

Advance Data



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National Hospital Ambulatory Medical Care Survey: 1996 Emergency Department Summary

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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 1996 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 were weighted to produce annual estimates.

Results—During 1996, an estimated 90.3 million visits were made to hospital emergency departments (ED's) in the United States, about 34.2 visits per 100 persons. Persons 75 years and over had the highest rate of emergency department visits. There were an estimated 34.9 million injury-related emergency department visits during 1996, or 13.2 visits per 100 persons. There were 111,000 visits related to injuries caused by firearms, including 73,000 visits for gunshot wounds. Almost one-fifth of the injury visits were work-related for persons 18–64 years of age. Almost four-fifths of the ED visits involved medication therapy. Pain relief drugs accounted for almost 30 percent of the medications mentioned. Acute upper respiratory infection was the leading illness related diagnosis for ED visits.

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

Introduction

Ambulatory medical care is the predominant method of providing health care services in the United States and is provided in a wide range of settings. The largest proportion of ambulatory care occurs in physicians' offices (1).

Since 1973, NCHS has collected data on patient visits to physicians' offices through the National Ambulatory Medical Care Survey (NAMCS). However, visits to hospital emergency and outpatient departments, which represent a significant segment of total

ambulatory medical care, are not included in the NAMCS.

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 and outpatient departments to the population of the United States. Together, the NAMCS and NHAMCS data provide an important tool for tracking ambulatory care utilization. A third survey, the National Survey of Ambulatory Surgery, was launched in 1994 to focus on the rapidly increasing use of ambulatory surgery centers that are not covered in NAMCS and NHAMCS. These surveys are the ambulatory care component of the National Health Care Survey, which measure health care utilization across various types of providers.

This report presents national annual estimates of visits to hospital emergency departments (ED's) for 1996. Both patient and visit characteristics are presented. Another *Advance Data* report highlights visits to outpatient departments (2).

Methods

The data presented in this report are from the 1996 NHAMCS, a national



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



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.		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: 07-31-97 CDC 64.112	
NATIONAL HOSPITAL AMBULATORY MEDICAL CARE SURVEY 1995-96 EMERGENCY DEPARTMENT PATIENT RECORD					
1. DATE OF VISIT _____ / _____ / _____ <small>Month Day Year</small>		4. ZIP CODE _____ <small>Patient's</small>		6. SEX 1 <input type="checkbox"/> Female 2 <input type="checkbox"/> Male	
2. TIME OF VISIT: <input type="checkbox"/> Military _____ : _____ <input type="checkbox"/> AM <input type="checkbox"/> PM		5. RACE 1 <input type="checkbox"/> White 2 <input type="checkbox"/> Black 3 <input type="checkbox"/> Asian / Pacific Islander 4 <input type="checkbox"/> American Indian / Eskimo / Aleut		7. ETHNICITY 1 <input type="checkbox"/> Hispanic origin 2 <input type="checkbox"/> Not Hispanic	
3. DATE OF BIRTH _____ / _____ / _____ <small>Month Day Year</small>		8. DOES PATIENT SMOKE CIGARETTES ? 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Unknown		9. EXPECTED SOURCE(S) OF PAYMENT FOR THIS VISIT a. Type of payment Check one. 1 <input type="checkbox"/> Preferred provider option 2 <input type="checkbox"/> Insured, fee-for-service 3 <input type="checkbox"/> HMO / other prepaid 4 <input type="checkbox"/> Self-pay 5 <input type="checkbox"/> No charge 6 <input type="checkbox"/> Other	
				b. Expected sources of insurance Check all that apply. 1 <input type="checkbox"/> Blue Cross / Blue Shield 2 <input type="checkbox"/> Other private insurance 3 <input type="checkbox"/> Medicare 4 <input type="checkbox"/> Medicaid 5 <input type="checkbox"/> Worker's Compensation 6 <input type="checkbox"/> Other 7 <input type="checkbox"/> Unknown	
10. PATIENT'S COMPLAINT(S), SYMPTOM(S), OR OTHER REASON(S) FOR THIS VISIT Use patient's own words. Most a. Important: _____ b. Other: _____ c. Other: _____					
11. IS THIS VISIT INJURY RELATED ? 1 <input type="checkbox"/> Yes (Answer a through e.) 2 <input type="checkbox"/> No (Skip to item 12.)			c. Is this injury work related ? 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Unknown		
a. 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 car, etc. _____ _____			b. Place of occurrence 1 <input type="checkbox"/> Home 2 <input type="checkbox"/> School 3 <input type="checkbox"/> Sports or athletics area 4 <input type="checkbox"/> Street or highway 5 <input type="checkbox"/> Other: _____ 6 <input type="checkbox"/> Unknown		
			d. Did a firearm produce the injury ? 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No		
			e. Is this injury violence related ? 1 <input type="checkbox"/> No 3 <input type="checkbox"/> Yes (Suicide / suicide attempt) 2 <input type="checkbox"/> Yes (Interpersonal violence / assault) If interpersonal violence / assault, person who caused the injury is the patient's: 1 <input type="checkbox"/> Spouse 6 <input type="checkbox"/> Friend / acquaintance 2 <input type="checkbox"/> Other intimate partner 7 <input type="checkbox"/> Stranger 3 <input type="checkbox"/> Parent 8 <input type="checkbox"/> Unknown 4 <input type="checkbox"/> Other family 9 <input type="checkbox"/> Other: 5 <input type="checkbox"/> Caretaker		
12. PHYSICIAN'S DIAGNOSES As specifically as possible, list up to 3 current diagnoses. Include those unrelated to this visit. a. Principal diagnosis or problem associated with item 10a: _____ b. Other: _____ c. Other: _____					
13. IS THIS VISIT ALCOHOL OR DRUG RELATED ? 1 <input type="checkbox"/> Neither 2 <input type="checkbox"/> Alcohol 3 <input type="checkbox"/> Drug 4 <input type="checkbox"/> Both 5 <input type="checkbox"/> Unknown		14. DOES PATIENT HAVE: Check all that apply regardless of entry in item 12. 1 <input type="checkbox"/> Depression 2 <input type="checkbox"/> HIV / AIDS 3 <input type="checkbox"/> None of the above		16. DIAGNOSTIC / SCREENING SERVICES Check all ordered or provided at this visit. 1 <input type="checkbox"/> NONE 2 <input type="checkbox"/> Mental status exam 7 <input type="checkbox"/> Urinalysis 3 <input type="checkbox"/> Blood pressure 8 <input type="checkbox"/> Pregnancy test 4 <input type="checkbox"/> EKG 9 <input type="checkbox"/> HIV serology 5 <input type="checkbox"/> Cardiac monitor 10 <input type="checkbox"/> Blood alcohol concentration 6 <input type="checkbox"/> Pulse oximetry 11 <input type="checkbox"/> Other blood test 12 <input type="checkbox"/> Other: _____	
		15. URGENCY OF THIS VISIT Check one. 1 <input type="checkbox"/> Urgent / emergent 2 <input type="checkbox"/> Non-urgent		17. PROCEDURES Check all provided at this visit. 1 <input type="checkbox"/> NONE 2 <input type="checkbox"/> Endotracheal intubation 7 <input type="checkbox"/> Bladder catheter 3 <input type="checkbox"/> CPR 8 <input type="checkbox"/> Wound care 4 <input type="checkbox"/> IV fluids 9 <input type="checkbox"/> Eye/ENT care 5 <input type="checkbox"/> NG tube/gastric lavage 10 <input type="checkbox"/> Orthopedic care 6 <input type="checkbox"/> Lumbar puncture 11 <input type="checkbox"/> OB / GYN care 12 <input type="checkbox"/> Other: _____	
18. MEDICATIONS / INJECTIONS List names of up to 6 medications that were ordered, supplied, or administered during this visit. Include new medications, continuing medications (with or without new orders), Rx and OTC medications, immunizations, allergy shots, and anesthetics. <input type="checkbox"/> NONE 1. _____ 4. _____ 2. _____ 5. _____ 3. _____ 6. _____			19. VISIT DISPOSITION Check all that apply. 1 <input type="checkbox"/> No followup planned 6 <input type="checkbox"/> Admit to hospital 2 <input type="checkbox"/> Return to ED, P.R.N./ appointment 7 <input type="checkbox"/> Admit to ICU / CCU 3 <input type="checkbox"/> Return to referring physician 8 <input type="checkbox"/> Transfer to other facility 4 <input type="checkbox"/> Return to other physician / clinic 9 <input type="checkbox"/> DOA / died in ED 5 <input type="checkbox"/> Left before being seen 10 <input type="checkbox"/> Other: _____		
20. PROVIDERS SEEN THIS VISIT Check all that apply. 1 <input type="checkbox"/> Resident / intern 5 <input type="checkbox"/> Nurse practitioner 2 <input type="checkbox"/> Staff physician 6 <input type="checkbox"/> RN 3 <input type="checkbox"/> Other physician 7 <input type="checkbox"/> LPN 4 <input type="checkbox"/> Physician assistant 8 <input type="checkbox"/> Medical assistant 9 <input type="checkbox"/> Other: _____					

