Number 313 • May 10, 2000

Advance Data

From Vital and Health Statistics of the CENTERS FOR DISEASE CONTROL AND PREVENTION/National Center for Health Statistics

National Hospital Ambulatory Medical Care Survey: 1998 Emergency Department Summary

by Linda F. McCaig, M.P.H., Division of Health Care Statistics

Abstract

Objectives—This report describes ambulatory care visits to hospital emergency departments in the United States. Statistics are presented on selected patient and visit characteristics.

Methods—The data presented in this report were collected from the 1998 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.

Results—During 1998, an estimated 100.4 million visits were made to hospital emergency departments (ED's) in the United States, about 37.3 visits per 100 persons. Persons 75 years and over had the highest rate of ED visits. There were an estimated 37.1 million injury-related ED visits during 1998, 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. According to ICD–9–CM classification, 77.2 percent of injury visits were unintentional. About 71 percent of the ED visits involved medication therapy, with pain relief drugs accounting for 31.5 percent of the medications mentioned. Acute upper respiratory infection was the leading illness-related diagnosis at ED visits.

Keywords: emergency department visits • diagnoses • injury • ICD–9–CM.

Introduction

The National Hospital Ambulatory Medical Care Survey (NHAMCS) was inaugurated in 1992 to gather and disseminate information about the health care provided by hospital emergency departments (ED's) and outpatient departments (OPD's) to the population of the United States. The NHAMCS is part of the ambulatory component of the National Health Care Survey 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 OPD's and ED's, which 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). Together, the NAMCS and the NHAMCS data provide an important tool for tracking ambulatory care utilization. A third survey, the National Survey of Ambulatory Surgery, was conducted from 1994 through 1996 to provide data on the use of ambulatory surgery centers that are not covered in the NAMCS or the NHAMCS.

This report presents national annual estimates of hospital emergency department visits for 1998. Hospital, clinic, patient, and visit characteristics are described. Other *Advance Data* reports highlight visits to outpatient

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Health Statistics

CENTERS FOR DISEASE CONTROL AND PREVENTION

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).

Department of Health and Human Services
Public Health Service
Centers for Disease Control and Prevention
National Center for Health Statistics

OMB No. 0920-0278
Expires: 07/31/99
CDC 64.133

NATIONAL HOSPITAL AMBULATORY MEDICAL CARE SURVEY
1997–98 EMERGENCY DEPARTMENT RECORD

1. DATE OF VISIT
_____/_____/_____
Month Day Year

2. TIME OF VISIT
___ : ___ ☐ Military ☐ AM ☐ PM

3. DATE OF BIRTH
_____/_____/_____
Month Day Year

4. MODE OF ARRIVAL *Check one.*
1 ☐ Ambulance (air/ground)
2 ☐ Public service (nonambulance, e.g., police, social services)
3 ☐ Walk-in
4 ☐ Unknown

5. SEX
1 ☐ Female 2 ☐ Male
↓
Is patient pregnant?
1 ☐ Yes 2 ☐ No 3 ☐ Unknown

6. RACE
1 ☐ White
2 ☐ Black
3 ☐ Asian/Pacific Islander
4 ☐ American Indian/ Eskimo/Aleut

7. ETHNICITY
1 ☐ Hispanic origin
2 ☐ Not Hispanic

8. PRIMARY EXPECTED SOURCE OF PAYMENT FOR THIS VISIT *Check one.*
1 ☐ Private insurance
2 ☐ Medicare
3 ☐ Medicaid
4 ☐ Worker's Compensation
5 ☐ Self-pay
6 ☐ No charge
7 ☐ Other
8 ☐ Unknown

9. DOES PATIENT BELONG TO AN HMO?
1 ☐ Yes
2 ☐ No
3 ☐ Unknown

10. IMMEDIACY WITH WHICH PATIENT SHOULD BE SEEN
1 ☐ Unknown/no triage
2 ☐ Less than 15 minutes
3 ☐ 15 – 60 minutes
4 ☐ > 1 hour – 2 hours
5 ☐ > 2 hours – 24 hours

11. PRESENTING LEVEL OF PAIN
1 ☐ Unknown
2 ☐ None
3 ☐ Mild
4 ☐ Moderate
5 ☐ Severe

12. TIME SEEN BY PHYSICIAN
___ : ___ ☐ Military ☐ AM ☐ PM
☐ Not seen by physician or unknown

13. PATIENT'S COMPLAINT(S), SYMPTOM(S), OR OTHER REASON(S) FOR THIS VISIT *Use patient's own words*
1. Most important: _____
2. Other: _____
3. Other: _____

14. IS THIS VISIT RELATED TO INJURY OR POISONING? *Refers to all types of injury or poisoning, including adverse drug experiences, medical misadventures, etc.*
1 ☐ Yes *(Answer a, b, c, and d.)* 2 ☐ No *(Skip to item 15.)*

a. Place of occurrence *Check one*
1 ☐ Residence
2 ☐ Recreation/sports area
3 ☐ Street or highway
4 ☐ School
5 ☐ Other public building
6 ☐ Industrial places
7 ☐ Other
8 ☐ Unknown

b. Is this injury intentional?
1 ☐ Yes (self-inflicted)
2 ☐ Yes (assault)
3 ☐ No, unintentional
4 ☐ Unknown

c. Is this injury work related?
1 ☐ Yes 2 ☐ No 3 ☐ Unknown

d. Cause of injury *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, etc.)*

15. PHYSICIAN'S DIAGNOSES FOR THIS VISIT *As specifically as possible, list diagnoses related to this visit including chronic conditions (e.g. depression, obesity, asthma, etc.)*
1. Primary diagnosis: _____
2. Other: _____
3. Other: _____

16. DIAGNOSTIC/SCREENING SERVICES *Check all **ordered** or **provided** at this visit.*
1 ☐ None
2 ☐ Mental status exam
3 ☐ Blood pressure
4 ☐ EKG
5 ☐ Cardiac monitor
6 ☐ Pulse oximetry
7 ☐ Urinalysis
8 ☐ Pregnancy test
9 ☐ HIV serology
10 ☐ Other STD test
11 ☐ Blood alcohol concentration
12 ☐ CBC
13 ☐ Other blood test
14 ☐ Other – *Specify* _____

IMAGING:
15 ☐ Chest X-Ray
16 ☐ Extremity X-Ray
17 ☐ Other X-Ray
18 ☐ MRI
19 ☐ Ultrasound
20 ☐ CAT scan
21 ☐ Other diagnostic imaging

17. PROCEDURES *Check all **provided** at this visit.*
1 ☐ None
2 ☐ Endotracheal intubation
3 ☐ CPR
4 ☐ IV fluids
5 ☐ NG tube/gastric lavage
6 ☐ Lumbar puncture
7 ☐ Bladder catheter
8 ☐ Wound care
9 ☐ Eye/ENT care
10 ☐ Orthopedic care
11 ☐ OB/GYN care
12 ☐ Other – *Specify* _____

18. MEDICATIONS/INJECTIONS *List names of up to 6 medications that were **ordered, supplied, administered** or **continued** during this visit. Include Rx and OTC medications, immunizations, allergy shots, and anesthetics.*
☐ None
1. _____ 4. _____
2. _____ 5. _____
3. _____ 6. _____

19. VISIT DISPOSITION *Check all that apply.*
1 ☐ No followup planned
2 ☐ Return to ED, P.R.N./appointment
3 ☐ Returned to referring physician
4 ☐ Referred out from triage without treatment
5 ☐ Referred to other physician/ clinic for followup
6 ☐ Left before being seen
7 ☐ Admitted to hospital
8 ☐ Admitted to ICU/CCU
9 ☐ Transferred to other facility
10 ☐ DOA/died in ED
11 ☐ Referred to social service
12 ☐ Other

20. PROVIDERS SEEN THIS VISIT *Check all that apply.*
1 ☐ Staff physician
2 ☐ Resident/intern
3 ☐ Other physician
4 ☐ Physician assistant
5 ☐ Nurse practitioner
6 ☐ R.N.
7 ☐ L.P.N.
8 ☐ Medical/nursing assistant
9 ☐ E.M.T.
10 ☐ Other

Figure 1. Patient Record form

departments (2) and physician offices (3).

Methods

The data presented in this report are from the 1998 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 22, 1997, through December 20, 1998.

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 1998 utilization statistics for hospitals existent in 1991.

A four-stage probability sample design is used in NHAMCS (4). 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 1998 consisted of 488 hospitals. Of this group, 410 hospitals had ED's and 398 of these participated in the survey, resulting in a hospital ED participation rate of 97 percent. A total of 498 emergency service areas was selected from the 410 ED's. Of this group, 491 provided data to the survey. Hospital staff were asked to complete Patient Record forms (figure 1) 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 24,175.

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.

Several medical classification systems were used to code data from the NHAMCS. The Patient Record form contains an item on the patient's expressed reason for the visit. In this item, hospital staff were asked to record the patient's "complaint(s), symptom(s), or other reason(s) for this visit in the patient's (or patient surrogate's) own words." Up to three reasons for visit were coded according to *A Reason for Visit Classification for Ambulatory Care* (RVC) (5). RVC is an NCHS-developed classification scheme that has been used for over 20 years to code patient's complaints or reasons for seeking care.

The Patient Record form contains an item on the cause of injury for injury-related visits. Up to three external causes of injury were coded according to the "Supplementary Classification of External Causes of Injury and Poisoning" in the *International Classification of Diseases, 9th Revision Clinical Modification* (ICD–9–CM) (6). In addition, the 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 (6).

The Patient Record form includes items on diagnostic/screening services and procedures. Hospital staff were asked to write in up to two services and up to two procedures in the open-ended "other" categories. These services and procedures were coded according to the ICD–9–CM, volume 3 (6).

In the medication item, hospital staff were instructed to record all new or continued medications ordered, supplied, or administered at the visit. This included 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 (7). Therapeutic classification of the drugs mentioned on the Patient Record forms was determined using the *National Drug Code Directory,* 1995 edition (8).

Item nonresponse rates in the NHAMCS are generally low (5 percent or less). However, levels of nonresponse can vary considerably in the survey. Two items (mode of arrival and 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. For 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, the 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 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. The Technical notes provide nonresponse rates for items with more than 5 percent missing data.

