
Vital and Health Statistics

Advance Data From Vital and Health Statistics: Numbers 241–250

Series 16: Compilations of Advance Data From Vital and Health Statistics No. 25

Data in this report from health and demographic surveys present statistics by age and other variables on health of the foreign-born population; firearm and motor vehicle injury mortality; AIDS knowledge and attitudes; nursing homes and board and care homes; summaries of outpatient departments, emergency departments, and hospital discharge survey data; problems associated with use of marijuana or cocaine among persons 18–44 years old; characteristics of elderly home health patients; and injury prevention measures in households with children. Estimates are based on the civilian noninstitutionalized population of the United States. These reports were originally published in 1993 and 1994.

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

July 1995
DHHS Publication No. (PHS) 95-1884

Copyright information

All material appearing in this report is in the public domain and may be reproduced or copied without permission; citation as to source, however, is appreciated.

Suggested citation

National Center for Health Statistics. Advance data from vital and health statistics; numbers 241–250. National Center for Health Statistics. Vital Health Stat 16(25). 1995.

National Center for Health Statistics

Jack R. Anderson, *Acting Director*

Jennifer H. Madans, Ph.D., *Acting Deputy Director*

Jacob J. Feldman, Ph.D., *Associate Director for Analysis, Epidemiology, and Health Promotion*

Gail F. Fisher, Ph.D., *Associate Director for Planning and Extramural Programs*

Peter L. Hurley, *Associate Director for Vital and Health Statistics Systems*

(Vacant), *Associate Director for International Statistics*

Stephen E. Nieberding, *Associate Director for Management*

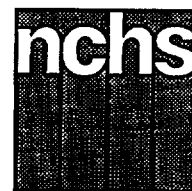
Charles J. Rothwell, *Associate Director for Data Processing and Services*

Monroe G. Sirken, Ph.D., *Associate Director for Research and Methodology*

Contents

Health of the Foreign-Born Population: United States, 1989–90	No. 241
Firearm and Motor Vehicle Injury Mortality Variations by State, Race, and Ethnicity: United States, 1990–91	No. 242
AIDS Knowledge and Attitudes for 1992: Data from the National Health Interview Survey	No. 243
Nursing Homes and Board and Care Homes: Data From the 1991 National Health Provider Inventory	No. 244
National Hospital Ambulatory Medical Care Survey: 1992 Emergency Department Summary	No. 245
Restricted Activity Days and Other Problems Associated with Use of Marijuana or Cocaine Among Persons 18–44 Years of Age: United States, 1991	No. 246
Characteristics of Elderly Home Health Patients: Preliminary Data from the 1992 National Home and Hospice Survey	No. 247
Outpatient Department Summary: National Hospital Ambulatory Medical Care Survey, 1992	No. 248
Summary: National Hospital Discharge Survey	No. 249
Injury Prevention Measures in Households With Children in the United States, 1990	No. 250

Advance Data



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

Health of the Foreign-Born Population: United States, 1989-90

by Elizabeth Hervey Stephen, Georgetown University; Karen Foote, National Academy of Sciences; Gerry E. Hendershot and Charlotte A. Schoenborn, Division of Health Interview Statistics

Introduction

In 1990, the foreign-born population of the United States reached an all-time high of 19.8 million persons, an increase of 5.7 million persons since the 1980 Census (1). According to the most recent census, about 7.9 percent of the population was foreign-born compared with an all-time low of 4.7 percent in 1970 and an all-time high of 14.7 percent in 1910 (2). Immigrants come to the United States from all over the world, and their health status and medical care utilization reflect their diverse experiences in both their countries of birth and in the United States. It is important to monitor the health of the foreign-born population, because their health care needs as well as their access to care may differ from that of persons born in the United States.

This report presents selected health statistics for the foreign-born population according to Hispanic origin, duration of residence, and selected sociodemographic characteristics. Further breakdowns by specific ethnic or national origins were not possible because of the relatively small sample sizes for specific groups.

Sources and limitations of the data

Since 1985, the National Center for Health Statistics has gathered information on the birthplace of persons 18 years of age and over as a part of the National Health Interview Survey (NHIS) (3). This report presents estimates for selected indicators of health status and medical care utilization for the native-born and foreign-born populations in the United States. These indicators include: respondent-assessed general health status, limitation of usual activities due to impairments or chronic health conditions; days spent in bed due to health conditions; and physician contacts. To make reliable estimates of statistics for smaller subgroups of the foreign-born population, samples from the 1989 and 1990 NHIS were combined.

In 1989, for the first time, the NHIS collected data on the length of time that foreign-born persons had lived in the United States. For each foreign-born person, respondents were asked, "Altogether, how many years has [persons's name] lived in the United States?" Because foreign-born residents may have spent time living outside the United States since their first arrival, the

wording of the question was intended to elicit the number of years the person was actually a resident in the United States since their first arrival.

Immigrants with different durations of residence might be expected to have different patterns of health status and health care utilization, either because there have been historical differences in the health of immigrant cohorts or because duration of residence in the United States has an effect on health. For this reason, data on the foreign-born are presented separately by duration of residence.

Immigrants may differ from U.S.-born adults in terms of sociodemographic characteristics that are related to health. Sociodemographic profiles may also vary by national origin. The NHIS does not contain detailed information on national origin but it does allow classification of Hispanic origin based on a question asking respondents to identify themselves as Hispanic or not of Hispanic origin. Although with this definition Hispanic origin does not necessarily mean that the person was born in a Spanish-speaking country, this is likely to be generally true. In this report, data are presented by selected



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



sociodemographic characteristics for the total native-born and total foreign-born populations and for native-born and foreign-born persons of Hispanic origin.

Immigrants are much younger, on average, than the native-born U.S. population. Because health indicators tend to decline with increasing age, the younger, immigrant population may appear to be healthier than the native-born population. For that reason, both unadjusted and age-adjusted estimates are shown in this report.

The statistics presented in this report show the effect of immigration status, after controlling for a number of other factors known to influence health outcomes. Other characteristics of immigrants that could have affected the results are not as easily measured. For example, survey coverage of immigrant populations may be somewhat lower than for native-born residents due to language barriers, fear of being interviewed because of illegal status, and unstable or nonhousehold living arrangements. The importance of such factors for measuring health outcomes may vary by immigrant group. These factors should be kept in mind when interpreting the findings presented in this report, although their effects are expected to be small.

In the discussion that follows, the focus is on three comparisons:

- between the total adult U.S.-born population and the total adult foreign-born population;
- between U.S.-born Hispanic adults and foreign-born Hispanic adults; and
- among three groups of immigrants classified by duration of residence in the United States (less than 5 years, 5–9 years, and 10 years or more).

Unless otherwise indicated, statistical differences discussed in this report have been tested and found to be statistically significant at the 0.05 level. It should be noted that many factors affect health care and health status. The differences between immigrants and native-born persons noted in this report may result from any number of factors and should not be considered to be solely the result of place of birth or duration of residence. A brief discussion of statistical reliability and other aspects

of the NHIS design is presented in the Technical notes.

Findings

Characteristics of the foreign-born population

Foreign born is defined as having been born outside of the 50 United States or the District of Columbia. The categories of birthplace do not necessarily correspond to citizenship or legal status, for which data were not available in the NHIS. In particular, persons born outside the United States but in other areas under U.S. jurisdiction, such as Puerto Rico, are classified for this report as “foreign born,” although they have had certain rights of U.S. citizenship since birth. Native born is defined as having been born in one of the 50 United States or the District of Columbia. Table 1 shows the average annual number of persons 18 years of age and over according to immigrant status, Hispanic origin, and duration of residence in the United States for the foreign born. Also shown are percent distributions of each of those groups by age, income, education, geographic region, and sex.

Classification of persons as Hispanic, whether U.S. or foreign born, was based on responses to a question that asked if the sample person’s national origin or ancestry corresponded to any of those on a printed list of Hispanic-origin groups. Persons were classified as Hispanic if their national origin or ancestry was given as Puerto Rican, Cuban, Mexican/Mexicano, Chicano, other Latin American, or other Spanish.