Figure 1. Patient Record form

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 25, 1995, through December 22, 1996.

The target universe of the NHAMCS includes in-person visits made in the United States to emergency departments and outpatient departments (OPD's) of non-Federal, short-stay, and general hospitals. These are 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.

A four-stage probability sample design is used in NHAMCS (3). 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 1996 consisted of 486 hospitals. Of this group, 438 hospitals had either an ED or OPD in 1996 and were in scope or eligible for the survey. During this period, 95 percent of the in-scope hospitals participated. There were 392 ED's that provided data for 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 21,902.

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 and classified according to *A Reason for Visit Classification for Ambulatory Care (RVC)* (4).

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 and classified 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)* (5). In addition, the form contains an item on diagnosis where hospital staff were asked to record the principal 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 and classified according to the ICD-9-CM (5).

In the medication item, hospital staff were instructed to record all new or continued medications ordered, supplied, or administered at the visit. This includes 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 the National Center for Health Statistics. A report describing the method and instruments used to collect and process drug information is available (6). Therapeutic classification of the drugs mentioned on the Patient Record forms was determined using the *National Drug Code Directory*, 1995 edition (7).

The U.S. Bureau of the Census, Housing Surveys Branch, was responsible for the survey's 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 processed. Coding

error rates ranged between 0.1 and 2.7 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 Census estimates of the civilian noninstitutionalized population of the United States as of July 1, 1996. The figures have been adjusted for net underenumeration (1).

Results

There were an estimated 90.3 million emergency department visits in 1996, about 34.2 visits per 100 persons. The overall rate is not significantly different from previous years (8–11). Patient and visit characteristics for these ED visits are described below.

Patient characteristics

ED visits by patient's age, sex, and race are displayed in [table 1](#). Persons 75 years of age and over had a higher ED visit rate (54.2 visits per 100 persons) than persons in the other five age categories. This was true for both males and females, except for females 15–24 years of age for whom the difference was not statistically significant. White persons 75 years and over had a higher ED visit rate (52.5 visits per 100 persons) than white persons in the other five age groups.

The ED utilization rate for black persons was 84 percent higher than for white persons overall. Black persons 75 years of age and over had a higher ED visit rate (79.7 visits per 100 persons) than white persons in the same age group (52.5 visits per 100 persons). For persons 25–64 years of age, the ED utilization rate for black persons was more than twice the rate for white persons.

Visit characteristics

Geographic region—Visit rates in the Midwest and South (37.7 and 35.7 visits per 100 persons, respectively) were higher than those in the West (29.6 per 100 persons). The proportion of ED visits in the South (36.1 percent) was higher than the proportions in the Midwest (25.4 percent), Northeast (19.7 percent), and West (18.8 percent).

Table 1. Number, percent distribution, and annual rate of emergency department visits by selected patient and visit characteristics: United States, 1996

Selected patient and visit characteristics	Number of visits in thousands	Percent distribution	Number of visits per 100 persons per year ¹
All visits	90,347	100.0	34.2
Age			
Under 15 years	20,872	23.1	35.1
15–24 years	14,366	15.9	39.4
25–44 years	28,036	31.0	33.6
45–64 years	13,745	15.2	25.8
65–74 years	5,945	6.6	32.6
75 years and over	7,382	8.2	54.2
Sex and age			
Female	47,873	53.0	35.4
Under 15 years	9,794	10.8	33.7
15–24 years	7,918	8.8	43.9
25–44 years	14,818	16.4	35.0
45–64 years	7,404	8.2	26.9
65–74 years	3,347	3.7	33.2
75 years and over	4,592	5.1	54.6
Male	42,473	47.0	32.9
Under 15 years	11,078	12.3	36.4
15–24 years	6,448	7.1	35.1
25–44 years	13,218	14.6	32.1
45–64 years	6,341	7.0	24.6
65–74 years	2,598	2.9	31.8
75 years and over	2,791	3.1	53.7
Race and age			
White	68,702	76.0	31.5
Under 15 years	15,363	17.0	32.9
15–24 years	10,552	11.7	36.4
25–44 years	20,743	23.0	30.2
45–64 years	10,531	11.7	23.1
65–74 years	5,057	5.6	31.4
75 years and over	6,455	7.1	52.5
Black	19,604	21.7	58.0
Under 15 years	4,983	5.5	52.1
15–24 years	3,470	3.8	63.2
25–44 years	6,654	7.4	62.7
45–64 years	2,921	3.2	52.9
65–74 years	752	0.8	47.4
75 years and over	825	0.9	79.7
Asian/Pacific Islander	1,639	1.8	16.6
American Indian/Eskimo/Aleut	401	0.4	17.1
Geographic region			
Northeast	17,786	19.7	32.7
Midwest	22,968	25.4	37.7
South	32,600	36.1	35.7
West	16,993	18.8	29.6

¹Based on U.S. Bureau of the Census monthly postcensal estimates of the civilian noninstitutionalized population of the United States as of July 1996. Figures are consistent with an unpublished hard-copy national population estimates release package PPL-57 (U.S. Population Estimates by Age, Sex, Race, and Hispanic Origin: 1990–1996) and have been adjusted for net underenumeration using the 1990 National Population Adjustment Matrix. 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, 1996. DHIS estimates are provisional at this time and differ slightly from monthly postcensal estimates because of differences in the adjustment process.

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

Expected source(s) of payment—
The expected source(s) of payment item underwent substantial revision for the 1995–96 NHAMCS. The first part of the new item concerns type of payment (for example, Was the visit covered under an

insured fee-for-service arrangement, Preferred Provider Option, or HMO/other prepaid plan?). Other options that could be checked were self-pay, no charge, and “other” type of payment. Hospital staff were asked to check only

one type of payment. If any of the first three options were checked, hospital staff were then asked to complete part b of the item, expected sources of insurance for the visit. Hospital staff were asked to check all expected sources of insurance that were applicable. More than 40 percent of emergency department visits were covered under insured fee-for-service arrangements (43.5 percent), and 16.4 percent were part of an HMO/other prepaid plan. Preferred Provider Option accounted for an additional 8 percent of visits (table 2).

Expected sources of payment, regardless of the kind of insurance plan, are displayed in figure 2. Public insurance, that is, Medicare and Medicaid, were cited at 38.0 percent of ED visits. About 3 percent of ED visits were listed under worker’s compensation. One in six ED visits had self-pay, which excludes deductibles and copayments, as the expected source of payment (16.8 percent). For visits with Medicare or Medicaid as an expected source of insurance, 72.7 percent were for illness as opposed to injury conditions. Note that for items related to expected source(s) of payment (part b), 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.

Urgency of this visit—The NHAMCS included an item on urgency to better understand the continuum of care provided by hospital ED’s. For the survey, urgent visits were defined in the instructions given to sample hospitals as those meeting the following conditions: “Patient requires immediate attention for acute illness or injury that threatens life or function. Delay would be harmful to the patient.” Nonurgent visits were defined as those in which “patient does not require attention immediately or within a few hours.”

