1,322	29.3	0.6
Fracture 800-829	3,676	216	3.6	0.2
Sprains 840-848	6,290	354	6.1	0.2
Intracranial 850-854	281	47	0.3	0.0
Open wounds 870-897	7,296	405	7.1	0.3
Superficial 910-919	1,601	134	1.6	0.1
Contusion 920-924	4,458	234	4.3	0.2
Foreign bodies 930-939	635	78	0.6	0.1
Burns 940-949	574	75	0.6	0.1
Complications 958-959	1,587	134	1.5	0.1
Poisoning and toxic effects 960-989	953	102	0.9	0.1
Other injury	2,235	147	2.2	0.1
Supplementary classification V01-V82	3,865	238	3.8	0.2
All other diagnoses ²	1,732	127	1.7	0.1
Unknown ³	1,338	288	1.3	0.3

. . . . Category not applicable.

0.0 Quantity more than zero but less than 0.05.

¹Based on the *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD-9-CM) (21).²Includes diseases of the blood and blood-forming organs (280-289); complications of pregnancy, childbirth, and the puerperium (630-676); congenital anomalies (740-759); and certain disorders originating in the perinatal period (760-779).³Includes blank diagnoses, uncodable diagnoses, and illegible diagnoses.

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

Table 11. Number and percent distribution of emergency department visits with corresponding standard errors, by selected primary diagnosis groups: United States, 1999

Primary 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	102,765	4,493	100.0	...
Open wound, excluding head 874-897	4,799	301	4.7	0.2
Contusion with intact skin surface 920-924	4,458	234	4.3	0.2
Acute upper respiratory infection, excluding pharyngitis 460-461,463-466	3,806	278	3.7	0.2
Chest pain 786.5	3,431	214	3.3	0.2
Abdominal pain 789.0	3,429	228	3.3	0.2
Otitis media and eustachian tube disorders 381-382	2,648	253	2.6	0.2
Open wound of head 870-873	2,496	181	2.4	0.2
Sprains and strains of neck and back 846-847	2,492	182	2.4	0.1
Fractures, excluding lower limb 800-819	2,443	158	2.4	0.1
Sprains and strains, excluding ankle and back 840-844,845.1,848	2,390	149	2.3	0.1
Dorsopathies 720-724	2,332	179	2.3	0.1
Asthma 493	1,997	131	1.9	0.1
Chronic and unspecified bronchitis 490-491	1,826	159	1.8	0.1
Rheumatism, excluding lower back 725-729	1,786	159	1.7	0.1
Noninfectious enteritis and colitis 555-558	1,644	161	1.6	0.1
Superficial injury 910-919	1,601	134	1.6	0.1
Acute pharyngitis 462	1,595	198	1.6	0.2
Heart disease, excluding ischemic 391-392.0,393-398,402,404,415-416,420-429	1,523	138	1.5	0.1
Sprains and strains of ankle 845.0	1,483	148	1.4	0.1
Fracture of lower limb 820-829	1,234	103	1.2	0.1
All other diagnoses	53,355	2,343	51.9	0.5

... Category not applicable.

¹Based on the *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD-9-CM) (21). However, certain codes have been combined in this table to describe the utilization of ambulatory care services.

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

Table 12. Number and percent of emergency department visits with corresponding standard errors, by diagnostic and screening services ordered or provided: United States, 1999

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	102,765	4,493	...	...
Blood pressure	76,502	3,982	74.4	1.8
CBC ²	26,024	1,395	25.3	0.7
Other blood test	23,366	1,301	22.7	0.7
Pulse oximetry	21,825	2,006	21.2	1.6
Chest x ray	17,149	954	16.7	0.5
Urinalysis	16,599	871	16.2	0.4
EKG ³	15,249	914	14.8	0.5
Mental status exam	13,378	1,825	13.0	1.6
Other x ray	11,071	624	10.8	0.4
Extremity x ray	10,997	601	10.7	0.4
Cardiac monitor	8,340	595	8.1	0.5
CAT scan ⁴	4,837	307	4.7	0.2
Pregnancy test	2,801	208	2.7	0.2
Ultrasound	1,969	155	1.9	0.1
Blood alcohol concentration	1,563	161	1.5	0.1
Other diagnostic image	1,237	160	1.2	0.1
Other STD test ⁵	826	108	0.8	0.1
MRI imaging ⁶	264	46	0.3	0.0
HIV serology ⁷	192	37	0.2	0.0
Other test	9,292	1,366	9.0	1.2
None	11,263	895	11.0	0.8

... Category not applicable.

0.0 Quantity more than zero but less than 0.05.

¹Total exceeds total number of visits because more than one service may be reported per visit.

²CBC is complete blood count.

³EKG is electrocardiogram.

⁴CAT is computerized axial tomography.

⁵STD is sexually transmitted diseases.

⁶MRI is magnetic resonance imaging.

⁷HIV is human immunodeficiency virus.