The U.S. Bureau of the Census, Housing Surveys Branch, 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 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

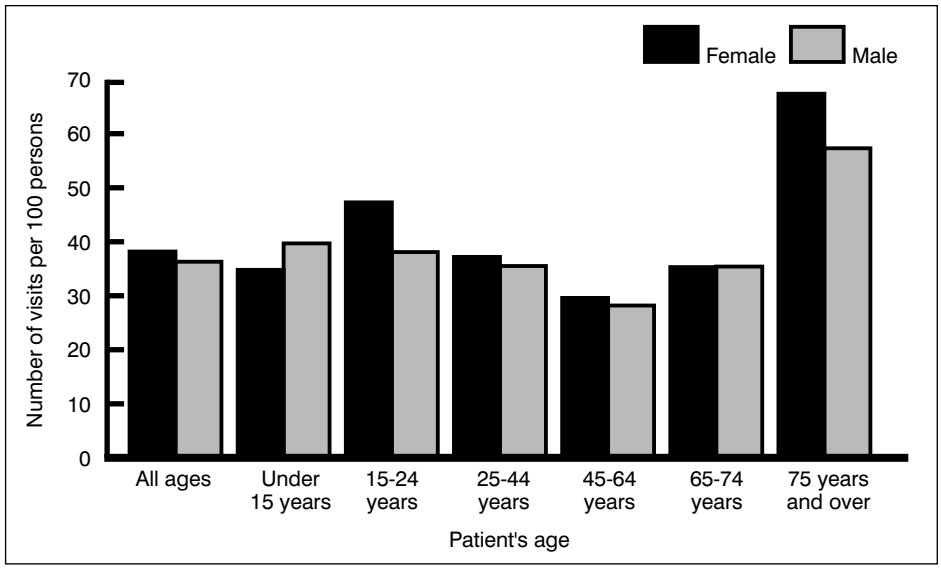


Figure 2. Annual rate of emergency department visits by patient's age and sex: United States, 1998

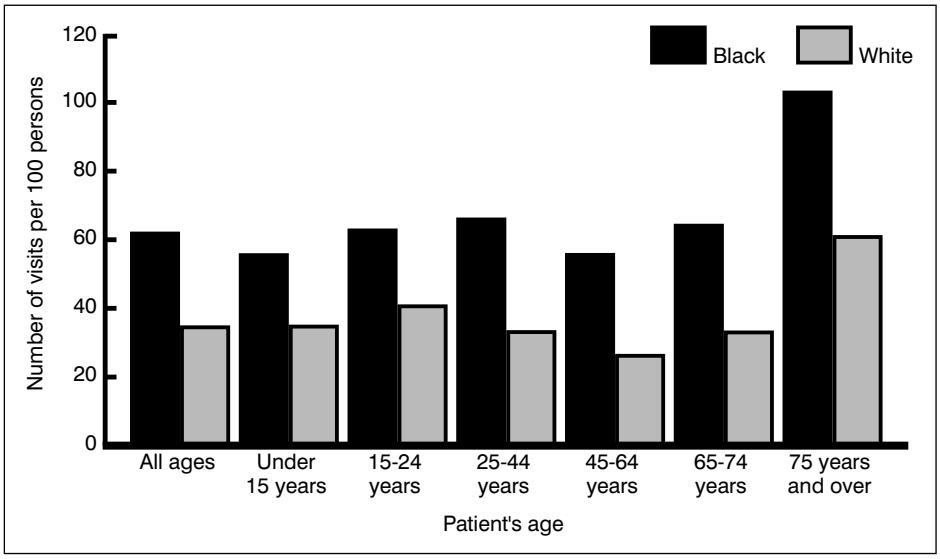


Figure 3. Annual rate of emergency department visits by patient's age and race: United States, 1998

Census estimates of the civilian noninstitutionalized population of the United States as of July 1, 1998. The figures have been adjusted for net underenumeration using the 1990 National Population Adjustment Matrix (1).

Results

There were an estimated 100.4 million ED visits in 1998, about 37.3 visits per 100 persons. This visit rate is not significantly different from the 1997 rate (9). Selected hospital, patient, and visit characteristics for these encounters are described in the following text.

Patient characteristics

ED visits by patient's age, sex, and race are shown in table 1 and figures 2 and 3. Persons 75 years of age and over had a higher ED visit rate (63.5 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 (figure 2). The ED utilization rate for black persons was 79 percent higher than for white persons. Significant differences were observed by race in all age groups (figure 3).

Is patient pregnant?—This item is important for women of childbearing age (15–44 years). Unfortunately, for 44.8 percent of the visits for women 15–44, the pregnancy status was unknown or blank. For another 47.2 percent of visits, patients were not pregnant. The remainder, 8.0 percent of visits, was made by women who were pregnant.

Hospital characteristics

Ownership—About 74 percent of ED visits were made to voluntary nonprofit hospitals. The percent of visits made to non-Federal government (i.e., State, county, city) and proprietary hospitals were 16.8 percent and 8.9 percent, respectively.

Geographic region—Visit rates ranged from 31.2 visits per 100 persons in the West to 39.2 visits per 100 persons in the South. However, these differences were not significant. The proportion of ED visits in the South (37.3 percent) was higher than the proportions in the three other regions and the percent of visits in the Midwest (25.9 percent) was greater than in the West.

Visit characteristics

Primary expected source of payment—At 37.8 percent of ED visits, private insurance was the primary expected source of payment (figure 4, table 2). Medicaid (17.9 percent), self-payment (15.1 percent), and Medicare (14.5 percent) were also prominent. (Self-payment does not include patient copayments and deductibles.) About 3.2 percent of ED visits cited Worker's Compensation as the primary expected source of payment.

Belong to HMO—This item permits the estimation of the volume of visits by patients who are members of a health maintenance organization (HMO). HMO is defined as a health care delivery system that offers comprehensive health services provided by an established panel or network of providers to a voluntarily enrolled population for a prepaid fixed fee and whose members

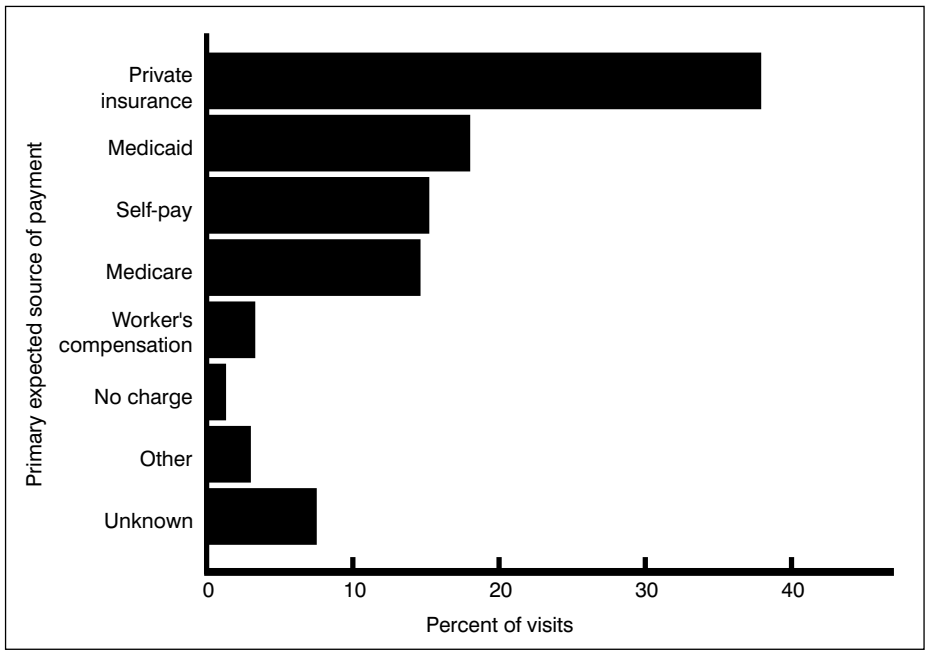


Figure 4. Percent of emergency department visits by primary expected source of payment: United States, 1998

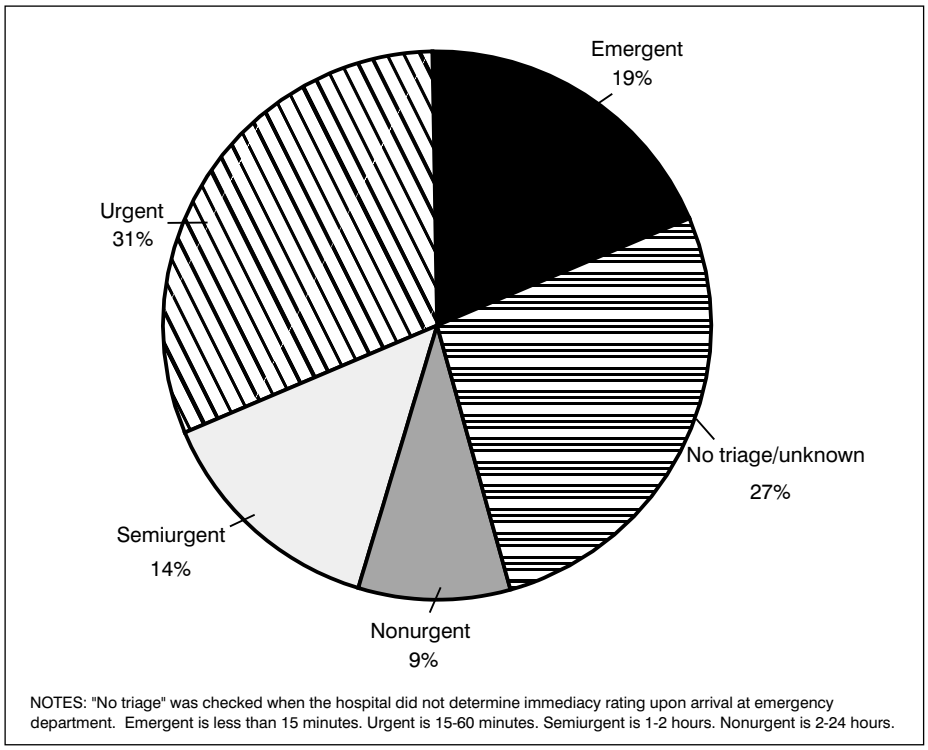


Figure 5. Percent distribution of emergency department visits by immediacy with which the patient should be seen: United States, 1998

are required to utilize services within the panel of contracted providers. This information was marked ''unknown'' for 35.4 percent and left blank for 1.8 percent of visits. Therefore, a total of 37.2 percent of ED visits had missing status for HMO (table 2).