It should be noted that the data in this report, including birthplace, origin, and length of time in the United States, are based on responses by household respondents, sometimes acting as proxies for absent adult family members. Some respondents may not have provided accurate information, either from lack of knowledge or an unwillingness to share it. The extent and effect of this source of error is not known but assumed to be small.

Table 1 shows that recent immigrants, particularly Hispanics, were

more concentrated in the younger ages than the U.S.-born population. This age distribution reflects a labor-based migration with a concentration of immigrants in the early labor years. Immigrants who have been in the United States 10 years or longer were older than more recent immigrants.

Foreign-born adults were less educated than U.S.-born adults, and Hispanic immigrants were less educated than immigrants from other parts of the world. The differences were dramatic: 78.7 percent of the total native-born population had completed 12 years or more of school compared with 64.5 percent of all immigrants, 44.8 percent of all Hispanic immigrants, and 41.1 percent of the most recent Hispanic immigrant group. Annual family income reflected these same socioeconomic differences. Recent Hispanic immigrants (67.4 percent) were more than twice as likely as the total U.S.-born adult population (31.9 percent) to have had an annual family income of less than \$20,000. The Northeast and West had larger proportions of immigrant populations than the Midwest and South, and Hispanic immigrants were concentrated in the West.

Because the foreign-born population differs from the U.S.-born population, and the immigrant groups differ by length of time in the United States, the data in tables 2–5 are shown by these variables and are adjusted for age.

Respondent-assessed health status

Table 2 shows the percent of persons 18 years of age and over who were reported to have been in fair or poor health, based on answers to the question, “Would you say [person’s name] health is excellent, very good, good, fair, or poor?” As seen in the first panel, similar proportions of the total foreign-born and U.S.-born populations reported having been in fair or poor health (11.6 and 12.1 percent, respectively). When age was adjusted, 12.4 percent of immigrants and 12.0 percent of natives reported having been in fair or poor health. In comparing the respondent-assessed health, (using age-adjusted figures) the following

subgroups of the total foreign-born population were less likely than the corresponding subgroups of the total U.S.-born population to be in fair or poor health: persons with an annual family income less than \$20,000, persons with less than 12 years of education, and persons living in the South.

Comparing the foreign-born population by length of residence in the United States shows that the most recent immigrants were the healthiest of the three immigrant groups. This general pattern persisted even when age was controlled, suggesting that in recent years the immigration process has tended to select persons in good health. In almost all comparisons shown in table 1, the most recent immigrants were less likely than immigrants who had been here 5–9 years or 10 years or longer to report being in fair or poor health, although differences between adjacent categories were not always statistically significant.

Comparing the most recent Hispanic immigrants with U.S.-born Hispanics, controlling for age, the same general pattern prevailed. Recent immigrants were less likely to be in fair or poor health, although, again, not all of these differences were statistically significant. An apparent reversal of this pattern among Hispanics in the Northeast was not statistically significant. For most comparisons the differences were quite large; for instance (using age-adjusted numbers), 4.4 percent of recent male Hispanic immigrants report being in fair or poor health compared with 16.0 percent of U.S.-born Hispanic males.

The relationship between selected sociodemographic characteristics and assessed health status were similar for the foreign- and native-born populations. In nearly all groups—immigrant, native born, Hispanic, and non-Hispanic—persons with less than 12 years of education and persons with incomes of less than \$20,000 were twice as likely to be in fair or poor health as persons with 12 years of education or more and those with incomes of \$20,000 or more. For example, among foreign-born persons who had lived in the United States 10 years or longer, 19.6 percent of those with less than 12 years of education

were in poor or fair health compared with 8.9 percent of those with 12 years of education or more. Sex differences were also noted. Prevalence of fair or poor health was higher for females than for males in nearly all immigrant and native-born groups shown—the largest differences being observed among the most recent immigrants. Hispanic female immigrants who arrived in the past 5 years were more than three times as likely to be in poor or fair health as their male counterparts.

Limitation in activity

Table 3 shows the percent of persons who reported having been limited in usual activities because of a chronic health condition. In almost all sociodemographic subgroups, using either unadjusted or age-adjusted figures, the total foreign-born population was less likely than the comparable total U.S.-born population to have a limitation of activity. The same pattern was observed when comparing the most recent Hispanic immigrants with U.S.-born Hispanics. Recent Hispanic immigrants were less likely to have had activity limitations, even when age was controlled. As suggested earlier, this was likely a result of selective immigration. That is, healthy persons in the country of origin were more likely than others to immigrate to the United States.

Foreign-born persons of all origins who have lived in the United States less than 5 years were much less likely to have a limitation of activity than were foreign-born persons who had been in the United States 10 years or more. Age adjusting reduced the differences, but in some cases the differences were still quite large. For example, using the age-adjusted figures, 11.6 percent of the most recent female immigrants had a limitation of activity compared with 16.1 percent of foreign-born females who had been in the United States 10 years or longer. The immigrants who had been in the United States 5–9 years were between the other two immigrant groups in every sociodemographic subgroup, although differences between the 5–9-year duration group and adjacent duration groups were not always significant.

For Hispanic-origin immigrants the same pattern held. In general, a smaller proportion of the most recent immigrants had a limitation of activity compared with the immigrants who had been in the United States 10 years or more. These differences were somewhat smaller in the age-adjusted estimates.

Bed days

Table 4 shows the percent of persons who, during the year prior to interview, had 4 days or more in which they stayed in bed for more than one-half of the day because of a health condition. It should be noted that the number of bed days measures both health conditions (for example, frequency and severity) and responses to those conditions (for example, willingness and ability to forego usual activities). Among persons experiencing the same frequency and severity of disease, different numbers of bed days may occur because of differences in their willingness and ability to forego usual activity.

Overall, foreign-born adults were less likely than U.S.-born adults to have had 4 bed days or more; the differences were significant in every subgroup except for persons living in the Northeast and Midwest. In every sociodemographic group shown in table 4, foreign-born persons who had been in the United States less than 5 years were significantly less likely to have spent 4 days or more in bed than their counterparts who had lived in the United States for 10 years or longer. This is consistent with the findings presented earlier that recent immigrants were less likely than immigrants who had been in the United States for 10 years or longer to be in fair or poor health. Immigrants who had lived in the United States 5–9 years were between the other two duration groups in terms of bed days reported. Although not all differences were statistically significant, the overall pattern was consistent. Among immigrants, the longer they were residents in the United States, the greater the probability that a person would have spent an average of 4 days

or more in bed due to illness or injury in the past year.

Overall, findings for Hispanic-origin immigrants paralleled those for immigrants as a whole. The most recent Hispanic-origin immigrants were generally the healthiest of the three duration groups, although, again, not all differences were statistically significant.

Physician contacts

Table 5 shows the percent of persons with six physician contacts or more (visit or telephone call with a doctor or health care provider working under a doctor's supervision) during the year prior to the interview. Six visits was chosen as it is above the average for the U.S. population. It should be noted that the number of physician contacts reflects, as does the number of bed days, the frequency and severity of health conditions and access to health care.

Although the differences were smaller than in some of the previous tables, the total foreign-born population was less likely than the U.S.-born population to have had six or more physician contacts. Foreign-born persons who had lived in the United States less than 5 years generally were less likely than persons who had lived in the United States 10 years or more to have had six or more physician contacts.

Similarly, in comparing the foreign-born Hispanic population by duration of residence in the United States, the most recent Hispanic immigrants were less likely to have had six or more physician contacts than Hispanic immigrants who had been in the United States 10 years or more.

As was found for other measures of health status, sociodemographic variations were similar for immigrant and U.S.-born adults. Regardless of immigration status, females were much more likely than males to have had six or more physician contacts. For instance, 21.2 percent of recent female Hispanic immigrants had six or more physician contacts compared with 9.1 percent of the recent male Hispanic immigrants. Similarly, 23.2 percent of native-born females had six or more contacts compared with 14.1 percent of

native-born males. In general, among both immigrant and U.S.-born adults, persons with incomes under \$20,000 or less than 12 years of education were more likely than persons with higher incomes or more education to have had six or more physician contacts.