Table 13. Number and percent of emergency department visits with corresponding standard errors, by selected procedures provided: United States, 1999

Procedures provided by hospital staff	Number of visits in thousands ¹	Standard error in thousands ¹	Percent of visits	Standard error of percent
All visits	102,765	4,493	...	...
IV fluids ²	18,830	1,049	18.3	0.7
Wound care	12,578	646	12.2	0.4
Orthopedic care	7,287	464	7.1	0.3
Eye/ENT care ³	3,229	441	3.1	0.4
Bladder catheter	1,986	157	1.9	0.1
OB/GYN care ⁴	1,957	187	1.9	0.2
NG tube/gastric lavage ⁵	508	71	0.5	0.1
Lumbar puncture	259	52	0.3	0.1
Endotracheal intubation	251	43	0.2	0.0
CPR ⁶	246	64	0.2	0.1
Other	2,116	170	2.1	0.1
None	59,066	2,927	57.5	0.9

... Category not applicable.

0.0 Quantity more than zero but less than 0.05.

¹Total exceeds total number of visits because more than one procedure may be reported per visit.

²IV is intravenous fluids.

³ENT is ear, nose, throat.

⁴OB/GYN is obstetrics/gynecology.

⁵NG is nasogastric.

⁶CPR is cardiopulmonary resuscitation.

Table 14. Number and percent distribution of emergency department visits with corresponding standard errors, by medication therapy and number of medications provided or prescribed: United States, 1999

Medication therapy	Number of visits in thousands ¹	Standard error in thousands	Percent distribution	Standard error of percent
All visits	102,765	4,493	100.0	...
Drug visits ²	74,527	3,725	72.5	1.1
Visits without mention of medication	28,238	1,465	27.5	1.1
Number of medications provided or prescribed				
All visits	102,765	4,493	100.0	...
0	28,238	1,465	27.5	1.1
1	29,830	1,478	29.0	0.6
2	22,158	1,130	21.6	0.5
3	11,517	707	11.2	0.4
4	5,320	394	5.2	0.3
5	2,788	281	2.7	0.2
6	2,914	366	2.8	0.3

... Category not applicable.

¹Includes prescription drugs, over-the-counter preparations, immunizations, and desensitizing agents.

²Visits at which one or more drugs were provided or prescribed.

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

Table 15. Annual rate of drug mentions and percent of visits with at least four medications provided or prescribed at emergency department visits with corresponding standard errors, by patient's age, sex, and race: United States, 1999

Patient's age, sex, and race	Number of drugs per 100 visits per year	Standard error of rate	Percent of visits with at least four drug mentions	Standard error of percent
All	157.1	4.1	10.7	0.7
Age				
Under 15 years	120.5	3.8	4.0	0.5
15–24 years	131.9	3.8	5.9	0.6
25–44 years	160.5	4.3	10.6	0.7
45–64 years	186.5	6.4	16.0	1.2
65 years and over	192.4	9.0	19.1	1.7
Sex and age				
Female	162.6	4.6	11.8	0.8
Under 15 years	119.8	4.8	3.8	0.7
15–24 years	138.2	4.6	7.3	0.9
25–44 years	163.9	4.9	11.4	0.9
45–64 years	193.9	8.4	17.2	1.7
65 years and over	196.7	9.4	19.7	1.8
Male	150.9	4.1	9.5	0.7
Under 15 years	121.1	4.4	4.1	0.6
15–24 years	124.4	4.3	4.3	0.6
25–44 years	156.9	4.6	9.8	0.8
45–64 years	177.9	6.3	14.5	1.3
65 years and over	186.1	10.6	18.3	2.0
Race and age				
White	158.2	4.6	10.7	0.8
Under 15 years	118.6	3.9	3.5	0.5
15–24 years	132.1	4.2	5.8	0.7
25–44 years	163.8	4.7	10.6	0.9
45–64 years	183.7	6.8	15.7	1.3
65 years and over	192.0	9.2	18.7	1.8
Black	155.1	4.9	10.9	0.8
Under 15 years	125.3	6.6	5.1	1.1
15–24 years	133.7	5.5	6.2	0.9
25–44 years	150.8	6.4	10.6	1.3
45–64 years	202.1	10.6	17.8	2.4
65 years and over	202.7	15.7	22.8	3.1
Other	142.8	10.1	9.7	1.8

Table 16. Number of generic substances and percent of drug mentions with corresponding standard errors for the 20 most frequently occurring generic substances in drug mentions at emergency department visits: United States, 1999

Generic substance	Number of occurrences in thousands ¹	Standard error in thousands	Percent of drug mentions ²	Standard error of percent
All generic substances	190,570	10,959	...	...
Acetaminophen	22,290	1,354	13.8	0.3
Ibuprofen	11,207	711	6.9	0.2
Hydrocodone	7,077	592	4.4	0.2
Promethazine	5,208	405	3.2	0.2
Amoxicillin	4,860	371	3.0	0.2
Albuterol	4,765	324	3.0	0.1
Ketorolac tromethamine	4,443	305	2.8	0.1
Meperidine	4,231	293	2.6	0.1
Cephalexin	2,700	223	1.7	0.1
Codeine	2,610	249	1.6	0.1
Tetanus toxoid	2,504	191	1.6	0.1
Diphenhydramine	2,462	187	1.5	0.1
Ceftriaxone	2,426	217	1.5	0.1
Nitroglycerin	2,329	205	1.4	0.1
Prednisone	2,056	170	1.3	0.1
Propoxyphene	1,994	188	1.2	0.1
Prochlorperazine	1,943	151	1.2	0.1
Aspirin	1,936	168	1.2	0.1
Trimethoprim	1,839	171	1.1	0.1
Sulfamethoxazole	1,767	168	1.1	0.1

... Category not applicable.