The definition of urgency used in the NHAMCS does not directly address visits for symptoms that would cause a “prudent layperson” to seek emergency care, but for which it was later determined that emergency care was not necessary. Such visits would be

Table 2. Number and percent distribution of emergency department visits by type of payment and expected sources of insurance for this visit: United States, 1996

Type of payment and expected sources of insurance ¹	Number of visits in thousands	Percent distribution
All visits	90,347	100.0
Insurance ²	70,514	78.1
Insured, fee-for-service	39,299	43.5
Private insurance	18,523	20.5
Medicare	9,820	10.9
Medicaid	12,750	14.1
Worker's compensation	1,999	2.2
Other	1,452	1.6
Unknown	420	0.5
HMO/other prepaid ³	14,789	16.4
Private insurance	7,748	8.6
Medicare	1,693	1.9
Medicaid	3,542	3.9
Worker's compensation	249	0.3
Other	1,612	1.8
Unknown	884	1.0
Preferred provider option	7,134	7.9
Private insurance	5,079	5.6
Medicare	1,007	1.1
Medicaid	615	0.7
Worker's compensation	151	0.2
Other	582	0.6
Unknown	312	0.3
Unspecified type of payment	9,292	10.3
Private insurance	2,706	3.0
Medicare	1,942	2.1
Medicaid	2,977	3.3
Worker's compensation	659	0.7
Other	608	0.7
Unknown	1,362	1.5
Self-pay	15,188	16.8
No charge	1,097	1.2
Other	1,874	2.1
No answer ⁴	1,674	1.9

¹Only one type of payment (preferred provider option, insured fee-for-service, HMO/other prepaid, self-pay, no charge, or other) was coded for each visit. For payment types of preferred provider option, insured fee-for-service, and HMO/other prepaid respondents were also asked to check all of the applicable expected sources of insurance. As a result, expected sources of insurance will not add to totals because more than one source could be reported per visit.

²Includes insured, fee-for-service; HMO/other prepaid; preferred provider option; and unspecified type of payment.

³HMO is health maintenance organization.

⁴Neither type of payment nor source was reported.

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

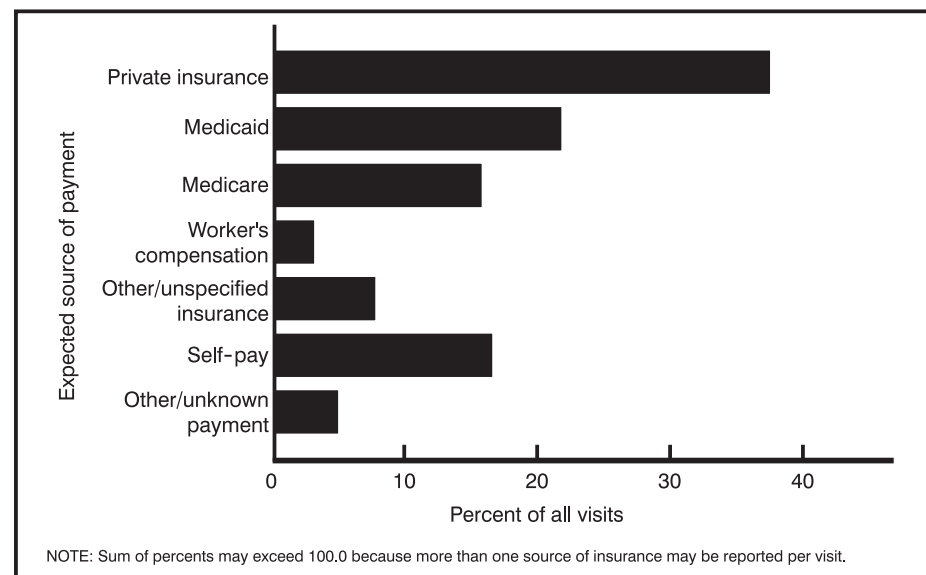


Figure 2. Percent of emergency department visits by expected source of payment: United States, 1996

considered urgent based on the definition used by the American College of Emergency Physicians (ACEP), but would not be so categorized using a literal interpretation of the NHAMCS definition. An informal followup of 1994 NHAMCS respondents indicated that many ED's were basing their determination of urgency on the patient's symptoms, while other ED's based it on the physician's diagnosis or the treatment provided. Despite the uncertainties related to the manner in which these data were collected, they are useful for examining the complex issues surrounding urgency of care.

It is also important to acknowledge the continuing debate concerning the relationship between urgency of visit and appropriateness of ED utilization, and to avoid equating urgent visits as defined in the NHAMCS with appropriate visits to hospital ED's (12). A comprehensive picture of urgency must include other factors such as the patient's subjective reasons for visiting the ED, the nature and severity of the patient's symptoms, and the issues of access to and availability of alternate sources of outpatient care. Analyses have shown that visits designated as urgent in the NHAMCS are correctly classified (13), but that the estimate of nonurgent visits includes visits that might better be termed semiurgent and nonurgent. Therefore, only estimates of urgent visits are presented in this report.

According to hospital staff, 46.2 percent of ED visits were classified as urgent/emergent (table 3). Persons 75 years of age and over had a higher urgent visit rate (35.4 visits per 100 persons) than persons in the other five age categories. Utilization of ED's by black persons for urgent care was 67 percent higher than utilization by white persons. Black persons had higher urgent visit rates than white persons in all age categories except among persons 75 years of age and over. The urgent visit rates for black persons 25-44 years and 45-64 years of age were 94 percent and 127 percent higher, respectively, than the urgent visit rate for white persons in the same age categories.

Time of visit—Time of visit, which is the time the patient arrived at the ED, is displayed in figure 3. The distribution

Table 3. Number, percent distribution, percent urgent, and annual rate of urgent emergency department visits by patient's age, sex, and race: United States, 1996

Patient's age, sex, and race	Number of urgent visits in thousands	Percent distribution	Percent urgent ¹	Number of urgent visits per 100 persons per year ²
All visits	41,733	100.0	46.2	15.8
Age				
Under 15 years	8,043	19.3	38.5	13.5
15–24 years	5,849	14.0	40.7	16.1
25–44 years	12,369	29.6	44.1	14.8
45–64 years	6,968	16.7	50.7	13.1
65–74 years	3,689	8.8	62.1	20.2
75 years and over	4,815	11.5	65.2	35.4
Sex and age				
Female	21,372	51.2	44.6	15.8
Under 15 years	3,591	8.6	36.7	12.4
15–24 years	3,043	7.3	38.4	16.9
25–44 years	6,331	15.2	42.7	14.9
45–64 years	3,542	8.5	47.8	12.9
65–74 years	1,945	4.7	58.1	19.3
75 years and over	2,921	7.0	63.6	34.7
Male	20,361	48.8	47.9	15.8
Under 15 years	4,452	10.7	40.2	14.6
15–24 years	2,806	6.7	43.5	15.3
25–44 years	6,038	14.5	45.7	14.7
45–64 years	3,426	8.2	54.0	13.3
65–74 years	1,745	4.2	67.2	21.4
75 years and over	1,894	4.5	67.9	36.5
Race and age				
White	32,399	77.6	47.2	14.8
Under 15 years	5,910	14.2	38.5	12.6
15–24 years	4,500	10.8	42.6	15.5
25–44 years	9,292	22.3	44.8	13.5
45–64 years	5,324	12.8	50.6	11.7
65–74 years	3,098	7.4	61.3	19.2
75 years and over	4,275	10.2	66.2	34.8
Black	8,367	20.0	42.7	24.7
Under 15 years	1,941	4.7	39.0	20.3
15–24 years	1,230	2.9	35.5	22.4
25–44 years	2,782	6.7	41.8	26.2
45–64 years	1,469	3.5	50.3	26.6
65–74 years	490	1.2	65.1	30.9
75 years and over	455	1.1	55.2	44.0

¹Percent of all emergency department visits in each category that are urgent.