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). Hospitals may differ in the way that they categorize urgency. Therefore, urgency data could vary among data sources. For 26.9 percent of ED visits, the hospital staff recorded this item as ''unknown or no triage,'' but only 2.2 percent of the data were missing.

As shown in figure 5, 19.2 percent of ED visits were classified as emergent, 31.2 percent were urgent, 13.7 percent were semiurgent, and 9.0 percent were nonurgent. A further breakdown of these distributions by patient characteristics is presented in table 3. Immediacy with which the patient should be seen did not vary by hospital ownership except that non-Federal government hospitals had a higher proportion of semiurgent visits (20.1 percent) compared with proprietary hospitals (8.1 percent) (figure 6).

Table 4 presents data on emergent and urgent visits by age, sex, and race. Together, emergent and urgent visits accounted for 50 percent of all ED visits. Persons 75 years of age and over had a higher emergent visit rate (19.8 visits per 100 persons) than persons in the other five age categories and persons 65–74 years of age had a higher emergent visit rate (10.0 per 100 persons) than in all of the other age groups except persons 75 years of age and over. There was no difference in emergent rates by gender or race.

The five most frequent diagnoses at emergent visits were heart disease (including ischemic—ICD–9–CM codes 391–392.0, 393–398, 402, 404, 410–416, and 420–429) (7.2 percent), chest pain (ICD–9–CM code 786.5) (6.6 percent), open wound (ICD–9–CM codes 870–897) (5.9 percent), fracture (4.4 percent) (ICD–9–CM codes 800–829), and contusions (ICD–9–CM codes 920–924) (3.6 percent). About 54 percent of visits with a primary diagnosis of heart disease (including ischemic) were considered emergent, as were 42.3 percent of the visits for chest pain and 22.1 percent of the visits for fracture. In contrast, about one-seventh of visits for open wound (14.9 percent) or contusion (14.6 percent) were considered emergent (figure 7).

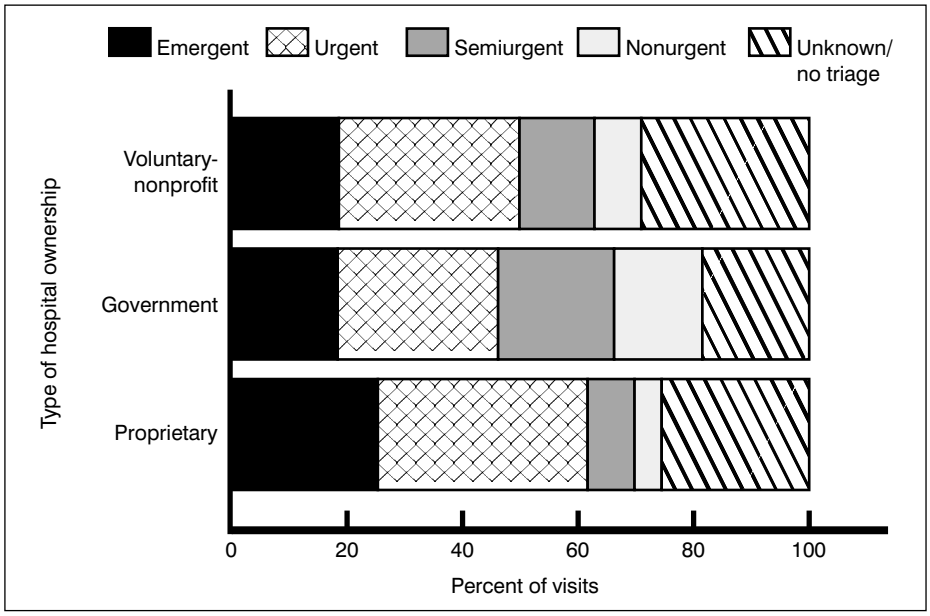
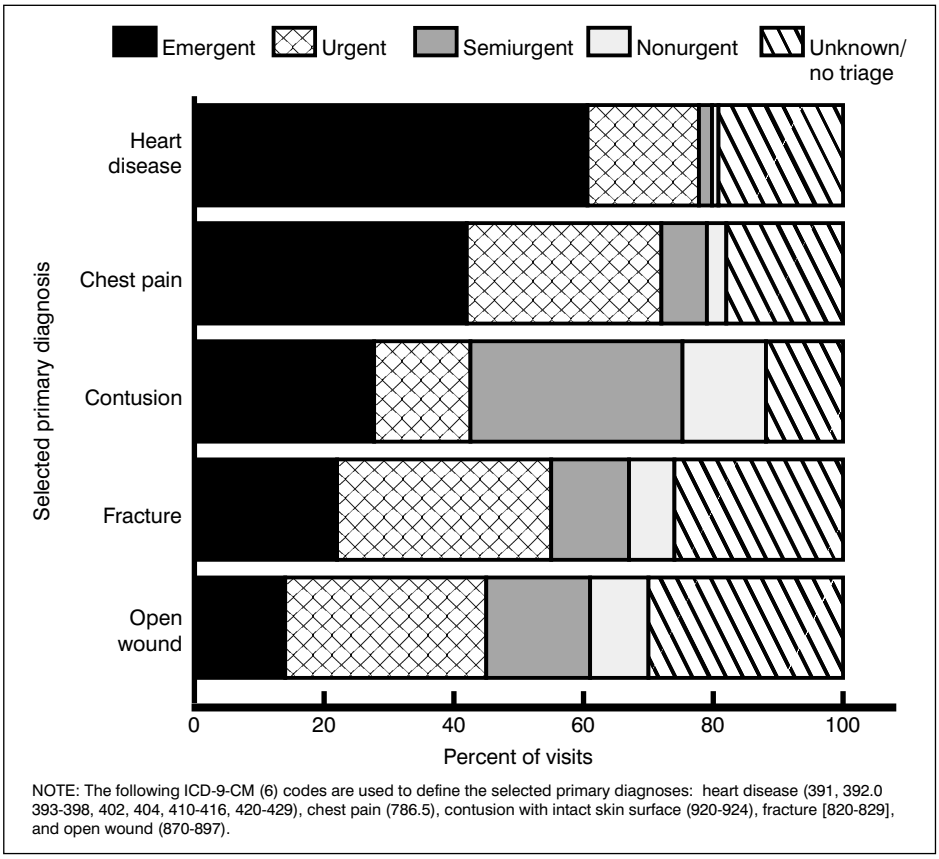


Figure 6. Percent distribution of emergency department visits by type of hospital ownership and immediacy of visit: United States 1998



NOTE: The following ICD-9-CM (6) codes are used to define the selected primary diagnoses: heart disease (391, 392.0 393-398, 402, 404, 410-416, 420-429), chest pain (786.5), contusion with intact skin surface (920-924), fracture [820-829], and open wound (870-897).

Figure 7. Percent distribution of emergency department visits for selected primary diagnosis by immediacy of visit: United States, 1998

Time of visit—Time of visit, which is the time the patient arrived at the ED, is displayed in figure 8. The distribution of visits was fairly constant between 8 a.m. and midnight, with a peak occurring during the late afternoon and early evening hours (4:00 p.m.–7:59 p.m.). Less than 7 percent of the visits took place in the early morning hours (4:00 a.m.–7:59 a.m.).

Waiting time—Data from the time the patient was seen by a physician were combined with the data on the patient's arrival time in the ED to derive the amount of time spent waiting to see a physician. Waiting times longer than 12 hours were altered to assume that the A.M./P.M. checkbox was completed incorrectly and that the patient did not actually wait that long. On average, patients waited about 41 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 19.5 ± 1.4 minutes before seeing a physician. The waiting time for semiurgent and nonurgent was 57.9 ± 2.7 and 60.1 ± 3.8 minutes, respectively. Waiting time was longer in metropolitan areas compared with nonmetropolitan areas. However, waiting time did not vary by hospital ownership in either metropolitan or nonmetropolitan areas (figure 9).

Patient's principal reason for visit—The principal reason is the problem, complaint, or reason listed in item 13a on the Patient Record form. As described earlier, up to three reasons for visit were coded according to *A Reason for Visit Classification for Ambulatory Care* (RVC) (5). The RVC is divided into eight modules or groups of reasons as shown in table 5. About 71 percent of ED visits were made for reasons classified in the symptom module, with general symptoms accounting for 15.5 percent of the total. Musculoskeletal symptoms accounted for 13.8 percent of visits, while digestive and respiratory symptoms were recorded at 12.0 and 11.7 percent of visits, respectively. Twenty-one percent of all ED visits had reasons in the injuries and adverse effects module.