¹Frequency of mention combines single-ingredient agent with mentions of the agent as an ingredient in a combination drug.

²Based on an estimated 161,398,000 drug mentions at emergency department visits in 1999.

Table 17. Number, percent distribution, and therapeutic classification for the 20 drugs most frequently prescribed at emergency department visits with corresponding standard errors, by entry name of drug: United States, 1999

Entry name of drug ¹	Number of mentions in thousands	Standard error in thousands	Percent distribution	Standard error of percent	Therapeutic classification ²
All drug mentions	161,398	9,184	100.0	...	
Tylenol	9,446	625	5.9	0.3	Nonnarcotic analgesics
Motrin	6,725	462	4.2	0.2	NSAID's ³
Phenergan	4,853	391	3.0	0.2	Antihistamines
Vicodin	4,621	449	2.9	0.2	Narcotic analgesics
Toradol	4,374	297	2.7	0.1	NSAID's ³
Demerol	3,955	270	2.5	0.1	Narcotic analgesics
Albuterol sulfate	2,989	256	1.9	0.1	Antiasthmatics/bronchodilators
Ibuprofen	2,810	266	1.7	0.1	NSAID's ³
Amoxicillin	2,470	209	1.5	0.1	Penicillins
Keflex	2,417	204	1.5	0.1	Cephalosporins
Benadryl	2,367	185	1.5	0.1	Antihistamines
Rocephin	2,272	215	1.4	0.1	Cephalosporins
Prednisone	2,025	168	1.3	0.1	Adrenal corticosteroids
Compazine	1,913	149	1.2	0.1	Antiemetics
Darvocet-N	1,868	178	1.2	0.1	Narcotic analgesics
Tetanus toxoid	1,603	142	1.0	0.1	Vaccines and antisera
Lortab	1,603	262	1.0	0.1	Narcotic analgesics
Tylenol No. 3	1,553	173	1.0	0.1	Narcotic analgesics
Lasix	1,484	153	0.9	0.1	Diuretics
Percocet-5	1,473	157	0.9	0.1	Narcotic analgesics
All other mentions	98,575	6,034	61.1	0.6	

... Category not applicable.

¹The entry made by hospital staff on the prescription or other medical records, This may be a trade name, generic name, or desired therapeutic effect.

²Therapeutic classification is based on the *National Drug Code Directory*, 1995 edition (24). In cases where a drug had more than one therapeutic use, it was classified under its primary therapeutic use.

³NSAID's are nonsteroidal anti-inflammatory drugs.

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

Table 18. Number and percent of emergency department visits with corresponding standard errors, by providers seen: United States, 1999

Type of provider	Number of visits in thousands ¹	Standard error in thousands	Percent of visits	Standard error of percent
All visits	102,765	4,493	...	...
Staff physician	90,861	4,135	88.4	1.3
R.N. ²	90,092	4,338	87.7	1.5
Other physician	8,742	1,198	8.5	1.1
E.M.T. ³	8,257	1,273	8.0	1.2
Resident/intern	7,240	875	7.1	0.9
Medical/nursing assistant	6,871	1,282	6.7	1.2
L.P.N. ⁴	5,684	1,012	5.5	0.9
Physician assistant	4,717	838	4.6	0.8
Nurse practitioner	1,546	306	1.5	0.3
Other	5,908	1,115	5.8	1.1

... Category not applicable.

¹Total exceeds total number of visits because more than one provider may be reported per visit.

²R.N. is registered nurse.

³E.M.T. is emergency medical technician.

⁴L.P.N. is licensed practical nurse.

Table 19. Number and percent of emergency department visits with corresponding standard errors, by visit disposition: United States, 1999

Disposition	Number of visits in thousands ¹	Standard error in thousands	Percent of visits	Standard error of percent
All visits	102,765	4,493	...	...
Referred to other physician/clinic	48,569	2,796	47.3	1.6
Return to ED, P.R.N./appointment ²	24,379	1,854	23.7	1.5
Returned to referring physician	15,699	1,519	15.3	1.3
Admitted to hospital ³	13,216	719	12.9	0.5
No follow-up planned	9,206	817	9.0	0.7
Transferred to other facility	1,798	184	1.8	0.2
Admitted to ICU/CCU ⁴	1,433	123	1.4	0.1
Left before being seen	1,337	106	1.3	0.1
Referred to social service	363	61	0.4	0.1
Referred out from triage without treatment	280	66	0.3	0.1
DOA/died in ED ^{5,6}	261	49	0.3	0.1
Other ⁷	2,805	243	2.7	0.2

... Category not applicable.