²Based on U.S. Bureau of the Census monthly postcensal estimates of the civilian noninstitutionalized population of the United States as of July 1996. Figures are consistent with an unpublished hard-copy national population release package PPL-57 (U.S. Population Estimates by Age, Sex, Race, and Hispanic Origin: 1990–1996) and have been adjusted for net underenumeration using the 1990 National Population Adjustment Matrix.

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

of visits is 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 10 percent of the visits took place in the early morning hours (4:00 a.m.–7:59 a.m.).

Reason for visit—As described earlier, up to three reasons for visit were classified and coded according to A *Reason for Visit Classification for Ambulatory Care (RVC)* (4). The principal reason is the problem, complaint, or reason listed in item 10a.

The RVC is divided into eight modules or groups of reasons and is shown in [table 4](#). About two-thirds (69.3 percent) of all visits were made for reasons classified in the symptom module, with general symptoms accounting for 15.5 percent of the total. Symptoms referable to the musculoskeletal system accounted for 13.4 percent of visits, and another 11.7 percent were classified as symptoms referable to the respiratory system. About one-quarter of all ED

visits (22.6 percent) 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 5](#). Stomach and abdominal pain, cramps, and spasms were reported most frequently, accounting for 5.7 percent of all ED visits. Chest pain and fever accounted for 5.2 percent and 4.6 percent of visits, respectively. Injury of the upper extremity was the most frequently mentioned reason for visit in the injury module (2.6 percent). It should be noted that estimates differing in ranked order may not be significantly different from each other.

Injury-related visits—Injury-related visits represented 38.7 percent of all ED visits in 1996. An ED visit was considered to be injury related if “yes” was checked in response to question 11, “Is visit injury related?” 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-related visits. Each of these items measures a unique aspect of injury. Using this definition, the number of injury visits was 3 percent greater compared with using the injury checkbox alone.

In 1996, approximately 34.9 million ED visits were made for injury, a rate of 13.2 visits per 100 persons ([table 6](#)). Persons 15–24 years of age had a higher injury-related visit rate (17.8 visits per 100 persons) than persons in each of the other five age categories, except for persons 75 years and over. Males had a higher injury-related visit rate (14.8 visits per 100 persons) than females (11.7 per 100 persons) overall and in the youngest three age categories (under 15 years, 15–24 years, and 25–44 years). The injury-related visit rate for black persons was higher than for white persons overall and in two age categories, 25–44 years and 45–64 years of age.

[Table 7](#) displays injury-related ED visits for various characteristics of the injury according to age, including place of injury and whether the injury was related to work or violence. Unfortunately, the items, place of occurrence, work related, and

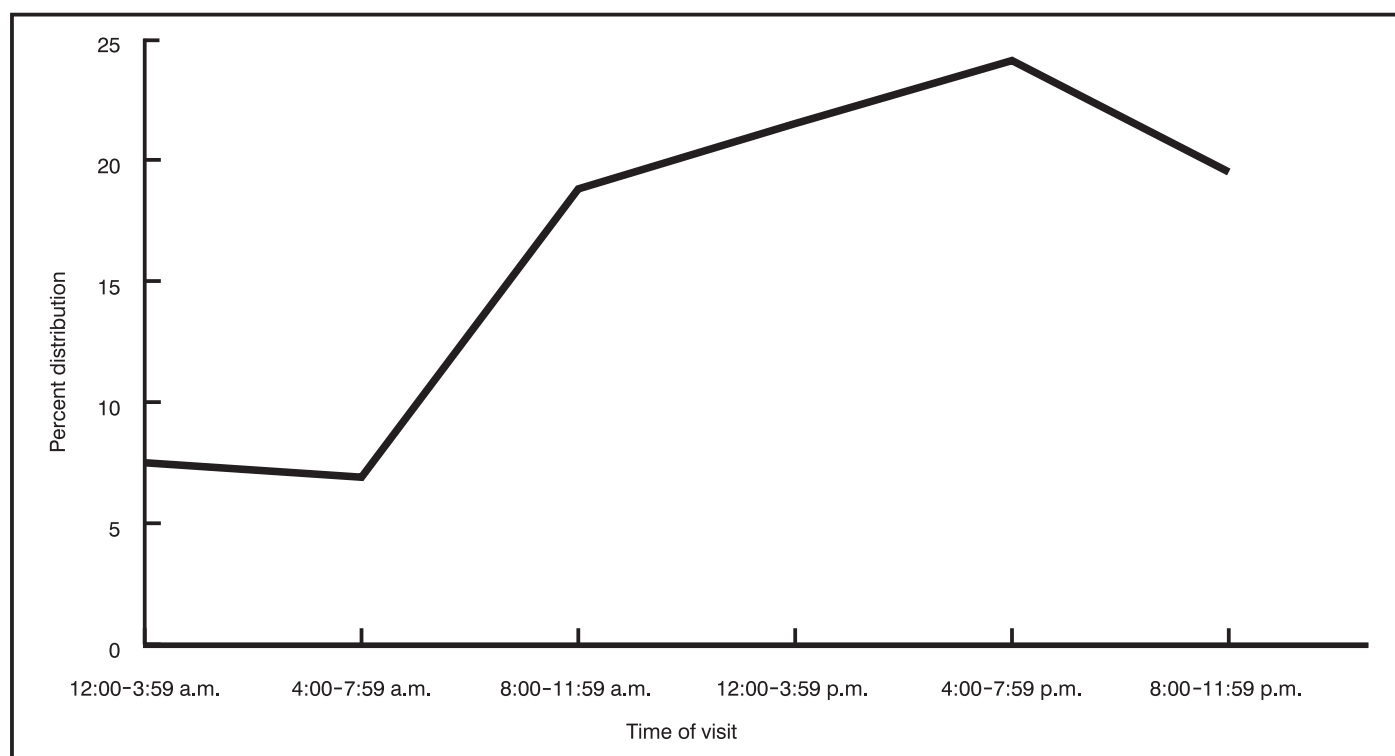


Figure 3. Percent distribution of emergency department visits by time of visit: United States, 1996

Table 4. Number and percent distribution of emergency department visits by patient's principal reason for visit: United States, 1996

Principal reason for visit and RVC code ¹	Number of visits in thousands	Percent distribution
All visits	90,347	100.0
Symptom module. S001-S999	62,606	69.3
General symptoms S001-S099	14,032	15.5
Symptoms referable to psychological/mental disorders S100-S199	1,355	1.5
Symptoms referable to the nervous system (excluding sense organs) S200-S259	5,392	6.0
Symptoms referable to the cardiovascular/lymphatic system S260-S299	570	0.6
Symptoms referable to the eyes and ears S300-S399	3,170	3.5
Symptoms referable to the respiratory system S400-S499	10,536	11.7
Symptoms referable to the digestive system. S500-S639	10,475	11.6
Symptoms referable to the genitourinary system S640-S829	2,807	3.1
Symptoms referable to the skin, hair, and nails S830-S899	2,126	2.4
Symptoms referable to the musculoskeletal system S900-S999	12,143	13.4
Disease module D001-D999	3,302	3.7
Diagnostic/screening, and preventive module X100-X599	877	1.0
Treatment module T100-T899	1,998	2.2
Injuries and adverse effects module J001-J999	20,429	22.6
Test results module R100-R700	210	0.2
Administrative module. A100-A140	103	0.1
Other ² U990-U999	821	0.9

¹Based on *A Reason for Visit Classification for Ambulatory Care (RVC)* (4).
²Includes problems and complaints not elsewhere classified, entries of "none," blanks, and illegible entries.
 NOTE: Numbers may not add to totals because of rounding.