The 20 most frequently mentioned principal reasons for visit, representing almost half of all visits, are shown in table 6. Stomach and abdominal pain, cramps, and spasms were reported most frequently, accounting for 5.9 percent of all ED visits. Chest pain and fever accounted for 5.3 percent and 4.4 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 42.6 percent, 16.0 percent, and

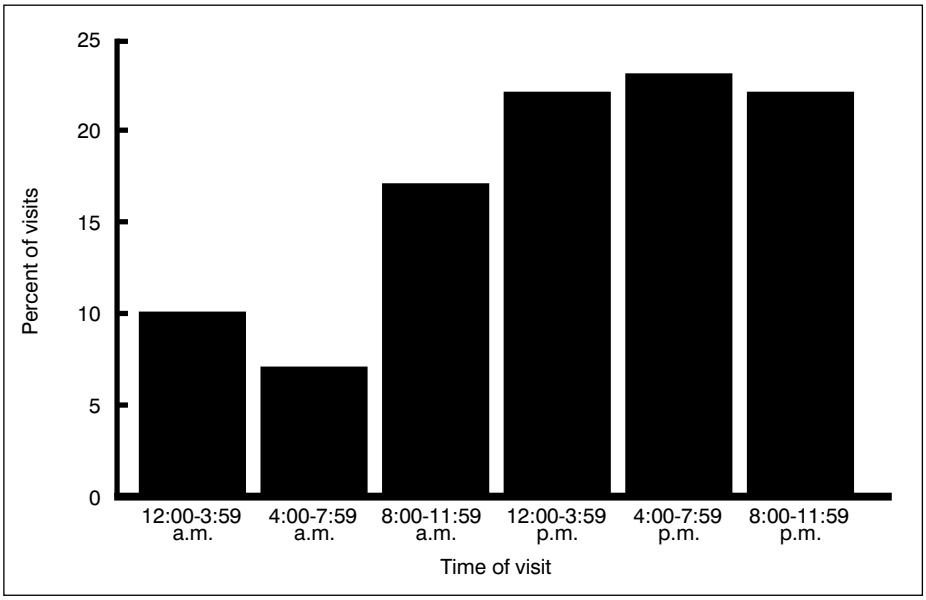


Figure 8. Percent distribution of emergency department visits by time of visit: United States, 1998

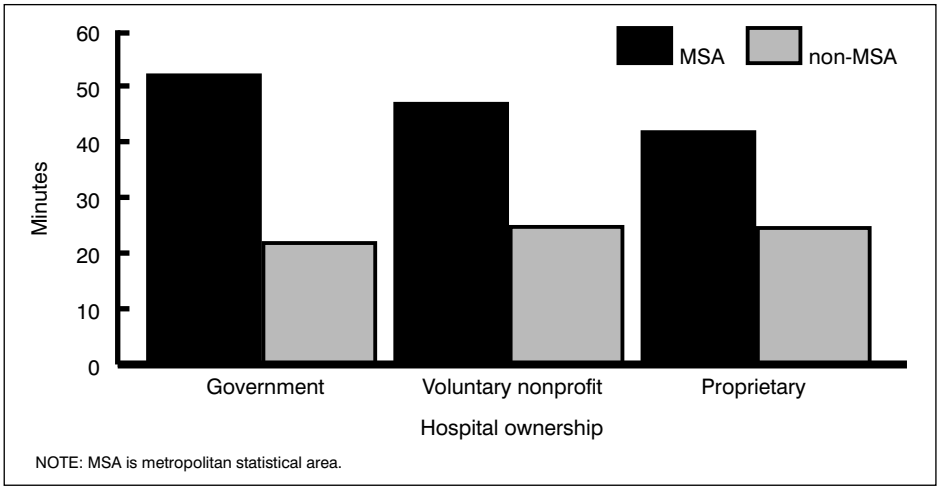


Figure 9. Average waiting time at emergency department visits by hospital ownership and metropolitan status: United States, 1998

13.4 percent, respectively. Laceration and cuts of the upper extremity was the most frequently mentioned reason for visit in the injury module (2.3 percent). It should be noted that estimates differing in ranked order may not be significantly different from each other.

Injury-related visits—An ED visit was considered to be injury- or poisoning- related if ''yes'' was checked in response to question 14, ''Is this visit related to injury or poisoning?'' or if a cause of injury, a nature of injury diagnosis, or an injury-related reason for visit was reported. Using results from any one of these items alone would underestimate the number of injury or poisoning-related visits. Each of these items measures a unique aspect of injury or poisoning. Using this definition, the number of injury visits was 10.6 percent greater when compared with using the injury checkbox alone.

In 1998, injury- and poisoning-related visits represented 37.0 percent of all ED visits. Approximately 37.1 million ED visits were made for injury and poisoning, a rate of 13.8 visits per 100 persons (table 7). About three-quarters (74.3 percent) of all injury visits occurred among persons 44 years of age or younger. Persons 15–24 years of age had a higher injury-related visit rate (19.2 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 below 45 years. The injury-related visit rate for black persons was higher than for white persons overall and among persons 25–64 years old.

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 (36.3 percent and 29.2 percent, respectively). About 7 percent of injuries were intentional, implying that the injury was purposely inflicted. Of these, 73.1 percent were the result of an assault and 26.9 percent were self-inflicted. About 18 percent of injury-related ED visits by persons 18–64 years 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) as categorized by the ICD–9–CM groupings detailed in the Technical notes. About 77 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 (20.8 percent), striking against or struck accidentally by objects or persons (12.7 percent), and motor vehicle traffic-related injuries (11.5 percent) accounted for the largest proportion of injury-related ED visits. About 4.4 percent of injury-related ED visits

are due to assaults. An unarmed fight or brawl was the leading reason for assault-related injuries (2.4 percent). Self-inflicted injuries resulted in 443,000 ED visits (1.2 percent) with poisoning being the most frequent cause (0.8 percent). Adverse effects of medical treatment represented 3.2 percent of injury-related ED visits. There were approximately 1.2 million ED visits for medical misadventures. This included adverse drug reactions and complications from surgical and medical procedures. External cause was not provided for 12.9 percent of injury visits.

Primary diagnosis—Displayed in table 10 are ED visits by primary diagnosis using the major disease categories specified by the ICD–9–CM (6). Injury and poisoning diagnoses accounted for 30.0 percent of all visits; symptoms, signs, and ill-defined conditions, and diseases of the respiratory system accounted for 14.8 percent and 12.5 percent, respectively. Some of the most frequently reported primary diagnoses for 1998 are shown in table 11. These categories are based on the ICD–9–CM. Open wounds and contusions lead the list (4.9 percent and 4.7 percent, respectively), followed by acute upper respiratory infections (3.9 percent) and abdominal pain (3.3 percent).

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. About 12.1 percent of ED visits had no diagnostic or screening services. About 48 percent of these visits were for children less than 15 years old, and 35.4 percent of visits were for persons age 15–44 years old.

As in previous years, the most frequently mentioned diagnostic service was blood pressure check, recorded at 73.1 percent of visits. Other frequently mentioned services included complete blood count (CBC) (24.7 percent) and ''other blood test'' (22.3 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.

Immediacy of care was positively related to the number of diagnostic and/or screening services ordered or provided. Patients received four or more services at 39.7 percent of emergent visits, compared with just 12.5 percent of nonurgent visits.

Procedures—Procedures were provided at 41.8 percent of ED visits (table 13). For visits with procedures, 88.5 percent had only one procedure recorded. The most frequently mentioned procedures were the administration of intravenous fluids (16.6 percent), wound care (12.0 percent), and orthopedic care (7.3 percent). Immediacy of care was positively related to the percent of visits with procedures. More than half (51.1 percent) of emergent visits included at least one procedure, compared with 37.3 percent of nonurgent visits.

Medication therapy—Hospital staff were instructed to record all new or continued medications ordered, administered, or provided at the visit, including prescription and nonprescription preparations, immunizations, and desensitizing agents. As used in NHAMCS, the term ''drug'' is interchangeable with the term ''medication.'' Visits with one or more drug mentions are termed ''drug visits'' in NHAMCS.

Medications were used at 71.3 percent of all ED visits (table 14). Although the percent of visits with at least one medication did not differ significantly by age, the number of medications did. Approximately 17 percent of the visits by patients 65 years and over cited four or more medications, compared with about 4 percent of visits by those under age 15 years. Drug utilization was also positively associated with immediacy of care. About 12 percent of emergent visits mentioned four or more drugs compared with 7.2 percent of nonurgent visits.

Drug mentions are shown by therapeutic class in figure 10. This classification is based on the therapeutic categories used in the *National Drug Code Directory*, 1995 edition (NDC) (8). 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 most frequent drug classes were antimicrobial agents (15.3 percent) and respiratory tract drugs (11.3 percent) (figure 10).

The 20 most frequently used generic substances for 1998 are shown in table 15. 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 both the count for acetaminophen and the count for codeine. The most frequently occurring generic substance in drug mentions at ED visits was acetaminophen, occurring in 13.8 percent of the drug mentions. Ibuprofen occurred in 7.1 percent of the drug mentions. Other frequent generic substances were hydrocodone (3.7 percent), amoxicillin (3.1 percent), and albuterol (3.0 percent).

The 20 most frequently mentioned medications are shown in table 16 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. It accounted for 6.5 percent of all ED drug visits . Motrin, which is classified as a nonsteroidal anti-inflammatory drug (NSAID), was ordered or prescribed at 4.0 percent of ED drug visits. Other most frequent drug mentions were Toradol (2.9 percent), Phenergan (2.5 percent), and Demerol (2.3 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 registered nurse and a staff physician attended the patient at 88.9 percent and 87.1 percent of ED visits, respectively (table 17). A resident and/or intern was seen at 9.0 percent of ED visits. For 7.9 percent of ED visits, a physician other than a staff physician or a resident and/or

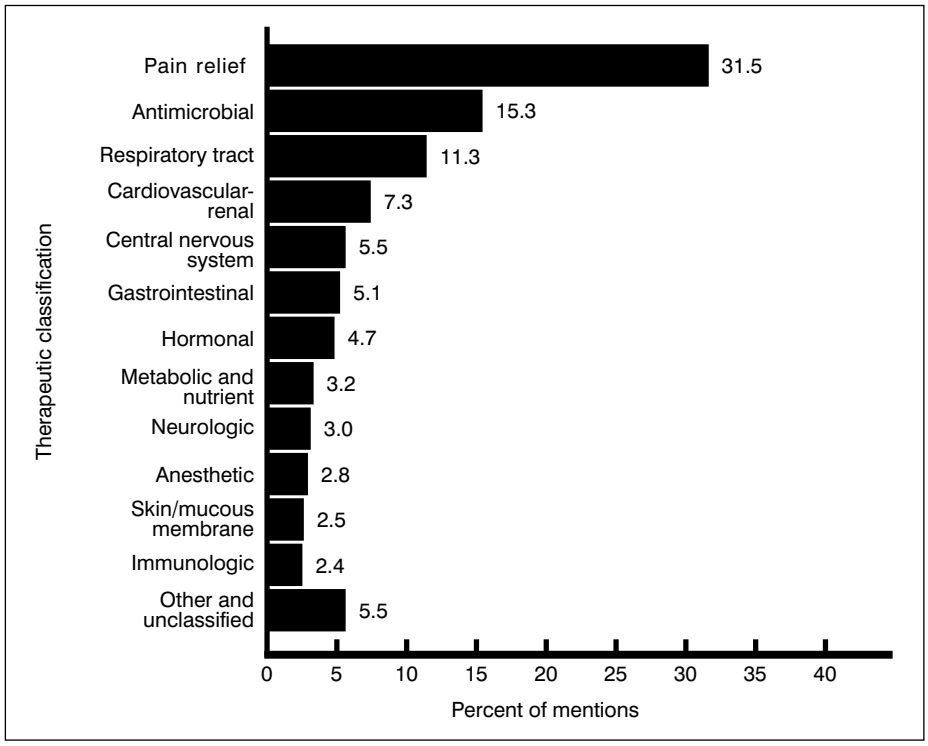


Figure 10. Percent distribution of drug mentions at emergency department visits by therapeutic classification: United States, 1998