¹Total exceeds total number of visits because more than one disposition may be reported per visit.

²PRN is as needed.

³Includes those admitted to ICU/CCU and is a subset of those admitted to hospital.

⁴ICU/CCU is intensive care unit/critical care unit or coronary care unit.

⁵DOA is dead on arrival.

⁶ED is emergency department.

⁷Includes unknown.

Table 20. Variation in visit characteristics by hospital emergency departments: United States, 1999

Selected visit characteristics	Number of hospitals responding ¹	Mean of hospital statistic	Standard error	25th percentile	Median of hospital statistic	75th percentile
Volume						
Mean weekly volume of visits	376	425.5	34.9	339.3	613.6	946.9
Case mix						
Percent arriving by ambulance	369	12.9	0.5	8.2	13.3	19.5
Mean patient age	369	37.3	0.6	32.6	36.6	40.4
Percent with Medicaid	369	17.2	1.1	9.1	15.4	24.0
Percent with Medicare	369	18.3	1.0	8.2	14.3	20.0
Percent triaged as emergent or urgent	339	71.2	2.6	41.5	73.4	96.3
Mean time waiting to see physician	336	39.3	3.2	28.5	43.7	64.0
Percent injury visits	369	38.3	0.6	29.3	36.5	42.9
Presentations for adverse effects of medical treatment per 1,000 visits	369	14.7	1.2	0.0	0.0	20.0
Services provided						
Diagnostic services per 100 visits	369	252.7	7.4	203.5	256.0	308.3
Procedures per 100 visits	369	47.6	1.2	34.0	47.6	62.3
Drug mentions per 100 visits	369	160.7	6.2	115.7	147.5	187.5
Disposition						
Percent admitted to hospital	369	12.5	0.5	6.1	13.2	19.0
Percent released with no follow-up planned	369	9.2	1.0	0.9	4.3	12.8

0.0 Quantity more than zero but less than 0.05.

¹A total of 376 hospital emergency departments provided encounter data. Estimates based on the encounter data were limited to hospitals supplying at least 30 records.

NOTE: Hospitals participate for a 4-week reporting period, so individual hospital estimates are subject to seasonal variation.

Technical notes

Data collection

The emergency encounter data for the 1999 NHAMCS were collected from 376 responding hospitals with ED's (ED participation rate of 93 percent). There were a total of 459 emergency service areas (ESA's) sampled from 404 eligible ED's. Of these, 452 ESA's participated (98-percent ESA participation rate). The U.S. Bureau of the Census, acting as the data collection agent for the survey, provided training to Field Representatives (FR's) throughout the Nation. FR's contacted the hospitals for induction into the survey after an advance letter was mailed from NCHS notifying the hospitals of selection for the survey. In most cases, hospital staff completed the information requested on the Patient Record forms (figure 1.) However, in 38.3 percent of the hospital ED's, FR's abstracted the data from medical records or computer printouts. No personally identifying information such as patient name or address is collected. Confidentiality of the data collected in the survey is protected under the Privacy Act, Public Health Service Act, and Title 42 of the United States Code, Section 242m(d).

Sampling errors

The standard error is primarily a measure of the sampling variability that occurs by chance when only a sample, rather than an entire universe, is surveyed. The standard error also reflects part of the measurement error, but does not measure any systematic biases in the data. The chances are 95 in 100 that an estimate from the sample differs from the value that would be obtained from a complete census by less than twice the standard error.

The standard errors presented in the tables and used in tests of significance for this report were estimated using SUDAAN software. SUDAAN computes standard errors by using a first-order Taylor approximation of the deviation of estimates from their expected values. A description of the software and the approach it uses has been published (11). 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 percent of the estimate. When it is not feasible to use statistical software, such as SUDAAN, for analyzing complex survey data, one may calculate approximate RSE's for aggregate estimates. The approximate RSE can be computed by the following general formula, where x is the aggregate of interest in thousands, and A and B are the appropriate coefficients from table I.

$$RSE(x) = \sqrt{A + \frac{B}{x}} \cdot 100$$

Similarly, RSE's for an estimate of a percent may be calculated using the following general formula, where p is the percent of interest, expressed as a proportion, and x is the denominator of the percent in thousands, using the appropriate coefficients from table I.

$$RSE(x) = \sqrt{\frac{B \cdot (1-p)}{p \cdot x}} \cdot 100$$

The standard error for a rate may be obtained by multiplying the RSE of the total estimate by the rate.

Published and flagged estimates

Estimates are not presented unless a reasonable assumption regarding their probability distributions is possible on the basis of the Central Limit Theorem. The Central Limit Theorem states that, given a sufficiently large sample size, the sample estimate approximates the population estimate and, upon repeated sampling, its distribution would be approximately normal.