relationship of the perpetrator of the assault to the patient, had high levels of missing data (percent unknown or blank 35.8, 25.6, and 48.3, respectively). More complete reporting could change the distribution. The data available indicated that one-quarter of injury-related ED visits were caused by injuries that

occurred in the home (27.6 percent), and 14.7 percent were caused by injuries occurring on the street or highway. The home accounted for almost 40 percent of all injury visits for persons 65 years and over. For persons under 18 years, 7 percent of ED visits were related to injuries that occurred at school. Almost

one-fifth of injury-related ED visits for 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 5. Number and percent distribution of emergency department visits by the 20 principal reasons for visit most frequently mentioned by patients: United States, 1996

Reason for visit and RVC code ¹	Number of visits in thousands	Percent distribution
All visits	90,347	100.0
Stomach and abdominal pain, cramps and spasms S545	5,108	5.7
Chest pain and related symptoms S050	4,661	5.2
Fever S010	4,125	4.6
Headache, pain in head S210	2,374	2.6
Injury-upper extremity J225	2,350	2.6
Shortness of breath S415	2,322	2.6
Back symptoms S905	2,029	2.2
Cough S440	1,931	2.1
Pain, site not referable to a specific body system S055	1,913	2.1
Symptoms referable to throat S455	1,874	2.1
Vomiting S530	1,870	2.1
Earache or ear infection S355	1,699	1.9
Labored or difficult breathing (dyspnea) S420	1,542	1.7
Laceration and cuts - facial area J210	1,505	1.7
Injury, other and unspecified type - head, neck, and face J505	1,442	1.6
Motor vehicle accident, type of injury unspecified J805	1,312	1.5
Vertigo - dizziness S225	1,309	1.4
Hand and finger injury J570	1,226	1.4
Skin rash S860	1,161	1.3
Lower back symptoms S910	1,136	1.3
All other reasons	47,458	52.5

¹Based on *A Reason for Visit Classification for Ambulatory Care (RVC)*(4).

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

Table 7 also displays injury-related visits that were violence related. Visits for injuries caused by a firearm made up less than 1 percent of all injury-related visits. In addition to gunshot wounds, firearm visits include nongunshot wounds such as pistol whippings. Gunshot wound injuries produced by firearms are estimated at 73,000 visits (66 percent of firearm visits). Violence-related visits accounted for 6.0 percent of all injury-related ED visits.

The second half of item 11e was designed to ascertain statistics on the relationship of the perpetrator of the assault to the patient. Because data did not exist on the medical record for 48.3 percent of the assault-related visits, no further statistics are presented for item 11e.

Table 8 shows ED visits by the intent and mechanism of the first-listed external cause of injury as categorized by the ICD-9-CM groupings detailed in the Technical notes. Unintentional falls (20.6 percent of all injury visits) and unintentional motor vehicle traffic-related injuries (12.4 percent) accounted for the largest percent of injury-related ED visits. Assaults accounted for about 6 percent of injury-related ED visits with an unarmed fight or brawl as the

leading mechanism for assault-related injuries (3.0 percent). Adverse effects of medical treatment made up about 3 percent of injury-related ED visits. Self-inflicted injuries resulted in 253,000 ED visits (0.7 percent) with poisoning being the most frequent cause (0.5 percent). External cause was not provided for 4.0 percent of the injury visits.

Alcohol- and/or drug-related problem—Four percent of ED visits were either alcohol related, drug related, or both based on data recorded in item 13 on the Patient Record form. Alcohol-related visits accounted for 2.4 percent of ED visits and drug-related visits accounted for 1.3 percent (table 9). Visits related to both alcohol and drugs accounted for 0.4 percent of all ED visits. Visits related to alcohol and/or drug use were more likely to be for injuries compared with visits that were not related to alcohol and/or drug use (48.0 percent versus 36.2 percent). Alcohol and/or drug use was not recorded for one-fifth of visits because this information is often missing from ED medical records. Because most NHAMCS ED data are abstracted, these figures probably underestimate the numbers of alcohol- and drug-related

ED visits. However, the relationship between alcohol and/or drug use and injuries is apparent from these data and other reports (14).

Principal diagnosis—Displayed in table 10 are ED visits by principal diagnosis using the major disease categories specified by the ICD-9-CM (5). Injury and poisoning diagnoses accounted for about one-third (31.6 percent) of all visits, and diseases of the respiratory system accounted for 12.8 percent. Some of the most frequently reported principal diagnoses for 1996 are shown in table 11. These categories are based on the ICD-9-CM, but the diagnosis groupings in table 11 have been defined to describe the ambulatory care visit data. Contusions and open wounds lead the list (5.4 percent and 5.2 percent, respectively), followed by acute upper respiratory infections (4.1 percent), and otitis media (3.0 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 88 percent of all ED visits included one or more diagnostic or screening services. For visits with

Table 6. Number, percent distribution, and annual rate of injury-related emergency department visits by patient's age, sex, and race: United States, 1996

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	34,941	100.0	13.2
Age			
Under 15 years	8,267	23.7	13.9
15–24 years	6,471	18.5	17.8
25–44 years	11,907	34.1	14.3
45–64 years	4,498	12.9	8.5
65–74 years	1,571	4.5	8.6
75 years and over	2,226	6.4	16.4
Sex and age			
Female	15,905	45.5	11.7
Under 15 years	3,517	10.1	12.1
15–24 years	2,625	7.5	14.6
25–44 years	5,050	14.5	11.9
45–64 years	2,296	6.6	8.4
65–74 years	961	2.7	9.5
75 years and over	1,456	4.2	17.3
Male	19,036	54.5	14.8
Under 15 years	4,750	13.6	15.6
15–24 years	3,847	11.0	20.9
25–44 years	6,857	19.6	16.7
45–64 years	2,202	6.3	8.6
65–74 years	611	1.7	7.5
75 years and over	770	2.2	14.8
Race and age			
White	28,104	80.4	12.9
Under 15 years	6,548	18.7	14.0
15–24 years	5,101	14.6	17.6
25–44 years	9,319	26.7	13.6
45–64 years	3,722	10.7	8.2
65–74 years	1,374	3.9	8.5
75 years and over	2,040	5.8	16.6
Black	6,109	17.5	18.1
Under 15 years	1,533	4.4	16.0
15–24 years	1,204	3.4	21.9
25–44 years	2,355	6.7	22.2
45–64 years	696	2.0	12.6
65–74 years	159	0.5	10.0
75 years and over	163	0.5	15.7

¹Based on U.S. Bureau of the Census monthly postcensal estimates of the civilian noninstitutionalized population of the United States as of July 1996. Figures are consistent with an unpublished hard-copy national population release package PPL-57 (*U.S. Population Estimates by Age, Sex, Race, and Hispanic Origin: 1990–1996*) and have been adjusted for net underenumeration using the 1990 National Population Adjustment Matrix.

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

diagnostic and screening services, an average of 2.6 services were ordered or provided per ED visit. As in previous years, the most frequently mentioned diagnostic service was blood pressure check, recorded at 74.5 percent of visits. Other frequently mentioned services included other blood test (26.8 percent) and chest x ray (16.5 percent).

Procedures—Procedures were provided at 42.2 percent of ED visits (table 13). For visits with procedures, about one procedure was performed per visit. The most frequently mentioned procedure was the administration of

intravenous fluids, recorded at 16.2 percent of visits. Other frequently mentioned procedures were wound care (12.1 percent) and orthopedic care (8.5 percent). Patient's age was positively related to the percent of visits at which one or more procedures were provided. Older patients were more likely than younger patients to have at least one procedure provided (ranging from 32.5 percent of visits by patients under 15 years to 57.4 percent by patients 75 years and over).

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. Up to six medications, called drug mentions, could be coded per visit. As used in the NHAMCS, the term “drug” is interchangeable with the term “medication,” and the term “prescribing” is used broadly to mean ordering, administering, or providing. Visits with one or more drug mentions are termed “drug visits” in the NHAMCS.