Summary

The health status of immigrants is of vital interest to health policy planners as the number of immigrants in the United States increases. This report has shown that, overall, foreign-born persons had better health than the U.S.-born population, although this health advantage varied by length of residence in the United States. In virtually every measure of health status, and with regard to almost every sociodemographic characteristic, the most recent immigrants were healthier than foreign-born persons who have lived in the United States 10 years or more as well as healthier than the U.S.-born population. Immigrants who had lived in the United States 10 years or longer were generally healthier than U.S.-born adults, although the differences were not as striking as between recent immigrants and the native-born population.

These findings may be explained in several ways. First, recent cohorts of immigrants may have been healthier than earlier cohorts of immigrants at the time of immigration. If so, as their duration of residence in the United States increases, they will continue to be significantly healthier than native-born persons. Second, earlier cohorts of immigrants may have been as healthy as recent cohorts at the time of immigration, but their health has deteriorated with increased duration of residence in the United States. This suggests that immigrants had or acquired physical conditions or behaviors that put them at risk in their new environment or that access to health care has been limited. It also suggests that more recent cohorts of immigrants could experience a similar deterioration of health as their duration of residence in the United States increases. Finally, these findings may reflect a combination of these influences

or other factors not considered. To understand these patterns will require additional research, including comparative studies of the health of immigrants in the United States with the health of nonmigrants (stayers) in the countries of immigrant origin.

References

1. U.S. Bureau of the Census, Ethnic and Hispanic Branch. 1990 CPH-L-90, 1990 Census special tabulations. Washington, D.C.: Government Printing Office. 1992.
2. Jasso G, Rosenzweig MR. The new chosen people: Immigrants in the United States. New York: Russell Sage Foundation. 1990.
3. Hendershot GE. Health of the foreign-born population: United States, 1985-86. Advance data from vital and health statistics; no 157. Hyattsville, Maryland: National Center for Health Statistics. 1988.
4. Adams PF, Benson V. Current estimates from the National Health Interview Survey, 1989. National Center for Health Statistics. *Vital Health Stat* 10(176). 1990.
5. Adams PF, Benson V. Current estimates from the National Health Interview Survey, 1990. National Center for Health Statistics. *Vital Health Stat* 10(181). 1991.

Table 1. Average annual number and percent distribution of persons 18 years of age and over by immigrant status, Hispanic origin, and duration of residence, according to selected characteristics: United States, 1989-90

Selected characteristic	Immigrant status										
	All immigrant statuses ¹	Native born		Immigrant							
		All origins	Hispanic origin	All origins				Hispanic origin			
				Duration of residence in the United States				Duration of residence in the United States			
			All durations ²	Less than 5 years	5-9 years	10 years or more	All durations ²	Less than 5 years	5-9 years	10 years or more	
Number in thousands											
All persons.	180,488	161,966	6,501	17,899	3,210	3,028	11,660	6,992	1,262	1,256	4,474
Percent distribution											
All persons.	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Age											
18-24 years.	14.0	13.9	25.2	14.2	29.3	19.3	8.7	18.3	39.6	24.7	10.6
25-34 years.	23.7	23.3	29.9	27.1	39.3	41.3	20.0	30.7	36.0	44.3	25.5
35-44 years.	20.3	20.2	19.6	21.0	15.7	22.3	22.1	21.6	13.1	18.3	24.9
45-64 years.	25.7	25.8	18.2	24.4	12.2	13.1	30.6	22.1	9.3	10.5	29.0
65 years and over.	16.3	16.7	7.0	13.4	3.4	4.0	18.6	7.2	2.1	2.1	10.1
Annual family income											
Less than \$20,000.	32.7	31.9	39.2	39.4	54.1	42.1	34.7	51.7	67.4	54.8	46.5
\$20,000 or more.	64.0	64.8	57.6	57.9	43.7	55.3	62.4	46.2	31.1	43.1	51.3
Education											
Less than 12 years.	21.7	20.2	29.5	34.6	33.3	36.6	34.4	54.3	57.3	58.2	52.4
12 years or more.	77.3	78.7	69.7	64.5	65.7	62.4	64.8	44.8	41.4	41.2	46.8
Region											
Northeast.	21.0	19.9	11.4	30.6	29.6	27.8	31.6	24.0	23.7	21.6	24.8
Midwest.	24.3	25.8	8.7	11.4	11.2	8.9	12.0	7.1	7.6	6.6	7.0
South.	33.9	35.1	35.2	22.7	22.4	24.2	22.4	28.5	25.3	29.7	29.1
West.	20.9	19.2	44.7	35.4	36.9	39.0	34.0	40.4	43.4	42.1	39.1
Sex											
Male.	47.5	47.5	47.1	47.8	49.6	52.0	46.3	49.1	52.0	52.9	47.3
Female.	52.5	52.5	52.9	52.2	50.4	48.0	53.7	50.9	48.0	47.1	52.8

¹Includes unknown immigrant status.

²Excludes unknown duration.

Table 2. Percent and age-adjusted percent of persons 18 years of age and over whose respondent-assessed health was fair or poor, by immigrant status, Hispanic origin, and duration of residence: United States, 1989-90

Selected characteristic	Immigrant status											
	All immigrant statuses ¹	Immigrant										
		Native born	All origins						Hispanic origin			
			All origins	Hispanic origin	Duration of residence in the United States				Duration of residence in the United States			
			All durations ²	Less than 5 years	5-9 years	10 years or more	All durations ²	Less than 5 years	5-9 years	10 years or more		
					Percent							
All persons	12.0	12.1	13.1	11.6	6.3	8.4	13.8	13.1	6.9	8.9	16.0	
Annual family income												
Less than \$20,000	21.8	22.4	21.6	17.5	8.6	12.7	22.8	17.1	8.2	11.0	22.7	
\$20,000 or more	6.9	6.9	7.2	7.5	3.6	5.3	8.8	8.9	*4.3	6.7	10.1	
Education												
Less than 12 years	26.4	27.9	24.7	19.0	10.0	12.8	23.1	17.3	9.0	10.9	21.9	
12 years or more	7.9	7.9	8.1	7.5	4.5	5.7	8.8	8.0	4.0	6.2	9.4	
Region												
Northeast	9.9	9.3	8.2	13.2	6.7	8.8	15.9	17.7	10.0	11.4	21.2	
Midwest	10.9	10.9	8.7	11.5	*4.2	*5.9	14.4	11.3	*4.2	*7.2	14.6	
South	14.9	15.4	16.3	9.4	4.3	7.5	11.3	11.0	*6.3	6.7	13.5	
West	10.6	10.5	12.7	11.6	7.8	9.1	13.4	12.1	5.8	9.5	14.8	
Sex												
Male	10.9	11.0	11.8	9.4	4.5	7.1	11.5	10.5	3.2	7.8	13.6	
Female	13.0	13.0	14.3	13.5	8.1	9.7	15.8	15.6	10.9	10.3	18.2	
					Age-adjusted percent							
All persons	12.0	12.0	16.8	12.4	9.7	13.3	12.7	16.2	11.6	15.2	17.1	
Annual family income												
Less than \$20,000	21.1	21.5	26.8	18.8	13.5	19.5	20.4	20.7	15.3	16.6	23.1	
\$20,000 or more	7.8	7.8	9.7	8.7	6.5	9.0	9.0	12.0	*6.6	15.2	12.2	
Education												
Less than 12 years	22.8	23.8	26.5	18.4	13.5	17.2	19.6	20.2	15.1	17.0	21.8	
12 years or more	8.7	8.7	11.5	8.8	7.3	10.3	8.9	10.5	6.9	12.1	11.0	
Region												
Northeast	9.6	8.9	9.9	13.2	10.7	14.1	13.7	19.5	14.5	17.3	20.9	
Midwest	10.9	10.9	12.6	11.2	*7.5	*18.0	12.0	16.3	*4.6	*22.8	17.9	
South	14.9	15.2	20.4	10.7	5.3	12.8	11.1	13.2	*9.1	11.4	13.8	
West	11.1	10.7	15.9	13.0	12.1	12.7	13.2	16.3	11.8	15.4	16.8	
Sex												
Male	11.3	11.4	16.0	10.7	6.6	11.6	11.1	13.4	4.4	14.5	14.8	
Female	12.7	12.5	17.6	13.9	12.1	14.9	14.0	18.6	16.4	16.1	19.0	

¹Includes unknown immigrant status.