In this report, estimates are not represented if they are based on fewer than 30 cases in the sample data; only an asterisk appears in the tables. Estimates based on 30 cases or more are preceded by an asterisk if the RSE of the estimate exceeds 30 percent.

Estimation

Statistics from the NHAMCS are derived by a multistage estimation procedure that produces essentially

unbiased estimates. The estimation procedure has three basic components:

- Inflation by reciprocals of the sampling selection probabilities
- Adjustment for nonresponse
- A population weighting ratio adjustment

NHAMCS data were adjusted to account for two types of nonresponse. The first type of nonresponse occurred when a sample hospital refused to provide information about its ED that was publically known to exist. In this case, the weights of visits to hospitals similar to the nonrespondent hospitals were inflated to account for visits represented by the nonrespondent hospitals. Beginning with the 1998 data, hospitals were judged to be similar if they were in the same region and, except in the West, if they had the same MSA status (in an MSA versus not in an MSA). Except in the West, similarity of hospitals in MSA's also required being in the same ownership control group (voluntary nonprofit versus other). This adjustment was made separately by department type.

Second type of nonresponse occurred when a sample ESA within a respondent hospital failed to provide completed Patient Record forms for a sample of patient visits. The weights of visits from responding ESA's were inflated to account for visits to similar nonresponding ESA's where ESA's were judged to be similar if they were in the same region. Except in the West, ESA similarity also required having the same MSA status and, in MSA's being in the same ownership control group (voluntary nonprofit versus other).

Nonsampling errors

As in any survey, results are subject to 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 encourage uniform reporting, attention was given to the

Assurance of confidentiality – All information which would permit identification of an individual, a practice, or an establishment will be held confidential, will be used only by persons engaged in and for the purpose of the survey and will not be disclosed or released to other persons or used for any other purpose without consent of the individual or the establishment in accordance with section 308(d) of the Public Health Service Act (42 USC 242m).

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention
National Center for Health Statistics