Table 7. Number and percent distribution of emergency department visits by selected characteristics of the injury, according to patient's age: United States, 1996

Selected characteristics 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	34,941	100.0	10,278	100.0	20,866	100.0	3,797	100.0
Place of occurrence								
Home	9,659	27.6	3,757	36.6	4,403	21.1	1,499	39.5
Street or highway	5,135	14.7	1,175	11.4	3,571	17.1	388	10.2
Sports or athletics area	1,540	4.4	697	6.8	827	4.0	*	*
School	890	2.5	744	7.2	136	0.7	*	*
Other	5,216	14.9	677	6.6	4,122	19.8	418	11.0
Unknown	12,501	35.8	3,228	31.4	7,807	37.4	1,465	38.6
Work related								
Yes	4,181	12.0	152	1.5	3,962	19.0	*	*
No	21,800	62.4	8,190	79.7	11,074	53.1	2,537	66.8
Unknown	8,959	25.6	1,936	18.8	5,831	27.9	1,193	31.4
Violence related								
Yes, interpersonal violence/assault	2,084	6.0	437	4.3	1,606	7.7	*	*
Yes, suicide/suicide attempt	489	1.4	112	1.1	359	1.7	*	*
No	32,367	92.6	9,729	94.7	18,901	90.6	3,737	98.4

* Figure does not meet standard of reliability or precision.
NOTE: Numbers may not add to totals because of rounding.

Table 14 shows the distribution of ED visits by the number of medications prescribed. Medications were used at 7 of every 10 ED visits. There was an average of 1.6 drug mentions per ED visit and 2.1 mentions per drug visit.

Drug mentions are shown by therapeutic class in figure 4. This classification is based on the therapeutic categories used in the *National Drug Code Directory*, 1995 edition (NDC) (7). 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 almost 30 percent of drug mentions. Antimicrobial agents were recorded at 15.6 percent of drug mentions, followed by respiratory tract drugs (11.3 percent) (figure 4).

The 20 most frequently used generic substances for 1996 are displayed 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 for 1996 was acetaminophen, showing up in 13.4 percent of the drug mentions. Ibuprofen occurred in 6.3 percent of the drug mentions.

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 general analgesic, was the drug most frequently prescribed, accounting for 6.4 percent of all ED drug mentions. Motrin, which is classified as an antiarthritic, was ordered or prescribed at 3.4 percent of ED visits.

Providers seen—A registered nurse and staff physician were seen at 85.2 percent and 81.3 percent of ED visits, respectively (table 17). A resident or intern was seen at 12.2 percent of ED visits. For 12.8 percent of ED visits, a physician other than a staff or resident/intern was seen. The patient did not see a physician at 3.6 million ED visits (4.0 percent).

Visit disposition—More than 40 percent of ED visits resulted in a referral to another physician or clinic

(table 18). At 31.1 percent of visits, patients were told to return to the ED as needed or by appointment. For about 20 percent of visits, patients were told to return to the referring physician. Eleven percent of ED visits resulted in hospital admission. As a result of their ages and a higher proportion of urgent conditions, Medicare patients were more than 4 times more likely to be admitted to the hospital than patients with other expected sources of payment (34.9 percent versus 8.0 percent, respectively). Visits for illness, compared with injury, were 3.2 times more likely to result in a hospital admission (17.3 percent versus 5.4 percent, respectively).

Additional reports that utilize 1996 NHAMCS data are in the *Advance Data* from Vital and Health Statistics series. Data from the 1996 NHAMCS will be available in a variety of formats including public use data tape, CD-ROM, and as downloadable data files accessed through the NCHS homepage on the Internet. 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) 436-7132.

Table 8. Number of visits and percent distribution of injury-related emergency department visits by intent and mechanism of external cause: United States, 1996

Intent and mechanism ¹	Number of visit in thousands	Percent distribution
All injury visits	34,941	100.0
Unintentional injuries	30,040	86.0
Falls	7,210	20.6
Motor vehicle traffic	4,318	12.4
Struck against or struck accidentally by objects or persons	3,533	10.1
Cutting or piercing instruments or objects	2,661	7.6
Overexertion and strenuous movements	1,444	4.1
Natural and environmental factors	1,242	3.6
Poisoning by drugs, medicinal substances, biologicals, other solid and liquid substances, gases, and vapors	709	2.0
Fire and flames, hot substances or object, caustic or corrosive material, and steam	604	1.7
Pedal cycle, nontraffic and other	510	1.5
Machinery	484	1.4
Motor vehicle, nontraffic	228	0.7
Other transportation	145	0.4
Other mechanism ²	2,175	6.2
Mechanism unspecified	4,654	13.3
Intentional injuries	2,322	6.6
Self-inflicted	253	0.7
Poisoning by solid or liquid substances, gases, or vapors	166	0.5
Other and unspecified mechanism ³	*	*
Assault	2,019	5.8
Unarmed fight or brawl and striking by blunt or thrown object	1,038	3.0
Cutting and piercing instrument	169	0.5
Other mechanism ⁴	339	1.0
Mechanism unspecified	430	1.2
Other violence	*	*
Injuries of unknown intent	*	*
Adverse effects of medical treatment	1,124	3.2
Blank cause ⁵	1,393	4.0

* Figure does not meet standard of reliability or precision.
¹Based on the "Supplementary Classification of External Causes of Injury and Poisoning," *International Classification of Diseases, 9th Revision, Clinical Modification* (5). 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 suffocation, firearm, and other mechanism.
³Includes injury by cutting and piercing instrument, and other and unspecified mechanism.
⁴Includes assault by firearms and explosives, and other mechanism.
⁵Includes illegible entries and blanks.

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

Table 9. Number and percent distribution of alcohol and/or drug-related emergency department visits: United States, 1996

Visit characteristic	Number of visits in thousands	Percent distribution
All visits	90,347	100.0
Alcohol- and/or drug-related visit		
Neither	69,245	76.6
Alcohol-related	2,152	2.4
Drug-related	1,170	1.3
Both	321	0.4
Unknown	17,458	19.3

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

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Table 10. Number and percent distribution of emergency department visits by principal diagnosis: United States, 1996

Major disease category and ICD-9-CM code range ¹	Number of visits in thousands	Percent distribution
All visits	90,347	100.0
Infectious and parasitic diseases 001-139	2,886	3.2
Neoplasms 140-239	213	0.2
Endocrine, nutritional and metabolic diseases, and immunity disorders 240-279	1,170	1.3
Mental disorders 290-319	2,607	2.9
Diseases of the nervous system and sense organs 320-389	5,175	5.7
Diseases of the circulatory system 390-459	4,055	4.5
Diseases of the respiratory system 460-519	11,562	12.8
Diseases of the digestive system 520-579	5,034	5.6
Diseases of the genitourinary system 580-629	3,847	4.3
Diseases of the skin and subcutaneous tissue 680-709	2,254	2.5
Diseases of the musculoskeletal system and connective tissue 710-739	3,923	4.3
Symptoms, signs, and ill-defined conditions 780-799	12,006	13.3
Injury and poisoning 800-999	28,514	31.6
Fractures 800-829	3,766	4.2
Sprains 840-848	5,812	6.4
Intracranial 850-854	758	0.8
Open wounds 870-897	7,240	8.0
Superficial 910-919	1,397	1.5
Contusions 920-924	4,913	5.4
Foreign bodies 930-939	538	0.6
Burns 940-949	615	0.7
Complications 958-959	749	0.8
Poisoning and toxic effects 960-989	786	0.9
Other injury	1,940	2.1
Supplementary classification V01-V82	3,060	3.4
All other diagnoses ²	1,404	1.6
Unknown ³	2,636	2.9

¹Based on the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM) (5).

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 conditions 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.