²Excludes unknown duration.

Table 3. Percent and age-adjusted percent of persons 18 years of age and over who were limited in activity due to a chronic condition or impairment, by immigrant status, Hispanic origin, and duration of residence: United States, 1989-90

Selected characteristic	Immigrant status												
	All immigrant statuses ¹	Immigrant											
		Native born				All origins				Hispanic origin			
		All origins	Hispanic origin	Duration of residence in the United States				Duration of residence in the United States					
				All durations ²	Less than 5 years	5-9 years	10 years or more	All durations ²	Less than 5 years	5-9 years	10 years or more		
Percent													
All persons	17.0	17.5	13.9	12.8	5.5	7.0	16.3	11.7	4.8	6.4	15.2		
Annual family income													
Less than \$20,000	27.5	28.8	19.7	17.8	6.3	9.5	25.3	14.9	4.9	7.4	21.4		
\$20,000 or more	11.7	12.0	10.0	9.3	4.6	5.3	11.2	8.3	*4.6	5.4	9.7		
Education													
Less than 12 years	30.0	32.3	22.5	18.4	7.2	9.2	24.0	14.3	4.8	6.7	19.6		
12 years or more	13.3	13.6	10.2	9.6	4.5	5.5	12.1	8.6	4.2	6.0	10.3		
Region													
Northeast	15.7	15.9	10.4	14.7	6.5	7.8	18.4	15.8	8.4	8.5	19.7		
Midwest	16.9	17.0	13.1	14.0	*5.6	*5.5	17.8	11.3	*7.3	*7.2	13.7		
South	18.4	18.9	14.7	11.7	4.2	6.8	15.2	12.3	*3.8	6.7	16.0		
West	16.2	17.2	14.3	11.5	5.4	6.7	14.7	9.0	*2.9	4.7	12.1		
Sex													
Male	16.2	16.8	13.7	11.0	5.0	6.6	14.0	10.0	3.7	6.3	13.1		
Female	17.8	18.1	14.1	14.5	6.1	7.4	18.3	13.4	5.8	6.4	17.2		
Age-adjusted percent													
All persons	17.0	17.4	18.0	13.9	10.6	12.5	14.9	15.3	9.9	13.5	16.5		
Annual family income													
Less than \$20,000	26.3	27.4	24.7	19.1	13.5	16.2	22.0	19.0	11.9	13.9	21.9		
\$20,000 or more	13.0	13.2	13.3	10.8	8.4	10.4	11.5	11.8	*8.9	12.4	12.1		
Education													
Less than 12 years	25.3	27.2	24.0	17.5	11.0	14.3	19.5	17.4	9.9	12.8	19.6		
12 years or more	14.4	14.7	14.4	11.5	10.8	11.1	12.3	12.2	11.2	15.0	12.4		
Region													
Northeast	15.2	15.3	14.0	14.6	12.8	13.2	15.7	18.2	13.1	12.3	20.1		
Midwest	16.8	17.0	16.5	13.6	*11.3	*13.0	14.5	18.9	*7.6	22.7	19.2		
South	18.4	18.7	19.0	13.6	9.5	13.7	14.8	14.7	*9.3	13.4	16.1		
West	16.8	17.5	18.1	13.4	10.3	11.6	14.5	13.2	*6.9	8.7	14.2		
Sex													
Male	16.7	17.2	17.6	12.5	9.2	13.1	13.4	13.3	5.9	17.3	14.4		
Female	17.2	17.5	18.4	14.9	11.6	12.2	16.1	16.8	11.8	11.1	18.3		

¹Includes unknown immigrant status.

²Excludes unknown duration.

Table 4. Percent and age-adjusted percent of persons 18 years of age and over who had 4 or more bed days in the past year, by Immigrant status, Hispanic origin, and duration of residence: United States, 1989-90

Selected characteristic	Immigrant status										
	All immigrant statuses ¹	Immigrant									
		Native born		All origins				Hispanic origin			
		All origins	Hispanic origin	Duration of residence in the United States		Duration of residence in the United States		All durations ²	Less than 5 years	5-9 years	10 years or more
				All durations ²	Less than 5 years	5-9 years	10 years or more	All durations ²	Less than 5 years	5-9 years	10 years or more
						Percent					
All persons	20.7	21.1	22.3	17.2	12.2	14.8	19.3	16.8	11.6	13.5	19.3
Annual family income											
Less than \$20,000	25.4	26.2	26.1	19.8	13.3	15.3	23.9	18.5	11.4	15.6	22.3
\$20,000 or more	18.6	18.9	19.9	15.7	11.0	14.5	16.9	15.3	12.5	11.1	16.9
Education											
Less than 12 years	24.7	25.9	25.2	18.4	11.4	13.1	21.8	16.4	9.1	13.0	19.8
12 years or more	19.7	20.0	21.3	16.6	12.5	15.8	18.0	17.5	15.3	14.3	18.8
Region											
Northeast	19.9	20.0	23.0	19.2	13.1	16.6	21.4	21.1	15.1	15.5	24.1
Midwest	20.0	20.1	20.9	18.0	13.6	15.5	19.5	15.0	*8.3	*14.5	17.5
South	21.1	21.5	20.9	15.9	12.0	15.0	17.2	15.6	12.9	15.0	16.4
West	21.8	23.1	23.6	16.2	11.2	13.0	18.6	15.6	9.7	11.3	18.8
Sex											
Male	16.7	17.1	17.0	13.1	7.3	11.0	15.4	12.6	6.9	10.7	14.9
Female	24.4	24.8	27.1	21.0	16.9	18.8	22.6	21.0	16.7	16.4	23.3
						Age-adjusted percent					
All persons	20.7	21.1	22.8	17.6	13.2	16.1	18.9	18.3	14.6	18.1	19.8
Annual family income											
Less than \$20,000	25.5	26.4	26.9	20.1	13.2	17.5	23.0	20.0	11.9	19.4	22.5
\$20,000 or more	18.8	19.1	20.0	16.2	13.1	15.2	17.0	17.2	19.1	16.8	18.0
Education											
Less than 12 years	23.8	25.4	25.8	18.0	12.6	14.7	20.5	17.9	12.3	15.9	20.0
12 years or more	19.7	20.0	20.5	17.1	13.1	17.0	18.0	18.8	19.4	21.8	19.3
Region											
Northeast	19.8	19.9	25.2	19.1	16.3	18.2	20.4	22.2	23.3	19.1	24.7
Midwest	20.0	20.1	21.5	17.9	13.8	21.9	18.4	16.7	*4.5	*17.9	18.0
South	21.1	21.4	21.7	16.4	11.6	17.7	17.3	16.7	14.0	19.9	16.5
West	21.8	23.1	23.5	16.6	11.6	13.1	18.6	17.2	9.3	12.4	19.4
Sex											
Male	16.9	17.3	18.2	13.8	8.3	12.9	15.2	14.2	7.3	16.7	15.5
Female	24.4	24.8	26.8	21.1	17.5	19.4	22.2	22.2	19.6	19.6	23.6

¹Includes unknown immigrant status.²Excludes unknown duration.