OMB No. 0920-0278
Expires: 05/31/2001
CDC 64.136

NATIONAL HOSPITAL AMBULATORY MEDICAL CARE SURVEY 1999–2000 EMERGENCY DEPARTMENT RECORD

1. PATIENT'S ZIP CODE 2. DATE OF VISIT Month | Day | Year | | | 3. TIME OF VISIT : : <input type="checkbox"/> Military <input type="checkbox"/> AM <input type="checkbox"/> PM	4. DATE OF BIRTH Month | Day | Year | | | 5. MODE OF ARRIVAL – Mark (X) one. 1 <input type="checkbox"/> Ambulance (air/ground) 3 <input type="checkbox"/> Walk-in 2 <input type="checkbox"/> Public service (nonambulance, e.g., police, social services) 4 <input type="checkbox"/> Unknown	7. ETHNICITY 1 <input type="checkbox"/> Hispanic or Latino 2 <input type="checkbox"/> Not Hispanic or Latino 8. RACE <i>Mark (X) one or more</i> 1 <input type="checkbox"/> White 2 <input type="checkbox"/> Black/African American 3 <input type="checkbox"/> Asian 4 <input type="checkbox"/> Native Hawaiian/Other Pacific Islander 5 <input type="checkbox"/> American Indian/Alaska Native	9. PRIMARY EXPECTED SOURCE OF PAYMENT FOR THIS VISIT <i>Mark (X) one.</i> 1 <input type="checkbox"/> Private insurance 2 <input type="checkbox"/> Medicare 3 <input type="checkbox"/> Medicaid 4 <input type="checkbox"/> Worker's Compensation 5 <input type="checkbox"/> Self-pay 6 <input type="checkbox"/> No charge 7 <input type="checkbox"/> Other 8 <input type="checkbox"/> Unknown	10. DOES PATIENT BELONG TO AN HMO? 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Unknown	11. IMMEDIACY WITH WHICH PATIENT SHOULD BE SEEN 1 <input type="checkbox"/> Unknown/no triage 2 <input type="checkbox"/> Less than 15 minutes 3 <input type="checkbox"/> 15 – 60 minutes 4 <input type="checkbox"/> > 1 hour – 2 hours 5 <input type="checkbox"/> > 2 hours – 24 hours	12. PRESENTING LEVEL OF PAIN 1 <input type="checkbox"/> Unknown 2 <input type="checkbox"/> None 3 <input type="checkbox"/> Mild 4 <input type="checkbox"/> Moderate 5 <input type="checkbox"/> Severe	13. TIME SEEN BY PHYSICIAN : : <input type="checkbox"/> Military <input type="checkbox"/> AM <input type="checkbox"/> PM <input type="checkbox"/> Not seen by physician or unknown
14. PATIENT'S COMPLAINT(S), SYMPTOM(S), OR OTHER REASON(S) FOR THIS VISIT <i>Use patient's own words</i> 1. Most important: _____ 2. Other: _____ 3. Other: _____		15. IS THIS VISIT RELATED TO INJURY OR POISONING? <i>Refers to all types of injury or poisoning, including adverse drug experiences, medical misadventures, etc.</i> 1 <input type="checkbox"/> Yes (Answer a, b, c, and d.) 2 <input type="checkbox"/> No (Skip to item 16.) a. Place of occurrence – Mark (X) one. 1 <input type="checkbox"/> Residence 5 <input type="checkbox"/> Other public building 2 <input type="checkbox"/> Recreation/sports area 6 <input type="checkbox"/> Industrial places 3 <input type="checkbox"/> Street or highway 7 <input type="checkbox"/> Other 4 <input type="checkbox"/> School 8 <input type="checkbox"/> Unknown c. Is this injury work related? 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Unknown d. Cause of injury <i>Describe events that preceded injury (e.g. reaction to penicillin, wasp sting, driver in motor vehicle traffic accident involving collision with parked vehicle, shot with a handgun during a brawl, heroin overdose, etc.)</i> _____		16. PHYSICIAN'S DIAGNOSES FOR THIS VISIT <i>As specifically as possible, list diagnoses related to this visit including chronic conditions (e.g. depression, obesity, asthma, etc.)</i> 1. Primary diagnosis: _____ 2. Other: _____ 3. Other: _____			
17. DIAGNOSTIC/SCREENING SERVICES – Mark (X) all ordered or provided at this visit. 1 <input type="checkbox"/> None 2 <input type="checkbox"/> Mental status exam 9 <input type="checkbox"/> HIV serology 3 <input type="checkbox"/> Blood pressure 10 <input type="checkbox"/> Other STD test 4 <input type="checkbox"/> EKG 11 <input type="checkbox"/> Blood alcohol concentration 5 <input type="checkbox"/> Cardiac monitor 12 <input type="checkbox"/> CBC 6 <input type="checkbox"/> Pulse oximetry 13 <input type="checkbox"/> Other blood test 7 <input type="checkbox"/> Urinalysis 14 <input type="checkbox"/> Other – Specify _____ 8 <input type="checkbox"/> Pregnancy test				IMAGING: 15 <input type="checkbox"/> Chest X-Ray 16 <input type="checkbox"/> Extremity X-Ray 17 <input type="checkbox"/> Other X-Ray 18 <input type="checkbox"/> MRI 19 <input type="checkbox"/> Ultrasound 20 <input type="checkbox"/> CAT scan 21 <input type="checkbox"/> Other diagnostic imaging		18. PROCEDURES – Mark (X) all provided at this visit. 1 <input type="checkbox"/> None 2 <input type="checkbox"/> Endotracheal intubation 8 <input type="checkbox"/> Wound care 3 <input type="checkbox"/> CPR 9 <input type="checkbox"/> Eye/ENT care 4 <input type="checkbox"/> IV fluids 10 <input type="checkbox"/> Orthopedic care 5 <input type="checkbox"/> NG tube/gastric lavage 11 <input type="checkbox"/> OB/GYN care 6 <input type="checkbox"/> Lumbar puncture 12 <input type="checkbox"/> Other – Specify _____ 7 <input type="checkbox"/> Bladder catheter	
19. MEDICATIONS/INJECTIONS <i>List names of up to 6 medications that were ordered, supplied, administered or continued during this visit. Include R, and OTC medications, immunizations, allergy shots, and anesthetics.</i> <input type="checkbox"/> None 1. _____ 4. _____ 2. _____ 5. _____ 3. _____ 6. _____		20. PROVIDERS SEEN THIS VISIT – Mark (X) all that apply. 1 <input type="checkbox"/> Staff physician 6 <input type="checkbox"/> R.N. 2 <input type="checkbox"/> Resident/intern 7 <input type="checkbox"/> L.P.N. 3 <input type="checkbox"/> Other physician 8 <input type="checkbox"/> Medical/nursing assistant 4 <input type="checkbox"/> Physician assistant 9 <input type="checkbox"/> E.M.T. 5 <input type="checkbox"/> Nurse practitioner 10 <input type="checkbox"/> Other		21. VISIT DISPOSITION – Mark (X) all that apply. 1 <input type="checkbox"/> No followup planned 10 <input type="checkbox"/> DOA/died in ED 2 <input type="checkbox"/> Return to ED, P.R.N./appointment 11 <input type="checkbox"/> Referred to social service 3 <input type="checkbox"/> Returned to referring physician 12 <input type="checkbox"/> Other – Specify _____ 4 <input type="checkbox"/> Referred out from triage without treatment 5 <input type="checkbox"/> Referred to other physician/clinic for followup 6 <input type="checkbox"/> Left before being seen 7 <input type="checkbox"/> Admitted to hospital 8 <input type="checkbox"/> Admitted to ICU/CCU 9 <input type="checkbox"/> Transferred to other facility			

FORM NHA/MCS-100(EN) (2-19-98)

Figure I. Patient Record form

Table I. Coefficients appropriate for determining approximate relative standard errors by type of estimate: National Hospital Ambulatory Medical Care Survey, 1999: Emergency departments

Type of estimate	Coefficient for use with estimates in thousands		Lowest reliable estimate in thousands
	A	B	
Visits	0.002729	7.525	87
Drug mentions	0.003826	19.025	221

phrasing of questions, 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. Coding error rates ranged from 0.0 to 1.8 for various data items.