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Table 11. Number and percent distribution of emergency department visits by selected principal diagnosis groups: United States, 1996

Principal diagnosis group and ICD-9-CM code(s) ¹	Number of visits in thousands	Percent distribution
All visits	90,347	100.0
Contusion with intact skin surface 920-924	4,913	5.4
Open wound, excluding head 874-897	4,655	5.2
Acute upper respiratory infections, excluding pharyngitis 460-461,463-466	3,706	4.1
Otitis media and Eustachian tube disorders 381-382	2,701	3.0
Open wound of head 870-873	2,585	2.9
Chest pain 786.5	2,480	2.7
Abdominal pain 789.0	2,464	2.7
Fractures, excluding lower limb 800-819	2,444	2.7
Sprains and strains of back 846-847	2,274	2.5
Asthma 493	1,935	2.1
Chronic and unspecified bronchitis 490-491	1,584	1.8
Dorsopathies 720-724	1,549	1.7
Noninfectious enteritis and colitis 555-558	1,474	1.6
Acute pharyngitis 462	1,472	1.6
Heart disease, excluding ischemic 391-392.0,393-398,402,404,415-416,420-429	1,414	1.6
Sprains and strains, excluding ankle and back 840-844,845.1,848	1,412	1.6
Superficial injury 910-919	1,397	1.5
Urinary tract infection, site not specified 599.0	1,357	1.5
Fracture of lower limb 820-829	1,322	1.5
Rheumatism, excluding back 725-729	1,285	1.4
Pneumonia 480-486	1,198	1.3
Sprains and strains of ankle 845.0	1,165	1.3
All other	43,561	48.2

¹These groups are based on the *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) (5)*. However, certain codes have been combined in this table to form larger categories that better 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 selected diagnostic and screening services: United States, 1996

Diagnostic and screening services ordered or provided by hospital staff ¹	Number of visits in thousands	Percent of visits
All visits	90,347	...
Blood pressure	67,336	74.5
Other blood test	24,174	26.8
Pulse oximetry	15,518	17.2
Chest x ray	14,907	16.5
Urinalysis	14,111	15.6
Mental status exam	13,042	14.4
EKG ²	12,647	14.0
Extremity x ray	11,053	12.2
Other x ray	10,312	11.4
Cardiac monitor	7,521	8.3
CAT scan ³	2,925	3.2
Pregnancy test	2,175	2.4
Blood alcohol concentration	1,562	1.7
Ultrasound	1,307	1.4
Other diagnostic imaging	1,138	1.3
HIV serology ⁴	294	0.3
MRI imaging ⁵	180	0.2
Other	5,020	5.6
None	10,835	12.0

... Category not applicable.

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

²EKG is electrocardiogram.

³CAT is computerized axial tomography.

⁴HIV is human immunodeficiency virus.

⁵MRI is magnetic resonance imaging.

Table 13. Number and percent of emergency department visits by selected procedures: United States, 1996

Procedures provided by hospital staff ¹	Number of visits in thousands	Percent of visits
All visits	90,347	. . .
Intravenous fluids	14,653	16.2
Wound care	10,904	12.1
Orthopedic care	7,653	8.5
Eye/ENT care ²	2,522	2.8
OB/GYN care ³	2,041	2.3
Bladder catheter	1,926	2.1
Nasogastric tube/gastric lavage	691	0.8
Endotracheal intubation	436	0.5
CPR ⁴	330	0.4
Lumbar puncture	218	0.2
Other	2,042	2.3
None	52,251	57.8

. . . Category not applicable.

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

²ENT is ear, nose, throat.

³OB/GYN is obstetrics/gynecology.

⁴CPR is cardiopulmonary resuscitation.

Table 14. Number and percent distribution of emergency department visits by number of medications provided or prescribed: United States, 1996

Number of medications provided or prescribed	Number of visits in thousands	Percent distribution
All visits	90,347	100.0
0	24,066	26.6
1	27,654	30.6
2	19,627	21.7
3	9,630	10.7
4	4,362	4.8
5	2,258	2.5
6	2,748	3.0

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

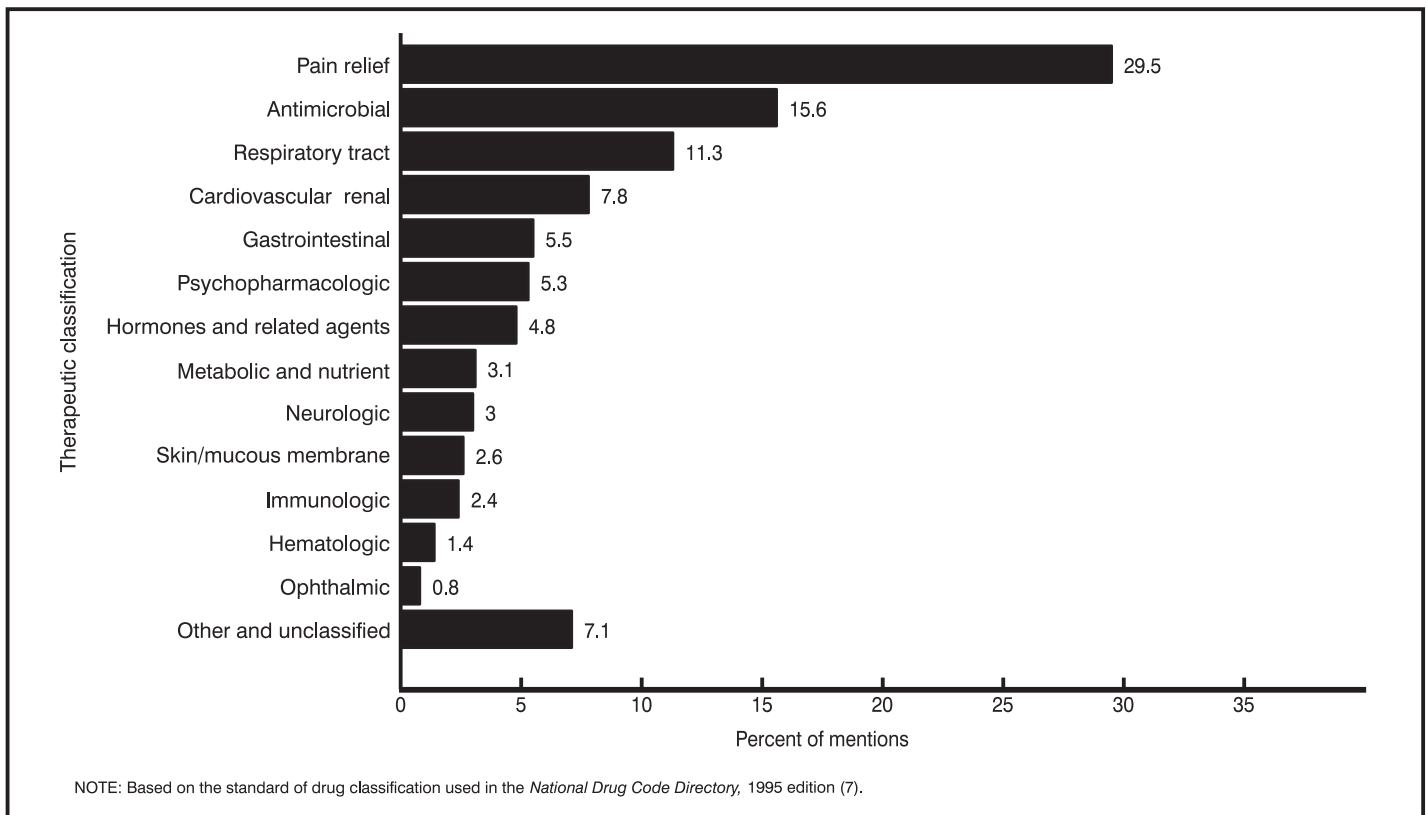


Figure 4. Percent distribution of drug mentions at emergency department visits by therapeutic classification: United States, 1996

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 by type of generic substance: United States, 1996

Generic substance	Number of occurrences in thousands ¹	Percent of all drug mentions ²
All generic substances	167,390	. . .
Acetaminophen	18,945	13.4
Ibuprofen	8,927	6.3
Amoxicillin	4,719	3.3
Hydrocodone	4,373	3.1
Albuterol	4,196	3.0
Promethazine	4,057	2.9
Ketorolac tromethamine	3,469	2.5
Meperidine	3,382	2.4
Codeine	3,015	2.1
Cephalexin	2,454	1.7
Lidocaine	2,228	1.6
Tetanus toxoid	2,064	1.5
Trimethoprim	2,049	1.5
Sulfamethoxazole	2,011	1.4
Nitroglycerin	1,927	1.4
Diphenhydramine	1,914	1.4
Ceftriaxone	1,835	1.3
Aspirin	1,805	1.3
Erythromycin	1,640	1.2
Furosemide	1,616	1.1

. Category not applicable.