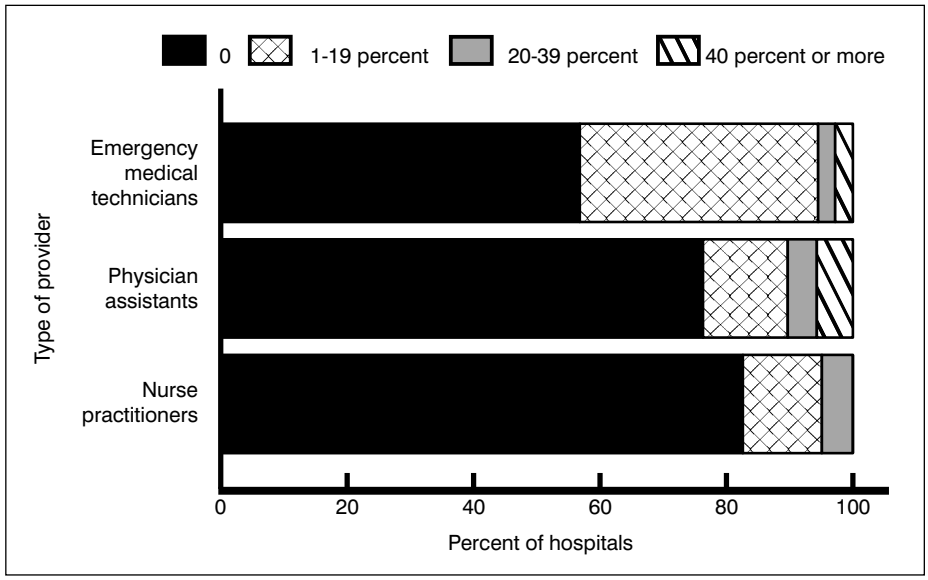


Figure 11. Percent distribution of hospital emergency departments that use emergency medical technicians, physician assistants, and nurse practitioners by percent of visits: United States, 1998

intern was seen. For 1.2 percent of visits, the provider item was not checked.

A physician was not seen at 6.1 million ED visits; patients received care from other health care providers. Care was provided by physician assistants at 34.8 percent of such visits, and a nurse practitioner provided care at 10.0 percent of visits. In general, of the total number of ED visits at which care was provided by a physician assistant, 52.3 percent did not include a physician. Of all visits at which a nurse practitioner was listed, 63.7 percent were not attended by a physician. Figure 11 shows hospitals' use of selected nonphysician providers in the ED. About 57 percent of hospitals with ED's do not use emergency medical technicians compared with 76.3 percent that do not use physician assistants and 82.6 percent that do not use nurse practitioners. Only 5.7 percent of hospitals with ED's utilize physician assistants at 40 percent or more of their ED visits.

Visit disposition—Staff were asked to record all applicable dispositions and instructed that multiple responses could be coded for this item. About 45.6 percent of ED visits resulted in a referral to another physician or clinic (table 18). At 28.3 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 12.8 percent of ED visits resulted in hospital admission. Of these, in approximately 10 percent of the visits, patients were admitted to the hospital ICU (intensive care unit) and/or CCU (critical care unit or coronary care unit). As might be expected, in visits resulting in hospitalization, patients had higher numbers of diagnostic and/or screening services and procedures compared with patients at all other visits. The average age of patients whose visits resulted in hospitalization was 55.2 ± 0.8 years compared with 32.2 ± 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 19.5 percent of such visits. Hospital admission varied by diagnosis. For example, about 62 percent of heart disease (including ischemic) visits resulted in hospital admission as did 55.5 percent for pneumonia and 32.1 percent for chest pain.

As might be expected, immediacy is related to hospital admission. About 26 percent of emergent visits resulted in hospital admission compared with only 4.4 percent of nonurgent visits.

Additional reports that utilize 1998 NHAMCS data are in the *Advance Data* from Vital and Health Statistics series. Data from the 1998 NHAMCS will be available in a variety of formats

including public use data tape, CD-ROM, and as downloadable data files accessed through the new Ambulatory Health Care home page on the Internet (www.cdc.gov/nchs/about/major/ahcd/ahcd1.htm). The data are currently available. Questions regarding this report, future reports, or the NHAMCS may be directed to the Ambulatory Care Statistics Branch at (301) 458–4600.

References

1. Schappert SM. Ambulatory care visits to physician offices, hospital outpatient departments, and emergency departments: United States, 1998. National Center for Health Statistics. Vital Health Stat. To be published.
2. Slusarcick AL. National Hospital Ambulatory Medical Care Survey: 1998 outpatient department summary. Advance data from vital and health statistics. Hyattsville, Maryland: National Center for Health Statistics. To be published.
3. Woodwell DA. National Ambulatory Medical Care Survey: 1998 summary. Advance data from vital and health statistics. Hyattsville, Maryland: National Center for Health Statistics. To be published.
4. McCaig LF, McLemore T. Plan and operation of the National Hospital Ambulatory Medical Care Survey. National Center for Health Statistics. Vital Health Stat 1(34). 1994.
5. Schneider D, Appleton L, McLemore T. A reason for visit classification for ambulatory care. National Center for Health Statistics. Vital and Health Stat 2(78). 1979.
6. Public Health Service and Health Care Financing Administration. International Classification of Diseases, 9th Revision, Clinical Modification. Washington: Public Health Service. 1991.
7. Koch H, Campbell W. The collection and processing of drug information: National Ambulatory Medical Care Survey, United States, 1980. National Center for Health Statistics. Vital Health Stat 2(90). 1982.
8. Food and Drug Administration. National Drug Code Directory, 1995 edition. Washington: Public Health Service. 1995.
9. Nourjah P. National Hospital Ambulatory Medical Care Survey: 1997 emergency department summary. Advance data from vital and health statistics; no. 304. Hyattsville, Maryland: National Center for Health Statistics. 1999.
10. Shah BV, Barnwell BG, Hunt PN, LaVange LM. SUDAAN user's manual, release 7.0. Research Triangle Institute. Research Triangle Park, North Carolina. 1996.

Table 1. Number, percent distribution, and annual rate of emergency department visits by selected patient and hospital characteristics: United States, 1998

Selected patient and hospital characteristics	Number of visits in thousands	Percent distribution	Number of visits per 100 persons per year[1,2]
All visits	100,385	100.0	37.3
Patient characteristics			
Age:			
Under 15 years	22,328	22.2	37.3
15–24 years	15,959	15.9	42.7
25–44 years	30,192	30.1	36.4
45–64 years	16,425	16.4	29.0
65–74 years	6,350	6.3	35.3
75 years and over	9,132	9.1	63.5
Sex and age:			
Female	52,798	52.6	38.2
Under 15 years	10,174	10.1	34.8
15–24 years	8,791	8.8	47.3
25–44 years	15,723	15.7	37.2
45–64 years	8,686	8.7	29.6
65–74 years	3,484	3.5	35.3
75 years and over	5,940	5.9	67.4
Male	47,587	47.4	36.3
Under 15 years	12,154	12.1	39.7
15–24 years	7,167	7.1	38.1
25–44 years	14,469	14.4	35.5
45–64 years	7,738	7.7	28.2
65–74 years	2,866	2.9	35.4
75 years and over	3,192	3.2	57.3
Race and age:			
White	76,581	76.3	34.5
Under 15 years	16,307	16.2	34.7
15–24 years	12,077	12.0	40.6
25–44 years	22,433	22.3	33.1
45–64 years	12,665	12.6	26.2
65–74 years	5,219	5.2	33.0
75 years and over	7,879	7.8	60.8
Black	21,439	21.4	61.8
Under 15 years	5,334	5.3	55.5
15–24 years	3,534	3.5	62.7
25–44 years	7,095	7.1	65.9
45–64 years	3,318	3.3	55.6
65–74 years	1,039	1.0	64.1
75 years and over	1,119	1.1	102.9
Asian/Pacific Islander	1,775	1.8	16.7
American Indian/Eskimo/Aleut	591	0.6	24.5
Hospital characteristics			
Ownership:			
Voluntary	74,568	74.3	27.7
Government	16,914	16.8	6.3
Proprietary	8,906	8.9	3.3
Geographic region:			
Northeast	19,829	19.8	38.2
Midwest	26,010	25.9	39.0
South	37,454	37.3	39.2
West	17,093	17.0	31.2
Metropolitan status:			
MSA[3]	75,499	75.2	35.5
Non-MSA[3]	24,886	24.8	44.2

[1]Based on U.S. Bureau of the Census monthly postcensal estimates of the civilian noninstitutional population of the United States as of July 1, 1998. Figures are consistent with the downloadable series, *U.S. Population Estimates by Age, Sex, Race, and Hispanic Origin: 1980–98*. 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 undernumeration using the 1990 National Population Adjustment Matrix.

[2]Regional and metropolitan area estimates have been 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, 1998. DHIS estimates may differ slightly from monthly postcensal estimates because of differences in the adjustment process.

[3]MSA is metropolitan statistical area.

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

Table 2. Number and percent distribution of emergency department visits by primary expected source of payment and health maintenance organization status: United States, 1998

Visit characteristic	Number of visits in thousands	Percent distribution
All visits	100,385	100.0
Primary expected source of payment		
Private insurance	37,913	37.8
Medicaid	17,959	17.9
Self-pay	15,192	15.1
Medicare	14,575	14.5
Workers Compensation	3,203	3.2
No charge	1,178	1.2
Other	2,897	2.9
Unknown and/or blank	7,468	7.4
HMO status[1]		
Yes	18,378	18.3
No	44,728	44.6
Unknown and/or blank	37,280	37.2

[1]HMO is health maintenance organization.