Adjustments for item nonresponse—Item nonresponse rates in the NHAMCS are generally low (5 percent or less). However, levels of nonresponse can vary considerably in the survey. One

item (level of pain) had a nonresponse rate above 50 percent. Most nonresponse occurs when the needed information is not available in the medical record and/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, the tables include a combined entry of unknown/blank to display missing data. 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. For items with nonresponse greater than 50 percent, data are not presented.

Weighted item nonresponse rates were 5.0 percent or less for data items with the following exceptions: Mode of arrival (6.8 percent), pregnancy status of patient (50.0 percent of visits for women 15–44 years of age), ethnicity (17.8 percent), race (12.2 percent), primary expected source of payment

Table II. Reclassification of cause of injury codes for use with National Hospital Ambulatory Medical Care Survey data

Intent and mechanism of injury	Cause of injury code ¹
Unintentional injuries	E800–E869, E880–E929
Falls	E880.0–E886.9, E888
Motor vehicle traffic	E810–E819
Striking against or struck accidentally by objects or persons	E916–E917
Overexertion and strenuous movements	E927
Cutting or piercing instruments or objects	E920
Natural and environmental factors	E900–E909, E928.0–E928.2
Poisoning by drugs, medicinal substances, biologicals, other solid and liquid substances, gases, and vapors	E850–E869
Fire and flames, hot substance or object, caustic or corrosive material, and steam	E890–E899, E924
Machinery	E919
Pedal cycle, nontraffic and other	E800–E807(.3), E820–E825(.6), E826.1, E826.9
Motor vehicle, nontraffic	E820–E825(.0–.5, .7–.9)
Other transportation	E800–E807(.0–.2, .8–.9), E826(.0, .2–.8), E827–E829, E831, E833–E845
Suffocation	E911–E913
Firearm missile	E922
Drowning/submersion	E830, E832, E910
Other and not elsewhere classified	E846–E848, E914–E915, E918, E921, E923, E925–E926, E929.0–929.5, E928.8
Mechanism unspecified	E887, E928.9, E929.8, E929.9
Intentional injuries	E950–E959, E960–E969, E970–E978, E990–E999
Assault	E960–E969
Unarmed fight or brawl, striking by blunt or thrown object	E960.0, E968.2
Cutting or piercing instrument	E966
Other and unspecified mechanism	E960.1, E962–E964, E965.0–E965.9, E967–E968.1, E968.3–E969
Self-inflicted	E950–E959
Poisoning by solid or liquid substances, gases, and vapors	E950–E952
Cutting and piercing instrument	E956
Suffocation	E953
Other and unspecified mechanism	E954–E955, E957–E959
Other causes of violence	E970–E978, E990–E999
Injuries of undetermined intent	E980–E989
Adverse effects of medical treatment	E870–E879, E930–E949

¹Based on the "Supplementary Classification of External Causes of Injury and Poisoning," *International Classification of Diseases, Ninth Revision, Clinical Modification (ICD–9–CM)* (21).

(5.8 percent), HMO status of patient (36.0 percent), presenting level of pain (52.0 percent), waiting time (12.3 percent), place of occurrence of injury (38.2 percent of injury visits), intentionality of injury (10.0 percent of injury visits), work-related status of injury (30.8 percent of injury visits), and cause of injury (11.0 percent of injury visits).

For the item “immediacy with which the patient was seen,” 27.4 percent of the visits were recorded as “unknown/no triage.” The demographic characteristics and distributions by mode of arrival and hospital admission were similar to all visits. The percent of these visits with a primary diagnosis of heart disease, including ischemic, or chest pain was no different from the percent for all visits; however, visits with “unknown/no triage” checked were less likely to have intravenous fluids administered.

For some items, missing values were imputed by randomly assigning a value from Patient Record forms with similar characteristics. For the variable “immediacy with which patient should be seen” (2.2 percent with missing values, i.e., none of the categories were checked), the grouping was based on ED volume, geographic region, and three-digit ICD-9-CM code for primary diagnosis. The other imputed items were as follows: Visit time (3.2 percent), birth year (2.7 percent), sex (2.1 percent), and race (12.2 percent). Imputation for these items was based on ED volume, geographic region, immediacy with which patient should be seen, and three-digit ICD-9-CM code for primary diagnosis. This represents a change from previous survey years when imputations were also performed for the following variables—ethnicity, disposition, and providers seen. Beginning in 1997, these latter items were no longer imputed. Blank or otherwise missing responses are so noted in the data.

Tests of significance and rounding

In this report, the determination of statistical inference is based on the two-tailed *t*-test. The Bonferroni inequality was used to establish the

critical value for statistically significant differences (.05 level of significance) based on the number of possible comparisons within a particular variable (or combination of variables) of interest. Terms relating to differences such as “greater than” or “less than” indicate that the difference is statistically significant. A lack of comment regarding the difference between any two estimates does not mean that the difference was tested and found to be not significant.