Table 5. Percent and age-adjusted percent of persons 18 years of age and over who had six or more physician contacts in the past year, by Immigrant status, Hispanic origin, and duration of residence: United States, 1989-90

Selected characteristic	Immigrant status										
	All immigrant statuses ¹	Native born		Immigrant							
		All origins	Hispanic origin	All origins				Hispanic origin			
				Duration of residence in the United States				Duration of residence in the United States			
			All durations ²	Less than 5 years	5-9 years	10 years or more	All durations ²	Less than 5 years	5-9 years	10 years or more	
Percent											
All persons	18.6	18.9	17.3	15.8	11.2	13.5	17.7	16.4	11.2	13.3	18.7
Annual family income											
Less than \$20,000	22.7	23.3	21.0	18.5	11.7	14.7	22.6	18.7	11.1	15.1	23.0
\$20,000 or more	16.7	16.9	14.9	14.2	10.6	13.0	15.1	13.9	11.2	11.3	15.0
Education											
Less than 12 years	23.2	24.1	20.3	18.8	11.4	14.8	21.9	17.6	10.1	13.3	21.3
12 years or more	17.3	17.6	16.0	14.2	11.0	12.9	15.4	14.9	12.8	13.5	15.8
Region											
Northeast	19.0	19.3	17.6	17.7	13.4	14.7	19.6	21.8	16.4	16.2	24.6
Midwest	18.2	18.3	15.6	14.4	10.3	12.5	15.8	14.2	*8.3	*8.4	17.5
South	18.0	18.3	15.7	14.1	9.2	12.8	15.8	14.3	8.5	13.9	15.8
West	19.4	20.1	18.7	15.8	11.1	13.3	17.9	15.0	10.4	11.9	17.3
Sex											
Male	13.5	13.8	11.2	10.5	5.2	7.8	12.8	10.3	4.3	8.1	12.8
Female	23.1	23.4	22.7	20.8	17.2	19.8	21.9	22.3	18.6	18.9	24.0
Age-adjusted percent											
All persons	18.5	18.8	19.0	16.4	14.0	16.3	17.1	19.2	15.8	18.5	20.0
Annual family income											
Less than \$20,000	21.7	22.2	22.8	18.9	14.9	19.4	20.7	21.9	15.4	20.9	23.6
\$20,000 or more	17.4	17.7	16.3	15.1	13.1	14.2	15.5	16.4	14.8	15.0	16.9
Education											
Less than 12 years	20.6	21.4	20.6	18.2	13.4	17.3	19.5	20.4	15.7	15.9	21.7
12 years or more	17.9	18.1	17.5	15.2	14.1	15.8	15.6	17.0	16.8	21.9	17.0
Region											
Northeast	18.8	19.0	21.2	17.7	18.7	18.5	18.0	23.9	23.7	18.0	24.9
Midwest	18.1	18.3	18.6	14.2	10.4	18.4	14.3	18.3	*7.0	*8.8	20.9
South	18.0	18.2	18.0	15.3	11.0	16.8	15.9	16.7	13.4	22.3	16.4
West	19.6	20.3	19.6	16.8	13.5	15.2	18.1	17.4	13.0	12.6	18.7
Sex											
Male	13.8	14.1	13.8	11.7	10.3	12.5	12.4	13.6	9.1	17.0	14.2
Female	23.0	23.2	23.7	20.9	17.9	20.7	21.4	24.5	21.2	21.1	25.3

¹Includes unknown immigrant status.

²Excludes unknown duration.

Technical notes

The National Health Interview Survey is a continuous, cross-sectional, national survey conducted by household interview. Each week a probability sample of households in the civilian noninstitutionalized population of the United States is interviewed to obtain information on the health status of each member of the household as well as other background characteristics. The 1989 survey included 45,711 households containing 116,929 persons. Among these were 8,142 persons who were reported to have been born outside of the United States. The 1990 survey included 46,476 households containing 119,631 persons. This included 8,851 persons who were reported to have been born outside of the United States.

All persons 17 years of age and over were asked to participate in the interview. Proxy responses were accepted from other adult family members for children and teens under 17 years of age and for adults not present or unable to respond for themselves. About two-thirds of all adult family members responded for themselves.

Because the estimates shown in this report are based on a sample, they are subject to sampling error. A measure of the sampling error is given by the standard error. Approximate standard errors for estimated percents in this report are given by the formula:

$$SE(p) = \sqrt{\frac{3,565p(100-p)}{y}}$$

where SE is the standard error, p is the estimated percent, and y is the estimated base of the percent. The bases of the percents in table 1 are shown in the first line and the bases of the percents shown in tables 2-5 can be calculated from the data in table 1.

The approximate standard error of the difference between percents is given by the formula:

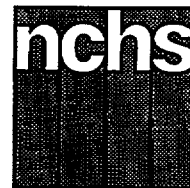
$$SE(x_1 - x_2) = \sqrt{SE(x_1)^2 + SE(x_2)^2}$$

where x_1 and x_2 are the two percents being compared, $x_1 - x_2$ is the difference between them, and $SE(x_1)$ and $SE(x_2)$ are the standard errors of the two

percents. In this report, a difference was considered statistically significant at the 0.05 level if the difference between the two percents was at least twice as large as its standard error.

More detailed discussions of the sample design, estimating procedures, procedures for estimating standard errors, nonsampling errors, and definitions of terms used in this report have been published (4,5).

Advance Data



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

Firearm and Motor Vehicle Injury Mortality—Variations by State, Race, and Ethnicity: United States, 1990–91

by Lois A. Fingerhut, M.A.; Cheryl Jones; and Diane M. Makuc, Dr.P.H.; Division of Analysis

Introduction

In 1991, motor vehicles were responsible for more injury deaths than any other cause of injury. Firearms were the second leading cause of injury death. Motor vehicle crash- and firearm-related injuries accounted for 55 percent of all injury deaths in the United States in 1991; 43,536 people died as the result of injuries sustained during motor vehicle crashes and 38,317 people died as the result of firearm-related injuries (1,2).

From 1980 through 1985, motor vehicle crash and firearm death rates decreased by 18 and 11 percent, respectively. From 1985 through 1991, the motor vehicle crash death rate continued to decrease (by 10 percent), whereas the death rate due to firearms increased by 14 percent. The more recent period, 1988 through 1991, was one of faster change for both causes of death; the motor vehicle death rate declined 14 percent, at an average annual rate of 4.8 percent per year, while the firearm death rate increased 9 percent, at an average annual rate of 3.2 percent per year. If these recent trends (1988 through 1991) in motor vehicle crash and firearm mortality were to continue, firearms would displace motor vehicle crashes as the leading cause of injury death in the United

States by the mid-1990's. If predictions of when the crossover would occur were based upon longer term trends, for example, 1968 through 1991, firearm deaths would outnumber motor vehicle deaths by the year 2003 (2).

The Healthy People 2000 initiative includes objectives for reducing motor vehicle crash fatalities for persons of all ages, and in particular for persons 15–24 years of age, and for American Indian/Alaskan Native persons (3). In addition, there are several objectives directed towards the reduction of homicide, suicide, and weapon-related violent death rates for all persons, and specifically for males 15–34 years of age, black persons, persons of Hispanic origin, and American Indian/Alaskan Native males.

Recent increases in firearm mortality have been greatest among adolescents and young adults. From 1988 through 1991, the firearm death rate for persons 15–24 years increased 40 percent to 28.9 per 100,000 population, and the motor vehicle death rate declined 15 percent to 32.0 per 100,000 population. Also during this period, the firearm death rate for persons 25–34 years increased 8 percent to 22.1 per 100,000, and the motor vehicle death rate decreased 12 percent to 21.2

per 100,000. In 1991, the firearm death rate for persons 15–24 years of age was only 10 percent lower than the motor vehicle death rate, and at 25–34 years the firearm death rate exceeded the motor vehicle death rate by 4 percent (figure 1).

Large racial differentials in firearm mortality have been previously reported for the white and black populations (4,5). Death rates for other racial and ethnic groups could not be estimated previously for non-Census years because age and State-specific intercensal population estimates (needed for estimates of the Hispanic population) were unavailable.