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

Table 3. Percent distribution of emergency department visits by immediacy with which patient should be seen, according to patient's age, sex, and race: United States, 1998

Patient's age, sex, and race	Number of visits in thousands	Total	Immediacy with which patient should be seen				
			Emergent[1]	Urgent[2]	Semiurgent[3]	Nonurgent[4]	Unknown/ no triage[5]
		Percent distribution					
All visits	100,385	100.0	19.2	31.2	13.7	9.0	26.9
Age							
Under 15 years	22,328	100.0	15.3	32.0	14.4	11.4	26.9
15–24 years	15,959	100.0	15.7	31.0	15.3	10.1	27.9
25–44 years	30,192	100.0	16.7	30.9	14.9	9.1	28.5
45–64 years	16,425	100.0	22.2	31.3	12.9	7.6	26.0
65–74 years	6,350	100.0	28.2	30.6	11.0	6.7	23.5
75 years and over	9,132	100.0	31.2	30.5	9.0	4.8	24.5
Sex and age							
Female	52,798	100.0	19.1	32.0	13.4	8.8	26.7
Under 15 years	10,174	100.0	14.6	31.6	14.1	11.5	28.4
15–24 years	8,791	100.0	15.3	32.3	15.5	10.3	26.7
25–44 years	15,723	100.0	16.8	32.9	14.1	8.6	27.6
45–64 years	8,686	100.0	21.4	31.0	14.1	7.8	25.8
65–74 years	3,484	100.0	27.1	33.6	10.3	7.0	22.0
75 years and over	5,940	100.0	30.5	30.9	8.5	4.9	25.2
Male	47,587	100.0	19.3	30.2	14.1	9.2	27.3
Under 15 years	12,154	100.0	15.9	32.4	14.7	11.3	25.7
15–24 years	7,167	100.0	16.3	29.4	15.0	10.0	29.3
25–44 years	14,469	100.0	16.6	28.7	15.7	9.6	29.4
45–64 years	7,738	100.0	23.1	31.7	11.7	7.4	26.2
65–74 years	2,866	100.0	29.5	26.9	11.8	6.4	25.4
75 years and over	3,192	100.0	32.6	29.6	9.8	4.7	23.3
Race and age							
White	76,581	100.0	20.3	31.3	12.7	8.8	26.9
Under 15 years	16,307	100.0	15.7	32.3	13.6	11.4	27.1
15–24 years	12,077	100.0	16.6	31.6	13.9	10.0	27.9
25–44 years	22,433	100.0	17.9	31.1	13.9	8.8	28.5
45–64 years	12,665	100.0	23.5	31.0	11.8	7.8	26.0
65–74 years	5,219	100.0	29.0	30.0	10.2	6.6	24.3
75 years and over	7,879	100.0	31.9	31.0	8.7	4.6	23.8
Black	21,439	100.0	15.1	31.5	17.8	10.0	25.5
Under 15 years	5,334	100.0	14.3	32.0	17.2	11.7	24.8
15–24 years	3,634	100.0	12.5	29.7	20.5	11.2	26.2
25–44 years	7,095	100.0	13.0	31.5	18.5	10.3	26.8
45–64 years	3,318	100.0	16.8	33.8	17.5	7.3	24.6
65–74 years	1,039	100.0	24.9	32.3	15.9	*	19.2
75 years and over	1,119	100.0	26.5	27.8	11.0	*	27.4
Other	2,366	100.0	18.8	23.1	10.4	6.9	40.8

* Figure does not meet standard of reliability or precision.
[1]A visit in which the patient should be seen in less than 15 minutes.
[2]A visit in which the patient should be seen within 15–60 minutes.
[3]A visit in which the patient should be seen within 60–120 minutes.
[4]A visit in which the patient should be seen within 24 hours.
[5]A 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 4. Number, percent distribution, and annual rate of emergent and urgent emergency department visits by patient's age, sex, and race: United States, 1998

Patient's age, sex, and race	Emergent visits[1]			Urgent visits[2]		
	Number in thousands	Percent distribution	Number per 100 persons per year[3]	Number in thousands	Percent distribution	Number per 100 persons per year[3]
All visits	19,238	100.0	7.1	31,283	100.0	11.6
Age						
Under 15 years	3,413	17.7	5.7	7,152	22.9	11.9
15–24 years	2,512	13.1	6.7	4,947	15.8	13.2
25–44 years	5,030	26.1	6.1	9,321	29.8	11.2
45–64 years	3,643	18.9	6.4	5,142	16.4	9.1
65–74 years	1,789	9.3	10.0	1,941	6.2	10.8
75 years and older	2,852	14.8	19.8	2,781	8.9	19.3
Sex and age						
Female	10,071	52.3	7.3	16,915	54.1	12.2
Under 15 years	1,481	7.7	5.1	3,212	10.3	11.0
15–24 years	1,342	7.0	7.2	2,839	9.1	15.3
25–44 years	2,634	13.7	6.2	5,166	16.5	12.2
45–64 years	1,859	9.7	6.3	2,690	8.6	9.2
65–74 years	943	4.9	9.5	1,170	3.7	11.8
75 years and older	1,811	9.4	20.5	1,836	5.9	20.8
Male	9,167	47.7	7.0	14,368	45.9	10.9
Under 15 years	1,932	10.0	6.3	3,940	12.6	12.9
15–24 years	1,170	6.1	6.2	2,108	6.7	11.2
25–44 years	2,395	12.5	5.9	4,155	13.3	10.2
45–64 years	1,784	9.3	6.5	2,452	7.8	8.9
65–74 years	846	4.4	10.5	771	2.5	9.5
75 years and older	1,041	5.4	18.7	945	3.0	17.0
Race and age						
White	15,560	80.9	7.0	23,982	76.7	10.8
Under 15 years	2,555	13.3	5.4	5,262	16.8	11.2
15–24 years	2,003	10.4	6.7	3,819	12.2	12.8
25–44 years	4,006	20.8	5.9	6,965	22.3	10.3
45–64 years	2,974	15.5	6.1	3,924	12.5	8.1
65–74 years	1,511	7.9	9.6	1,567	5.0	9.9
75 years and older	2,510	13.0	19.4	2,443	7.8	18.9
Black	3,234	16.8	9.3	6,757	21.6	19.5
Under 15 years	764	4.0	8.0	1,706	5.5	17.8
15–24 years	441	2.3	7.8	1,049	3.4	18.6
25–44 years	919	4.8	8.5	2,233	7.1	20.7
45–64 years	556	2.9	9.3	1,123	3.6	18.8
65–74 years	258	1.3	15.9	336	1.1	20.7
75 years and older	297	1.5	27.3	311	1.0	28.6
Other	444	2.3	3.4	546	1.7	4.2

[1]An emergent visit is defined as one in which the patient should be seen in less than 15 minutes and is determined by the practitioner at triage.
[2]An urgent visit is defined as one in which the patient should be seen within 15–30 minutes and is determined by the practitioner at triage.
[3]Based on U.S. Bureau of the Census monthly postcensal estimates of the civilian noninstitutional population of the United States as of July 1, 1998. Figures are consistent with the downloadable series, *U.S. Population Estimates by Age, Sex, Race, and Hispanic Origin: 1980–98*. 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 undernumeration using the 1990 National Population Adjustment Matrix.

Table 5. Number and percent distribution of emergency department visits by patient's principal reason for visit: United States, 1998

Principal reason for visit and RVC code[1]		Number of visits in thousands	Percent distribution
All Visits		100,385	100.0
Symptom module	S001–S999	71,388	71.1
General symptoms	S001–S099	15,543	15.5
Symptoms referable to psychological/mental disorders	S100–S199	1,834	1.8
Symptoms referable to the nervous system (excluding sense organs)	S200–S259	5,989	6.0
Symptoms referable to the cardiovascular/lymphatic system	S260–S299	793	0.8
Symptoms referable to the eyes and ears	S300–S399	3,580	3.6
Symptoms referable to the respiratory system	S400–S499	11,774	11.7
Symptoms referable to the digestive system	S500–S639	12,049	12.0
Symptoms referable to the genitourinary system	S640–S829	3,242	3.2
Symptoms referable to the skin, hair, and nails	S830–S899	2,774	2.8
Symptoms referable to the musculoskeletal system	S900–S999	13,809	13.8
Disease module	D001–D999	3,351	3.3
Diagnostic/screening and preventive module	X100–X599	743	0.7
Treatment module	T100–T899	2,558	2.5
Injuries and adverse effects module	J001–J999	21,106	21.0
Test results module	R100–R700	203	0.2
Administrative module	A100–A140	244	0.2
Other[2]	U990–U999	241	0.2

[1]Based on *A Reason for Visit Classification for Ambulatory Care* (RVC) (5).
[2]Includes 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 by the 20 principal reasons for visit most frequently mentioned by patients: United States, 1998

Principal reason for visit and RVC code[1]		Number of visits in thousands	Percent distribution
All visits		100,385	100.0
Stomach and abdominal pain, cramps and spasms	S545	5,958	5.9
Chest pain and related symptoms	S050	5,329	5.3
Fever	S010	4,419	4.4
Headache, pain in head	S210	2,867	2.9
Cough	S440	2,471	2.5
Laceration and cuts—upper extremity	J225	2,293	2.3
Back symptoms	S905	2,284	2.3
Shortness of breath	S415	2,283	2.3
Symptoms referable to throat	S455	2,205	2.2
Pain, site not referable to a specific body system	S055	1,990	2.0
Vomiting	S530	1,985	2.0
Earache or ear infection	S355	1,947	1.9
Labored or difficult breathing (dyspnea)	S420	1,690	1.7
Laceration and cuts—facial area	J210	1,623	1.6
Accident, NOS[2]	J810	1,560	1.6
Injury, other and unspecified type—head, neck, and face	J505	1,465	1.5
Skin rash	S860	1,369	1.4
Neck symptoms	S900	1,346	1.3
Low back symptoms	S910	1,298	1.3
Other	...	46,382	46.2

... Category not applicable.
[1]Based on *A Reason for Visit Classification for Ambulatory Care* (RVC) (5).
[2]NOS 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 by patient's age, sex, and race: United States, 1998