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

Race

In 1999, the instruction for the race item on the Patient Record form was changed so that more than one race could be recorded. In previous years, only one racial category could be checked. The estimates for the racial groups presented in this report are for visits where only one race was recorded. The estimate for visits where multiple races were checked was unreliable, and therefore, not presented in this report. Note that the race denominators for the population rates are based on single race response categories from the U.S. Bureau of the Census.

Calculation of time waiting to see a physician

The NHAMCS collects data on the time the patient arrived at the ED and the time that the patient was seen by a physician. These two items were used to derive the amount of time spent waiting to see a physician. Waiting times longer than 12 hours were altered to assume that the AM/PM checkbox was completed incorrectly and that the patient didn't actually wait that long. For visits where a physician was seen, 29 percent were missing the data needed to calculate waiting time.

Injury groupings

Table 9 presents data on the intent and mechanism producing the injuries that resulted in visits to ED's. Cause of injury is collected for each sampled visit in the NHAMCS and is coded according to the ICD-9-CM's “Supplementary Classification of External Causes of Injury and Poisoning.” For table 9, however, the first-listed cause-of-injury data were regrouped to highlight the interaction between intentionality of the injury and the mechanism that produced the injury. Table II shows the groupings used to produce this table.

Population figures and rate calculation

The figures represent U.S. Bureau of the Census estimates of the civilian noninstitutionalized population of the United States as of July 1, 1999. Figures are based on monthly postcensal estimates of this population. Figures are consistent with the downloadable series, “U.S. Population Estimates by Age, Sex, Race, and Hispanic Origin: 1980-99 (with short term projection dates in 2000).” It is available at the U.S. Bureau of the Census Internet site: http://ftp.census.gov/population/www/estimates/nat_90s_4.html.

Figures have been adjusted for net underenumeration using the 1990 National Population Adjustment Matrix. Regional estimates were provided by the Division of Health Interview Statistics (DHIS), NCHS, and are based on U.S. Bureau of the Census estimates of the civilian noninstitutionalized population as of July 1, 1999. DHIS estimates may differ slightly from monthly postcensal estimates because of differences in the adjustment process.

Definition of terms

Drug mention—A drug mention is the health care provider's entry on the Patient Record form of a pharmaceutical agent—by any route of administration—for prevention, diagnosis, or treatment. Generic as well as brand-name drugs are included, as are nonprescription and prescription drugs. Along with all new drugs, the physician also records continued medications if

the patient was specifically instructed during the visit to continue the medication. Health care providers may report up to six medications per visit.

Drug visit—A drug visit is a visit at which medication was prescribed or provided by the physician.

Emergency department—An emergency department (ED) is a hospital facility for the provision of unscheduled outpatient services to patients whose conditions require immediate care and is staffed 24 hours a day. If an ED provided emergency services in different areas of the hospital, all of these emergency service areas (ESA's) are selected with certainty into the sample. Off-site ED's that are open less than 24 hours are included if staffed by the hospital's ED.

Emergent visit—A visit at which the triage practitioner determines that the patient should receive care immediately to combat danger to life or limb, and where any delay would likely result in deterioration. If the visit was determined to be emergent, "less than 15 minutes" was to be checked in item 11, "Immediacy with which patient should be seen," on the Patient Record form.

Hospital—To be in-scope for the NHAMCS, a hospital must have an average length of stay for all patients of less than 30 days (short-stay) or hospitals whose specialty is general (medical or surgical) or children's general, except Federal hospitals, hospital units of institutions, and hospitals with fewer than six beds staffed for patient use.

Illness-related visit—A visit is considered illness-related if it was not an injury visit as in the definition for injury-related visit.

Injury-related visit—A visit is injury-related if "yes" was checked in response to item 15, "Is visit related to injury or poisoning?" or if a cause of injury or a nature of injury diagnosis was provided, or if an injury-related reason for visit was reported.

Outpatient department—An outpatient department is a hospital facility where nonurgent ambulatory medical care is provided under the supervision of a physician.

Ownership—Hospitals are designated according to the primary owner of the hospital based on the SMG Hospital Database.

Voluntary nonprofit—Hospitals that are church-related or are a nonprofit corporation or have other nonprofit ownership.

Government, non-Federal—Hospitals that are operated by State, county, city, city-county, or hospital district or authority.

Proprietary—Hospitals that are individually or privately owned or are partnerships or corporations.

Patient—A patient is an individual seeking personal health services who is not currently admitted to any health care institution on the premises. Patients arriving by ambulance are included.

Visit—A visit is a direct, personal exchange between an ambulatory patient seeking care and a physician or other hospital staff member working under the physician's supervision for the purpose of rendering personal health services. Excluded from the NHAMCS are visits where medical care was not provided, such as visits made to drop off specimens, pay bills, and make appointments.

Trade name disclaimer

The use of trade names is for identification only and does not imply endorsement by the Centers for Disease Control and Prevention, U.S. Department of Health and Human Services.

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