In this report, numbers of firearm and motor vehicle deaths are compared within States for persons of all races in 1991, and within States for the non-Hispanic white, Hispanic, black, Asian and Pacific Islander, and American Indian/Alaskan Native (hereafter referred to, respectively, as Asian and American Indian) populations for 1990–91. The extent to which homicide and suicide contribute to firearm deaths is also examined for these groups. In addition, this report includes an analysis of State-, race-, and ethnic-specific firearm and motor vehicle death rates for persons 15–34 years of age.

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



Methods

Data by State

Total numbers of firearm and motor vehicle deaths for 1990 and 1991 are shown for all States in table 1. Two years of data, 1990–91, were combined in tables 2–4 because of the small numbers of annual deaths in some minority populations and in the age group 15–34 years. Numbers of deaths in 1990–91 are shown for all States in table 2. However, the text highlights data only for States in which the combined numbers of firearm and motor vehicle deaths for 1990–91 exceeded 100. State- and race/ethnic-specific death rates for persons 15–34 years of age for 1990–91 were included in table 4 if the death rate was based on at least 20 deaths, and are shown with an asterisk if they were based on fewer than 50 deaths.

Hispanic origin

In 1990, mortality data for the Hispanic origin population were based on deaths to residents of 45 States and the District of Columbia whose data were at least 90 percent complete (6). In 1991, the number of States with mortality data by Hispanic origin increased to 47. Data on people of Hispanic origin from New York, New Hampshire, and Oklahoma were not included in 1990 or 1991, and data for Connecticut and Louisiana were excluded for 1990. Data for New York were excluded in 1990 and 1991 because more than 10 percent of the death certificates from New York City were classified to “unknown origin.” Thus, deaths and death rates for non-Hispanic white and Hispanic populations reported here are not national in scope. They do, however, include almost 90 percent of the Hispanic population in 1990–91 (1,6).

Quality of race data

In estimating race- and ethnic-specific death rates, it is important that race and ethnicity be consistently reported in the numerator and denominator of the death rate. In a study of the agreement between race and

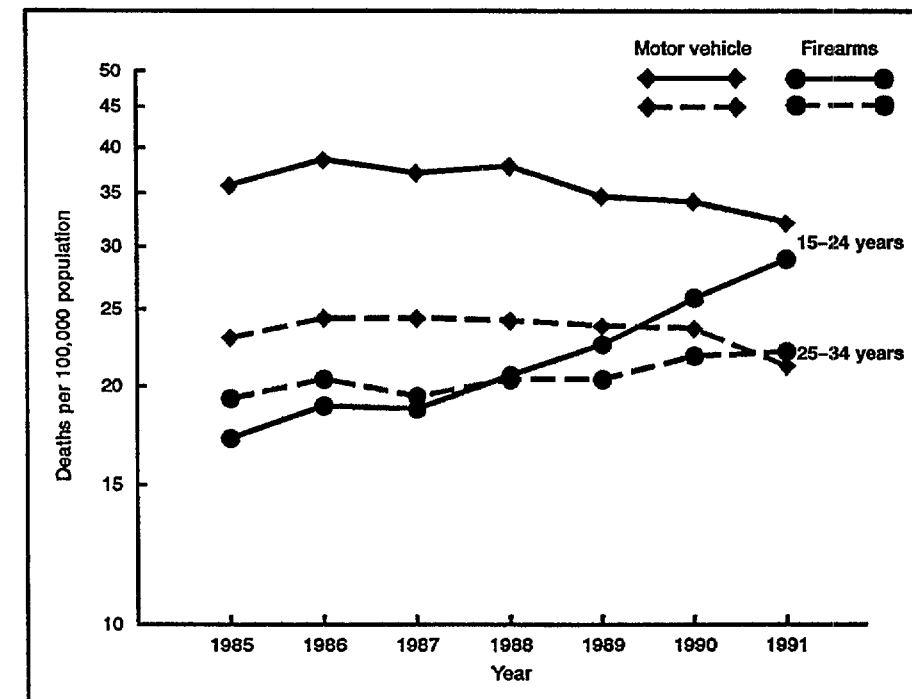


Figure 1. Firearm and motor vehicle crash death rates for persons 15–24 and 25–34 years of age: United States, 1985–91

ethnic identification as reported on death certificates and as reported by the Bureau of the Census, it was found that agreement rates were high for the non-Hispanic white, Hispanic, and black populations (7). However, persons classified as American Indian or Asian by the Census (household respondents) were sometimes classified as white on their death certificates leading to a potential underestimation of death rates for American Indians by 22 percent and for Asian persons by 12 percent (7).

Cause of death classifications are found in the technical appendix.

Results

Numbers of deaths for the total population (table 1)

Throughout most of the 1980's, motor vehicle deaths exceeded firearm deaths in all States with the exceptions of Alaska, Louisiana, and the District of Columbia. (Data upon request.) In 1990, Maryland, New York, Texas, Alaska, Louisiana, and the District of Columbia had more firearm than motor vehicle deaths. In 1991, there were more firearm deaths than motor vehicle deaths in California, Louisiana, Nevada, New

York, Texas, Virginia, and the District of Columbia. In Maryland, the numbers of firearm and motor vehicle deaths were identical in 1991.

Race- and ethnic-specific numbers of deaths (table 2)

Among non-Hispanic white persons in 1990–91, firearm deaths exceeded motor vehicle deaths by 5 percent in Nevada. Four of five firearm deaths (79 percent) in Nevada were suicides. In Arizona, Texas, New Mexico, and Wyoming, the numbers of firearm deaths were less than 10 percent below the number of motor vehicle deaths. In Arizona, New Mexico, and Wyoming, three-fourths of the firearm deaths were suicides, and in Texas, about two-thirds (68 percent) were suicides. Nearly three-fourths of all non-Hispanic white firearm victims died as a result of a suicide.

Among Hispanic persons in the 15 States that had at least 100 total firearm and motor vehicle deaths in 1990–91, firearm deaths exceeded motor vehicle deaths in Illinois and Pennsylvania, and 78–80 percent of those firearm deaths were homicides. In California, Massachusetts, and Texas, the numbers

of firearm deaths were less than 10 percent lower than the number of motor vehicle deaths. Four of five firearm deaths in California and Massachusetts were homicides, and two of three in Texas were homicides. Overall, about 70 percent of Hispanic firearm victims died in a homicide (excludes data from New York).

In the black population, firearm deaths exceeded motor vehicle deaths in all but three—New Jersey, Mississippi, and South Carolina—of the 31 States (where there were at least 100 total firearm and motor vehicle deaths). In New Jersey, the number of firearm deaths was less than 5 percent below the number of motor vehicle deaths. In Mississippi and South Carolina, firearm deaths were lower than motor vehicle deaths by 19 and 28 percent respectively. On the other hand, in Wisconsin and the District of Columbia, the ratio of firearm deaths to motor vehicle deaths ranged from 4–6:1. In the District of Columbia, 96 percent of firearm deaths were homicides. In another 21 States, the ratio averaged 2–3 firearm deaths for every 1 motor vehicle death. Overall, 85 percent of black victims of firearm mortality died in a homicide.

For the Asian population, 4 States had at least 100 deaths from firearm and motor vehicle injuries. Texas was the only State to have more firearm than motor vehicle deaths; 73 percent of those firearm deaths were homicides. Among all Asian persons, 64 percent of firearm deaths were homicides.

For the American Indian/Alaskan Native population, 5 States had at least 100 deaths from firearm and motor vehicle injuries, and only Alaska had more firearm than motor vehicle deaths. (Alaska had a disproportionate number of unintentional firearm deaths.)

Death rates for all persons 15–34 years of age (table 3)

Among adolescents and young adults 15–34 years of age in 1990–91, the firearm death rate was 11 percent lower than the motor vehicle crash death rate, 24.4 compared with 27.3 per 100,000. In four States (Illinois, Maryland, Louisiana, and Texas), the

firearm death rates were 13 to 26 percent higher than the respective motor vehicle death rates. In New York, the death rate for firearms exceeded the rate for motor vehicle deaths by 61 percent (28.1 compared with 17.4 per 100,000), and in the District of Columbia, the firearm death rate was 8.6 times the motor vehicle death rate (119.8 compared with 14.0 per 100,000).