Patient's age, sex, and race	Number of visits in thousands	Percent distribution	Number of visits per 100 persons per year[1]
All injury-related visits	37,111	100.0	13.8
Age			
Under 15 years	8,366	22.5	14.0
15–24 years	7,196	19.4	19.2
25–44 years	12,013	32.4	14.5
45–64 years	5,443	14.7	9.6
65–74 years	1,493	4.0	8.3
75 years and over	2,600	7.0	18.1
Female	16,655	44.9	12.1
Under 15 years	3,362	9.1	11.5
15–24 years	2,935	7.9	15.8
25–44 years	5,028	13.5	11.9
45–64 years	2,605	7.0	8.9
65–74 years	927	2.5	9.4
75 years and over	1,799	4.8	20.4
Male	21,198	57.1	16.2
Under 15 years	5,003	13.5	16.3
15–24 years	4,261	11.5	22.6
25–44 years	6,985	18.8	17.2
45–64 years	2,838	7.6	10.4
65–74 years	566	1.5	7.0
75 years and over	801	2.2	14.4
Race and age			
White	29,559	79.7	13.3
Under 15 years	6,551	17.7	13.9
15–24 years	5,745	15.5	19.3
25–44 years	9,242	24.9	13.6
45–64 years	4,455	12.0	9.2
65–74 years	1,266	3.4	8.0
75 years and over	2,300	6.2	17.7
Black	6,589	17.8	19.0
Under 15 years	1,577	4.3	16.4
15–24 years	1,254	3.4	22.2
25–44 years	2,487	6.7	23.1
45–64 years	840	2.3	14.1
65–74 years	178	0.5	11.0
75 years and over	253	0.7	23.3
Other	963	2.6	7.4

[1]Based on U.S. Bureau of the Census monthly postcensal estimates of the civilian noninstitutional population of the United States as of July 1, 1998. Figures are consistent with the downloadable series, *U.S. Population Estimates by Age, Sex, Race, and Hispanic Origin: 1980–98*. 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 undernumeration 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 by selected characteristics of the injury, according to patient's age: United States, 1998

Selected characteristic of the injury	All ages		Under 18		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	37,111	100.0	10,458	100.0	22,560	100.0	4,093	100.0
Place of occurrence								
Residence	10,679	28.8	3,602	34.4	5,042	22.4	2,034	49.7
Street or highway	5,195	14.0	1,063	10.2	3,814	16.9	317	7.7
Recreation/sports area	2,290	6.2	1,151	11.0	1,083	4.8	*	*
Industrial places	2,263	6.1	*	*	2,166	9.6	*	*
Other public building	1,185	3.2	155	1.5	886	3.9	*	*
School	785	2.1	697	6.7	86	0.4	*	*
Other	1,226	3.3	211	2.0	806	3.6	208	5.1
Unknown	13,488	36.3	3,498	33.4	8,676	38.5	1,314	32.1
Intentionality								
Yes (self-inflicted)	671	1.8	105	1.0	549	2.4	*	*
Yes (assault)	1,824	4.9	363	3.5	1,403	6.2	*	*
No, unintentional	30,046	81.0	8,980	85.9	17,534	77.7	3,528	86.2
Unknown/blank	4,569	12.3	1,009	9.6	3,071	13.6	489	12.0
Work-related								
Yes	4,444	12.0	223	2.1	4,159	18.4	*	*
No	21,844	58.9	7,782	74.4	11,211	49.7	2,851	69.6
Unknown/blank	10,822	29.2	2,453	23.5	7,189	31.9	1,180	28.8

*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 by intent and mechanism of external cause: United States, 1998

Intent and mechanism[1]	Number of visits in thousands	Percent distribution
All injury-related visits	37,111	100.0
Unintentional injuries	28,636	77.2
Falls	7,712	20.8
Struck against or struck accidentally by objects or persons	4,717	12.7
Motor vehicle traffic	4,259	11.5
Cutting or piercing instruments or objects	3,142	8.5
Overexertion and strenuous movements	1,456	3.9
Natural and environmental factors	1,238	3.3
Poisoning by drugs, medical substances, biological, other solid and liquid substances, gases, and vapors	754	2.0
Fire and flames, hot substances or object, caustic or corrosive material, and steam	531	1.4
Pedal cycle, nontraffic and other	496	1.3
Machinery	411	1.1
Motor vehicle, nontraffic	391	1.1
Other transportation	174	0.5
Other mechanism[2]	2,171	5.9
Mechanism unspecified	1,183	3.2
Intentional injuries	2,168	5.8
Assault	1,618	4.4
Unarmed fight or brawl, striking by blunt or thrown object	873	2.4
Cutting or piercing instrument	160	0.4
Other and unspecified mechanism[3]	585	1.6
Self-inflicted	443	1.2
Poisoning by solid or liquid substances, gases, and vapors	298	0.8
Other and unspecified mechanism[4]	145	0.4
Other causes of violence	107	0.3
Injuries of undetermined intent	323	0.9
Adverse effects of medical treatment	1,197	3.2
Blank cause[5]	4,778	12.9

* Figure does not meet standard of reliability or precision.

[1]Based on the "Supplementary Classification of External Cause of Injury and Poisoning," *International Classification of Diseases, 9th Revision, Clinical Modification* (6). A detailed description of the ICD–9–CM E-codes used to create the groupings in this table is provided in the Technical notes.

[2]Includes drowning, suffocation, firearm, and other mechanism.

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

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

[5]Includes illegible entries and blanks.

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

Table 10. Number and percent distribution of emergency department visits by primary diagnosis: United States, 1998

Major disease category and ICD–9–CM code range[1]	Number of visits in thousands	Percent distribution
All visits	100,385	100.0
Infectious and parasitic diseases 001–139	3,371	3.4
Neoplasms 140–239	313	0.3
Endocrine, nutritional, and metabolic diseases 240–279	1,420	1.4
Mental disorders 290–319	3,131	3.1
Diseases of the nervous system and sense organs 320–389	5,735	5.7
Diseases of the circulatory system 390–459	4,180	4.2
Diseases of the respiratory system 460–519	12,540	12.5
Diseases of the digestive system 520–579	5,634	5.6
Diseases of the genitourinary system 580–629	4,233	4.2
Diseases of the skin and subcutaneous tissue 680–709	2,780	2.8
Diseases of the musculoskeletal system and connective tissue 710–739	4,566	4.5
Symptoms, signs, and ill-defined conditions 780–799	14,811	14.8
Injury and poisoning 800–999	30,089	30.0
Fracture 800–829	3,798	3.8
Sprains 840–848	6,177	6.2
Intracranial 850–854	279	0.3
Open wounds 870–897	7,594	7.6
Superficial 910–919	1,548	1.5
Contusion 920–924	4,759	4.7
Foreign bodies 930–939	762	0.8
Burns 940–949	652	0.6
Complications 958–959	1,606	1.6
Poisoning and toxic effects 960–989	871	0.9
Other injury	2,043	2.0
Supplementary classification V01–V82	3,977	4.0
All other diagnoses[2]	1,962	2.0
Unknown[3]	1,643	1.6

[1]Based on the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (6).
[2]Includes 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).
[3]Includes 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 by selected primary diagnosis: United States, 1998

Primary diagnosis and ICD–9–CM code[1]	Number of visits in thousands	Percent distribution
All visits	100,385	100.0
Open wound, excluding head 874–897	4,872	4.9
Contusion with intact skin surface 920–924	4,759	4.7
Acute upper respiratory infection, excluding pharyngitis 460–461,463–466	3,870	3.9
Abdominal pain 789.0	3,304	3.3
Chest pain 786.5	2,978	3.0
Open wound of head 870–873	2,721	2.7
Otitis media and eustachian tube disorders 381–382	2,601	2.6
Fractures, excluding lower limb 800–819	2,490	2.5
Sprains and strains, excluding ankle and back 840–844,845.1,848	2,473	2.5
Sprains and strains of back 846–847	2,391	2.4
Dorsopathies 720–724	2,034	2.0
Asthma 493	2,034	2.0
Heart disease, excluding ischemic 391–392.0,393–398,402,404,415–416,420–429	1,614	1.6
Chronic and unspecified bronchitis 490–491	1,609	1.6
Acute pharyngitis 462	1,559	1.6
Superficial injury 910–919	1,548	1.5
Noninfectious enteritis and colitis 555–558	1,444	1.4
Rheumatism, excluding back 725–729	1,416	1.4
Sprains and strains of ankle 845.0	1,313	1.3
Fracture of lower limb 820–829	1,308	1.3
All other diagnoses	52,046	51.8

[1]Based on the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (6). 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 by diagnostic screening services: United States, 1998

Diagnostic and screening services ordered or provided	Number of visits in thousands[1]	Percent of visits
All visits	100,385	...
Blood pressure	73,338	73.1
CBC[2]	24,818	24.7
Other blood test	22,377	22.3
Pulse oximetry	20,270	20.2
Chest x ray	16,647	16.6
Urinalysis	15,626	15.6
EKG[3]	14,565	14.5
Mental status exam	13,682	13.6
Extremity x ray	11,297	11.3
Other x ray	10,647	10.6
Cardiac monitor	8,400	8.4
CAT scan[4]	4,096	4.1
Pregnancy test	2,854	2.8
Ultrasound	1,555	1.5
Blood alcohol concentration	1,647	1.6
Other diagnostic image	1,321	1.3
Other STD test[5]	712	0.7
HIV serology[6]	200	0.2
MRI imaging[7]	138	0.1
Other test	7,176	7.1
None	12,126	12.1

... Category not applicable.
[1]Total exceeds total number of visits because more than one service may be reported per visit.
[2]CBC is complete blood count.
[3]EKG is electrocardiogram.
[4]CAT is computerized axial tomography.
[5]STD is sexually transmitted diseases.
[6]HIV is human immunodeficiency virus.
[7]MRI is magnetic resonance imaging.

Table 13. Number and percent of emergency department visits by selected procedures: United States, 1998

Procedure provided by hospital staff	Number of visits in thousands[1]	Percent of visits
All visits	100,385	...
IV fluids[2]	16,617	16.6
Wound care	12,034	12.0
Orthopedic care	7,370	7.3
Eye/ENT care[3]	3,313	3.3
Bladder catheter	1,884	1.9
OB/GYN care[4]	2,071	2.1
NG tube/gastric lavage[5]	517	0.5
Endotracheal intubation	386	0.4
Lumbar puncture	215	0.2
CPR[6]	233	0.2
Other	2,884	2.9
None	58,390	58.2

... Category not applicable.
[1]Total exceeds total number of visits because more than one procedure may be reported per visit.
[2]IV is intravenous fluids.
[3]ENT is ear, nose, throat.
[4]OB/GYN is obstetrics/gynecology.
[5]NG is nasogastric.
[6]CPR is cardiopulmonary resuscitation.