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

²Based on an estimated 141,028,000 drug mentions at emergency departments in 1996.

Table 16. Number and percent distribution of the 20 drugs most frequently prescribed at emergency department visits, by entry name of drug: United States, 1996

Entry name of drug ¹	Number of mentions in thousands	Percent distribution	Therapeutic classification ²
All drug mentions	141,028	100.0	...
Tylenol	8,966	6.4	Analgesics, nonnarcotic
Motrin	4,729	3.4	Antiarthritics
Phenergan	3,649	2.6	Antihistamines
Toradol	3,419	2.4	Analgesics, nonnarcotic
Vicodin	2,726	1.9	Analgesics, nonnarcotic
Amoxicillin	2,500	1.8	Penicillins
Keflex	2,182	1.5	Cephalosporins
Ibuprofen	1,967	1.4	Antiarthritics
Benadryl	1,852	1.3	Antihistamines
Tylenol with codeine	1,841	1.3	Analgesics, narcotic
Albuterol sulfate	1,774	1.3	Bronchodilators, antiasthmatics
Rocephin	1,684	1.2	Cephalosporins
Demerol syrup	1,591	1.1	Analgesics, narcotic
Lasix	1,565	1.1	Diuretics
Advil	1,556	1.1	Antiarthritics
Demerol	1,524	1.1	Analgesics, nonnarcotic
Bactrim	1,470	1.0	Sulfamethoxazole and trimethoprim
Darvocet-N	1,455	1.0	Analgesics, nonnarcotic
Proventil	1,323	0.9	Bronchodilators, antiasthmatics
Amoxil	1,313	0.9	Penicillins
All other mentions	91,942	65.2	...

... 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 (7). 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 providers seen: United States, 1996

Type of provider ¹	Number of visits in thousands	Percent of visits
All visits	90,347	...
Registered nurse	76,984	85.2
Staff physician	73,434	81.3
Resident/intern	11,028	12.2
Other physician	11,570	12.8
Licensed practical nurse	3,959	4.4
Medical assistant	3,126	3.5
Physician assistant	3,121	3.5
Nurse practitioner	1,471	1.6
Other	5,655	6.3

... Category not applicable.

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

Table 18. Number and percent of emergency department visits by disposition of visit: United States, 1996

Disposition ¹	Number of visits in thousands	Percent of visits
All visits	90,347	. . .
Refer to other physician/clinic	37,633	41.7
Return to ED PRN/appointment ²	28,134	31.1
Return to referring physician	17,907	19.8
Admit to hospital	9,620	10.6
No follow-up planned	6,804	7.5
Admit to ICU/CCU ³	1,559	1.7
Transfer to other facility	1,639	1.8
Left before being seen	1,020	1.1
DOA/died in ED ⁴	339	0.4
Other	2,313	2.6

. . . Category not applicable.

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

²PRN is as needed.

³ICU/CCU is intensive care unit/critical care unit or coronary care unit.

⁴DOA is dead on arrival.

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 calculated using generalized linear models for predicting the relative standard error for estimates based on the linear relationship between the actual standard error, as approximated using SUDAAN software, and the size of the estimate. 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 (15). 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.

Approximate relative standard errors for aggregate estimates may be calculated using 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, 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.

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

The standard error for a rate may be obtained by multiplying the relative

Table I. Coefficients appropriate for determining approximate relative standard errors: National Hospital Ambulatory Medical Care Survey, 1996: Emergency Departments

Type of estimate	Coefficient for use with estimates in thousands		Lowest reliable estimate in thousands
	A	B	
Visits	0.001583	6.3594	72
Drug mentions	0.003028	14.442	166

standard error 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 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. Approximate relative standard errors were computed using a generalized variance curve and the computed curve coefficients as described above.

Adjustments for hospital nonresponse

Estimates from NHAMCS data were adjusted to account for sample hospitals that were in scope but did not participate in the study. This adjustment was calculated to minimize the impact of response on final estimates by imputing to nonresponding hospitals data from visits to similar hospitals. For this purpose, hospitals were judged similar if they were in the same region, ownership control group, and metropolitan statistical area control group.

Adjustments for ED/clinic nonresponse

Estimates from NHAMCS data were adjusted to account for ED's and sample clinics that were in scope but did not participate in the study. This adjustment was calculated to minimize the impact of nonresponse on final estimates by imputing to nonresponding ED's or the clinics' data from visits to similar ED's or clinics. For this purpose, ED's or clinics were judged similar if they were in the same ED or clinic group.

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 "higher 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 percents calculated from rounded data.

Injury groupings

Table 8 presents data on the intent and mechanism producing the injuries that resulted in visits to hospital emergency departments. Cause of injury is collected for each sampled visit in the

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 Machinery	E890–E899, E924
Pedal cycle, nontraffic and other	E919
Motor vehicle, nontraffic	E800–E807(.3), E820–E825(.6), E826.1, E826.9
Other transportation	E820–E825(.0,.5,.7,.9)
Suffocation	E800–E807(.0–.2,.8–.9), E826(.0,.2–.8), E827–E829, E831, E833–E845
Firearm missile	E911–E913
Other and not elsewhere classified	E922
Mechanism unspecified	E846–E848, E911–E915, E918, E921, E923, E925–E926, E929.0–E929.5, E928.8
Intentional injuries	E887, E928.9, E929.8, E929.9
Assault	E950–E959, E960–E969, E970–E978, E990–E999
Unarmed fight or brawl, striking by blunt or thrown object	E960–E969
Cutting or piercing instrument	E960.0, E968.2
Firearms	E966
Other mechanism	E965.0–E965.4
Self-inflicted	E960.1, E962–E964, E965.5–E965.9, E967–E968.1, E968.3–E969
Poisoning by solid or liquid substances, gases, and vapors	E950–E959
Cutting and piercing instrument	E950–E952
Suffocation	E956
Other mechanism	E953
Other causes of violence	E954–E955, E957–E959
Injuries of undetermined intent	E970–E978, E990–E999
Adverse effects of medical treatment	E980–E989
	E870–E879, E930–E949

¹Based on the "Supplementary Classification of External Causes of Injury and Poisoning," *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) (5)*.

NHAMCS and is coded according to the ICD-9-CM's "Supplementary Classification of External Causes of Injury and Poisoning." For [table 8](#), however, cause-of-injury data were regrouped to highlight the interaction between intentionality of the injury and the mechanism that produced the injury. [Table II](#) displays the groupings used in [table 8](#).

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, 1996. Figures are based on monthly postcensal estimates of this population. Figures are consistent with an unpublished national population estimate release package PPL-57 (U.S. Population Estimates by Age, Sex, Race, and Hispanic Origin: 1990–1996) and 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, 1996. DHIS estimates are provisional at this time and differ slightly from monthly postcensal estimates because of differences in the adjustment process.

Definition of terms

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

Hospital—Hospitals with 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.

Emergency department—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 areas were selected with certainty into the sample. Off-site emergency departments that are open less than 24 hours are included if staffed by the hospital's emergency department.

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

Visit—A direct, personal exchange between a patient and a physician or other health care provider working under the physician's supervision for the purpose of seeking care and receiving personal health services.

Urgent/emergent—A visit is urgent/emergent if the patient requires immediate attention for an acute illness or injury that threatens life or function and where delay would be harmful to the patient.

Nonurgent—Patient does not require attention immediately or within a few hours.

Injury-related visit—A visit is considered related to an injury if “yes” was checked in response to question 11, “Is visit injury-related?,” or if a cause of injury or a nature of injury diagnosis was provided, or if an injury-related reason for visit was reported.

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

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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