With few exceptions, there were low (relative to the United States rates) firearm and motor vehicle death rates in the New England, Middle Atlantic, and the East North Central States. Low firearm death rates were also reported in the West North Central States. Of the States with relatively large numbers (several hundred) of injury deaths, firearm and motor vehicle death rates in New Jersey and Massachusetts were among the lowest (9.6 and 15.3 per 100,000, respectively, in New Jersey and 8.3 and 15.9 per 100,000, respectively, in Massachusetts). On the other hand, in five States (Alabama, Mississippi, Arkansas, Louisiana, and Nevada) the firearm and the motor vehicle death rates were at least 25 percent greater than the respective national rates for all persons 15–34 years in 1990–91.

Race- and ethnic-specific death rates for persons 15–34 years (table 4)

National firearm death rates for black, Hispanic, and American Indian persons 15–34 years were, respectively, 4.7, 1.9, and 1.6 times the firearm death rate for non-Hispanic white persons (15.2 per 100,000). The firearm death rate for Asian persons was 30 percent lower than the rate for non-Hispanic white persons. The motor vehicle death rate for American Indian persons (50.6 per 100,000), was 1.8–2.2 times the respective death rates for non-Hispanic white, Hispanic, and black persons, and 3.7 times the rate for Asian persons. For black persons 15–34 years, the firearm death rate was 3.1 times the motor vehicle death rate; for Hispanic persons, the two death rates were similar; for non-Hispanic white and American Indian persons, the firearm death rates were about half the motor vehicle rates; and for Asian persons, the firearm death

rate was 22 percent below the motor vehicle death rate.

For non-Hispanic white persons 15–34 years of age, the firearm death rate did not exceed the motor vehicle death rate in any State. In Arizona and Wyoming, the firearm death rates for non-Hispanic white persons were, respectively, 11 and 17 percent less than the respective motor vehicle death rates as a result of higher than average firearm death rates for non-Hispanic white persons.

For Hispanic persons 15–34 years (where, overall, the two death rates were similar) in California and Texas, the firearm death rates exceeded the motor vehicle death rates by 14 and 18 percent, respectively, both as a result of higher than average firearm death rates (33.5 and 33.6 compared with 29.6 per 100,000). In Illinois, the firearm death rate was 67 percent greater than the motor vehicle death rate, as a result of a lower than average motor vehicle death rate.

For black persons 15–34 years of age, (where the firearm to motor vehicle death rate ratio was 3.1:1) the ratio in New York was 6:1 as a result of a much lower than average motor vehicle death rate (12.6 compared with 23.0 per 100,000). In Illinois, Michigan, and Missouri, the firearm to motor vehicle death rate ratios were 5.2–5.7:1 as a result of higher than average firearm and lower than average motor vehicle death rates.

For Asian persons 15–34 years, the firearm death rates in Texas and California were 1.8 and 1.3 times the national rate for Asian persons (19.1 and 13.5 compared with 10.7 per 100,000). The motor vehicle death rate in Hawaii was 1.6 times the national average (22.3 compared with 13.7 per 100,000).

For American Indian persons 15–34 years, the firearm death rate in Alaska was 4 times the national average for all American Indians (100.6 compared with 24.1 per 100,000). The motor vehicle death rates in Arizona and New Mexico were, respectively, 2.0 and 2.5 times the national average for American Indians (103.0 and 124.7 compared with 50.6 per 100,000).

In several States, comparisons of firearm and motor vehicle death rates

for persons 15–34 years across three or more race and ethnic groups were possible:

- In New Jersey, (where firearm and motor vehicle death rates for non-Hispanic white, Hispanic, and black persons were lower than the national average) the firearm death rate for black persons (26.7 per 100,000) was 2.2 and 5.1 times the respective rates for Hispanic and non-Hispanic white persons. The motor vehicle death rates for all three groups in New Jersey were similar (14.8–17.5 per 100,000).
- In Pennsylvania, the firearm death rate for black persons (71.1 per 100,000) was 1.7 and 6.0 times the respective rates for Hispanic and non-Hispanic white persons.
- In Illinois, the firearm death rate for black persons (94.2 per 100,000) was 3.2 and 9.6 times the respective rates for Hispanic and non-Hispanic white persons, and the motor vehicle death rate for non-Hispanic white persons (24.8 per 100,000) was 1.4 times the respective rates for Hispanic and black persons.
- In Florida, the firearm death rate for black persons (70.5 per 100,000) was 3.4 and 3.8 times the respective rates for Hispanic and non-Hispanic white persons, and the motor vehicle death rate for non-Hispanic white persons (32.4 per 100,000) was 1.2 times the rates for black and Hispanic persons.
- In Texas, firearm death rates for non-Hispanic white, Hispanic, black, and Asian persons were higher than the national averages for those groups. The firearm death rate for black persons (84.9 per 100,000) was 2.5, 4.0, and 4.4 times the respective rates for Hispanic, non-Hispanic white, and Asian persons. Motor vehicle death rates were similar for non-Hispanic white, Hispanic, and black persons (27.1–30.2 per 100,000).
- In Arizona, the firearm death rates were higher than average for non-Hispanic white persons, and average for Hispanic and black persons. The firearm death rate for black persons (66.6 per 100,000) was 2.3 and 2.8 times the respective rates for Hispanic and non-Hispanic white

persons. The motor vehicle death rate for American Indians (103.0 per 100,000) was 3.1 and 3.9 times the respective rates for Hispanic and non-Hispanic white persons in Arizona.

- In New Mexico, the motor vehicle death rate for American Indians 15–34 years of age (124.7 per 100,000) was 2.4 and 4.2 times the respective rates for Hispanic and non-Hispanic white persons in New Mexico.
- In California, the firearm death rate for black persons (89.7 per 100,000) was 2.7, 5.8, and 6.6 times the respective rates for Hispanic, non-Hispanic white, and Asian persons. Motor vehicle death rates were higher for Hispanic and non-Hispanic white persons (29.5 and 25.8 per 100,000) than for black (21.4 per 100,000) or Asian persons (14.2 per 100,000).

Discussion

The two leading causes of injury death in the United States continue to be motor vehicles and firearms. Death rates for motor vehicle injuries and for firearm injuries, however, have been converging in recent years as a result of declines in the former and increases in the latter. If the trends observed from the late 1960's through 1991 continue, firearms will claim more lives than motor vehicles very early in the next decade. In several States this crossover has already occurred.

Efforts to reduce motor vehicle death rates have proven successful. Effective interventions have included increasing public awareness, education, legal proscriptions, innovative vehicle and equipment designs, improved roadways, and enhanced medical systems (both emergency services and trauma care) (8). The importance of safety seats and safety belts for children and adults and of bicycle and motorcycle helmets is being continually reinforced. The risks in alcohol consumption and driving are being continually addressed.

Prevention strategies to reduce firearm death rates must be tried and evaluated. The same level of attention

that was, and continues to be, paid to the reduction of motor vehicle death rates must be directed toward lowering firearm mortality.