Table 14. Number and percent distribution of emergency department visits by number of medications provided or prescribed: United States, 1998

Medication therapy	Number of visits in thousands[1]	Percent distribution
All visits	100,385	100.0
Drug visits[2]	71,610	71.3
Visits without mention of medication	28,775	28.7
Number of medications provided or prescribed		
All visits	100,385	100.0
0	28,775	28.7
1	30,663	30.5
2	21,376	21.3
3	10,653	10.6
4	4,373	4.4
5	2,059	2.1
6	2,484	2.5

[1]Includes prescription drugs, over-the-counter preparations, immunizing agents, and desensitizing agents.
[2] Visits at which one or more drugs were provided or prescribed.

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

Table 15. Number of generic substances and percent of all drug mentions for the 20 most frequently occurring generic substances in drug mentions at emergency department visits: United States, 1998

Generic substance	Number of occurrences in thousands[1]	Percent of all drug mentions[2]
All generic substances	173,649	...
Acetaminophen	20,376	13.8
Ibuprofen	10,465	7.1
Hydrocodone	5,450	3.7
Amoxicillin	4,657	3.1
Albuterol	4,516	3.0
Ketorolac tromethamine	4,403	3.0
Promethazine	4,010	2.7
Meperidine	3,677	2.5
Cephalexin	2,645	1.8
Codeine	2,417	1.6
Tetanus toxoid	2,343	1.6
Diphenhydramine	2,245	1.5
Ceftriaxone	2,164	1.5
Nitroglycerin	2,126	1.4
Lidocaine	2,076	1.4
Aspirin	2,045	1.4
Propoxyphene	1,821	1.2
Trimethoprim	1,785	1.2
Sulfamethoxazole	1,723	1.2
Hydroxyzine	1,713	1.2

... Category not applicable.
[1]Frequency of mention combines single-ingredient agents with mentions of the agent as an ingredient in a combination drug.
[2]Based on an estimated 148,064,000 drug mentions at emergency department visits in 1998.

Table 16. Number and percent distribution of the 20 drugs most frequently prescribed at emergency department visits by entry name of drug: United States, 1998

Entry name of drug[1]	Number of mentions in thousands	Percent distribution	Therapeutic classification[2]
All drug mentions	148,064	100.0	. . .
Tylenol	9,523	6.5	Analgesics, nonnarcotic
Motrin	5,929	4.0	Nonsteroidal anti-inflammatory drugs (NSAID's)
Toradol	4,319	2.9	Nonsteroidal anti-inflammatory drugs (NSAID's)
Phenergan	3,714	2.5	Antihistamines
Demerol	3,443	2.3	Analgesics, narcotic
Vicodin	3,344	2.3	Analgesics, nonnarcotic
Ibuprofen	2,688	1.8	Nonsteroidal anti-inflammatory drugs (NSAID's)
Albuterol sulfate	2,634	1.8	Antiasthmatics/bronchodilators
Amoxicillin	2,468	1.7	Penicillins
Keflex	2,368	1.6	Cephalosporins
Benadryl	2,196	1.5	Antihistamines
Rocephin	1,904	1.3	Cephalosporins
Darvocet-N	1,694	1.1	Analgesics, narcotic
Prednisone	1,666	1.1	Adrenal corticosteroids
Lasix	1,659	1.1	Diuretics
Compazine	1,549	1.0	Antiemetics
Advil	1,545	1.0	Nonsteroidal anti-inflammatory drugs (NSAID's)
Tylenol No. 3	1,531	1.0	Analgesics, narcotic
Tetanus toxoid	1,455	1.0	Vaccines and antisera
Vistaril	1,403	0.9	Sedatives and hypnotics
All other mentions	91,032	61.5	. . .

. . . Category not applicable.
[1]The entry made by hospital staff on the prescription or other medical records, This may be a trade name, generic name, or desired therapeutic effect.
[2]Therapeutic classification is based on the *National Drug Code Directory*, 1995 Edition (8). In cases where a drug had more than one therapeutic use, it was classified under its primary therapeutic use.

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

Table 17. Number and percent of emergency department visits by provider seen: United States, 1998

Type of provider	Number of visits in thousands[1]	Percent of visits
All visits	100,385	. . .
R.N.[2]	89,273	88.9
Staff physician	87,404	87.1
Resident/intern	8,989	9.0
Other physician	7,889	7.9
E.M.T.[3]	6,277	6.3
Medical/nursing assistant	5,579	5.6
L.P.N.[4]	4,212	4.2
Physician assistant	4,073	4.1
Nurse practitioner	956	1.0
Other	9,849	9.8

. . . Category not applicable.
[1]Total exceeds total number of visits because more than one provider may be reported per visit.
[2]R.N. is registered nurse.
[3]E.M.T. is emergency medical technician.
[4]L.P.N. is licensed practical nurse.

Table 18. Number and percent of emergency department visits by disposition of visit: United States, 1998

Disposition	Number of visits in thousands[1]	Percent of visits
All visits	100,386	. . .
Referred to other physician/clinic	45,785	45.6
Return to ED, PRN/appointment[2]	28,405	28.3
Returned to referring physician	15,394	15.3
Admitted to hospital[3]	12,862	12.8
No followup planned	8,739	8.7
Transferred to other facility	1,798	1.8
Left before being seen	1,372	1.4
Admitted to ICU/CCU[4]	1,276	1.3
Referred to social service	365	0.4
DOA/died in ED[5,6]	309	0.3
Referred out from triage without treatment	273	0.3
Other[7]	2,628	2.6

. . . Category not applicable.
[1]Total exceeds total number of visits because more than one disposition may be reported per visit.
[2]PRN is as needed.
[3]Includes those admitted to ICU/CCU.
[4]ICU/CCU is intensive care unit/critical care unit or coronary care unit.
[5]DOA is dead on arrival.
[6]ED is emergency department.
[7]Includes unknown.

Technical notes

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 out of 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 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 (10). 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 relative standard errors for aggregate estimates. The approximate relative standard error 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:

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

Similarly, relative standard errors 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:

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

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

Table I. Coefficients appropriate for determining approximate relative standard errors: National Hospital Ambulatory Medical Care Survey, 1998: Emergency departments

Type of estimate	Coefficient for use with estimates in thousands		Lowest reliable estimate in thousands
	A	*B*	
Visits	0.002134	6.991	80
Drug mentions	0.002679	20.075	230

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. This theorem states that, given a sufficiently large sample size, the sample estimate approximates the population estimate and, upon repeating 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. In such cases, only an asterisk (*) appears in the tables. Estimates based on 30 or more cases include an asterisk if the relative standard error 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: (a) inflation by reciprocals of the sampling selection probabilities, (b) adjustment for nonresponse, and (c) 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 metropolitan statistical area (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.

The second type of nonresponse occurred when a sample emergency service area (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 both sampling and nonsampling errors. Nonsampling errors include reporting and processing errors as well as biases due to nonresponse and incomplete response. The magnitude of the nonsampling errors cannot be computed. However, these errors were kept to a minimum by procedures built into the operation of the survey. To eliminate ambiguities and to encourage uniform reporting, attention was given to the phrasing of 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 0.1 to 1.2 for various data items.

Adjustments for item nonresponse

Weighted item nonresponse rates were 5.0 percent or less for data items

with the following exceptions: mode of arrival (82.0 percent), pregnancy status of patient (44.8 percent of visits for women 15–44 years of age), ethnicity (23.0 percent), race (11.5 percent), primary expected source of payment for this visit (7.4 percent), HMO status of patient (37.2 percent), presenting level of pain (50.5 percent), place of occurrence of injury (36.3 percent of injury visits), intentionality of injury (12.3 percent of injury visits), work related status of injury (29.2 percent of injury visits), and cause of injury (12.9 percent of injury visits).

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 was checked), the grouping was based on ED size, geographic region, and 3-digit ICD–9–CM code for principal diagnosis. The other imputed items were visit time (2.5 percent), birth year (2.9 percent), sex (1.4 percent) and race (11.5 percent). Imputation for these items was based on hospital size, geographic region, immediacy with which patient should be seen, and 3-digit ICD–9–CM code for principal 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 (0.05 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

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–E929.5, 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
Firearms	E965.0–E965.4
Other and unspecified mechanism	E960.1, E962–E964, E965.5–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

[1]Based on the ''Supplementary Classification of External Causes of Injury and Poisoning,'' *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (6).

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.

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, 1998. 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: 1980–98*. 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 (1). Regional estimates have been 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, 1998. DHIS estimates are provisional at this time and differ slightly from monthly postcensal estimates because of differences in the adjustment process.

Definition of terms

Ambulatory patient—An ambulatory patient is an individual seeking personal health services who is not currently admitted to any health care institution on the premises.

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 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, then 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 10 of ''Immediacy with which patient should be seen'' on the Patient Record form.

Hospital—To be in scope for 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 less than six beds staffed for patient use.

Illness-related visit—A visit is considered illness-related if it was not an injury visit as defined below.

Injury-related visit—A visit is injury-related if ''yes'' was checked in response to item 14, ''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.

Visit—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.

Suggested citation

McCaig LF. National Hospital Ambulatory Medical Care Survey: 1998 Emergency Department Summary. Advance data from vital and health statistics; no. 313. Hyattsville, Maryland: National Center for Health Statistics. 2000.

U.S. DEPARTMENT OF
HEALTH & HUMAN SERVICES

Centers for Disease Control and Prevention
National Center for Health Statistics
6525 Belcrest Road
Hyattsville, Maryland 20782-2003

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

To receive this publication regularly, contact the National Center for Health Statistics by calling 301-458-4636
E-mail: nchsquery@cdc.gov
Internet: www.cdc.gov/nchs/

DHHS Publication No. (PHS) 2000-1250
0-0331 (4/00)

FIRST CLASS MAIL
POSTAGE & FEES PAID
CDC/NCHS
PERMIT NO. G-284