References

1. National Center for Health Statistics. Advance report on final mortality statistics, 1991. Monthly vital statistics report; vol 42, no 2. suppl. Hyattsville, Maryland: Public Health Service. 1993.
2. National Center for Health Statistics unpublished data.
3. U.S. Department of Health and Human Services. Healthy people 2000: National health promotion and disease prevention objectives. Washington: Public Health Service. 1991.
4. Fingerhut LA. Firearm mortality among children, youth, and young adults 1–34 years of age, trends and current status: United States, 1985–90. Advance data from vital and health statistics; no 231. Hyattsville, Maryland: National Center for Health Statistics. 1993.
5. Fingerhut LA, Ingram DD, and Feldman JJ. Firearm and nonfirearm homicide among persons 15–19 years of age: differences by level of urbanization, United States, 1979 through 1989. *JAMA*. 1992;267:3048–3053.
6. National Center for Health Statistics. Advance report of final mortality statistics, 1990. Monthly vital statistics report; vol 41 no 7, suppl. Hyattsville, Maryland: Public Health Service. 1993.
7. Sorlie PD, Rogot E, Johnson NJ. Validity of demographic characteristics on the death certificate. *Epidemiology* vol 3 no 2. 1992.
8. Centers for Disease Control and Prevention. Position papers from the Third National Injury Control Conference. Denver, Colorado. April 1991.
9. World Health Organization. Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death, based on the recommendations of the Ninth Revision Conference, 1975. Geneva: World Health Organization. 1977.
10. U.S. Bureau of the Census. U.S. population estimates, by age, sex, race, and Hispanic origin: 1981–91. Series P-25, No. 1095 Advance Report. 1993.

Table 1. Firearm and motor vehicle deaths and ratio of firearm to motor vehicle deaths by State: United States, 1990 and 1991

State	1990			1991		
	Firearm	Motor vehicle	Ratio	Firearm	Motor vehicle	Ratio
United States	37,155	46,814	0.79	38,317	43,536	0.88
New England:						
Connecticut	258	419	0.62	287	335	0.86
Maine	114	210	0.54	123	196	0.63
Massachusetts	308	680	0.45	307	614	0.50
New Hampshire	97	164	0.59	83	153	0.54
Rhode Island	66	104	0.63	55	93	0.59
Vermont	59	90	0.66	82	91	0.90
Middle Atlantic:						
New Jersey	447	936	0.48	428	857	0.50
New York	2,418	2,409	1.00	2,515	2,226	1.13
Pennsylvania	1,387	1,840	0.75	1,302	1,723	0.76
East North Central:						
Illinois	1,510	1,845	0.82	1,574	1,667	0.94
Indiana	732	1,088	0.67	722	1,047	0.69
Michigan	1,415	1,687	0.84	1,498	1,513	0.99
Ohio	1,178	1,729	0.68	1,284	1,656	0.78
Wisconsin	517	808	0.64	491	823	0.60
West North Central:						
Iowa	225	492	0.46	241	503	0.48
Kansas	289	475	0.61	344	440	0.78
Minnesota	374	660	0.57	351	598	0.59
Missouri	865	1,082	0.80	942	1,023	0.92
Nebraska	160	283	0.57	169	300	0.56
North Dakota	47	120	0.39	45	98	0.46
South Dakota	68	163	0.42	75	146	0.51
South Atlantic:						
Delaware	59	142	0.42	53	106	0.50
District of Columbia	336	71	4.73	344	66	5.21
Florida	2,411	2,879	0.84	2,323	2,517	0.92
Georgia	1,284	1,650	0.78	1,377	1,466	0.94
Maryland	742	702	1.06	708	708	1.00
North Carolina	1,181	1,467	0.81	1,265	1,407	0.90
South Carolina	633	942	0.67	619	897	0.69
Virginia	981	1,059	0.93	984	965	1.02
West Virginia	257	472	0.54	292	431	0.68
East South Central:						
Alabama	912	1,241	0.73	928	1,225	0.76
Kentucky	641	858	0.75	605	821	0.74
Mississippi	544	857	0.63	614	812	0.76
Tennessee	971	1,210	0.80	1,003	1,161	0.86
West South Central:						
Arkansas	467	633	0.74	483	639	0.76
Louisiana	1,050	979	1.07	1,101	869	1.27
Oklahoma	498	717	0.69	503	680	0.74
Texas	3,479	3,359	1.04	3,727	3,229	1.15
Mountain:						
Arizona	699	893	0.78	696	814	0.86
Colorado	422	574	0.74	429	586	0.73
Idaho	165	250	0.66	145	252	0.58
Montana	151	205	0.74	144	181	0.80
Nevada	286	320	0.89	333	272	1.22
New Mexico	255	455	0.56	288	431	0.67
Utah	201	292	0.69	214	269	0.80
Wyoming	90	99	0.91	85	111	0.77
Pacific:						
Alaska	106	100	1.06	98	102	0.96
California	4,829	5,454	0.89	5,064	5,009	1.01
Hawaii	56	179	0.31	57	140	0.41
Oregon	379	559	0.68	367	500	0.73
Washington	536	912	0.59	550	768	0.72

Table 2. Firearm and motor vehicle deaths by race, ethnicity, and State: United States, 1990–91

State	Non-Hispanic white		Hispanic		Black		Asian and Pacific Islander		American Indian/ Alaskan native	
	Firearm	Motor vehicle	Firearm	Motor vehicle	Firearm	Motor vehicle	Firearm	Motor vehicle	Firearm	Motor vehicle
United States ¹	41,413	61,730	6,684	7,863	21,200	10,765	960	1,702	530	1,343
New England:										
Connecticut ²	175	270	37	13	123	61	5	4	–	1
Maine	220	372	–	2	1	2	–	2	1	4
Massachusetts	393	1,109	50	52	158	77	16	20	2	3
New Hampshire	–	–	–	–	2	3	–	–	–	2
Rhode Island	83	173	18	10	15	11	3	–	1	–
Vermont	136	164	–	1	–	1	1	2	1	–
Middle Atlantic:										
New Jersey	471	1,303	112	164	274	285	18	46	–	1
New York	–	–	–	–	2,050	651	72	100	3	21
Pennsylvania	1,850	3,215	101	64	722	247	19	31	1	3
East North Central:										
Illinois	1,289	2,737	291	214	1,478	491	18	50	3	5
Indiana	1,127	1,965	29	32	296	118	3	5	–	5
Michigan	1,501	2,657	48	69	1,321	378	6	40	13	27
Ohio	1,767	3,021	24	30	664	298	6	21	3	4
Wisconsin	776	1,538	26	15	193	43	8	12	5	23
West North Central:										
Iowa	432	952	4	14	21	18	7	8	2	2
Kansas	494	776	27	26	98	45	6	11	3	10
Minnesota	635	1,162	5	21	60	11	4	21	21	42
Missouri	1,210	1,874	22	29	567	170	4	11	3	7
Nebraska	277	544	10	16	36	12	–	1	3	5
North Dakota	86	175	1	1	–	1	–	–	3	37
South Dakota	118	230	–	1	2	–	1	2	22	76
South Atlantic:										
Delaware	82	209	1	8	27	31	2	1	–	–
District of Columbia	14	18	16	9	653	107	–	–	–	–
Florida	3,009	3,901	507	653	1,243	768	16	38	7	21
Georgia	1,565	2,255	29	71	1,026	751	21	27	3	1
Maryland	632	1,005	25	28	777	339	16	33	3	2
North Carolina	1,577	2,112	30	44	791	640	7	10	34	60
South Carolina	802	1,215	10	11	435	606	2	9	1	–
Virginia	1,258	1,520	28	50	643	411	17	20	1	3
West Virginia	517	876	4	4	28	17	–	5	–	–
East South Central:										
Alabama	1,136	1,849	12	16	684	583	4	4	2	3
Kentucky	1,131	1,585	4	5	103	71	1	6	–	1
Mississippi	652	1,025	–	4	497	611	4	5	1	6
Tennessee	1,379	2,011	4	16	573	318	3	10	3	5
West South Central:										
Arkansas	673	1,041	2	11	266	196	3	2	1	3
Louisiana ²	514	597	9	18	1,093	526	9	12	2	5
Oklahoma	–	–	–	–	126	84	2	4	45	106
Texas	3,622	3,950	1,667	1,688	1,806	800	88	70	7	8
Mountain:										
Arizona	991	1,019	225	337	86	36	17	12	76	304
Colorado	671	884	118	202	54	37	2	13	7	11
Idaho	294	445	12	40	–	1	–	2	4	14
Montana	265	307	3	4	2	1	–	3	22	70
Nevada	470	446	45	78	71	32	8	12	18	15
New Mexico	265	296	212	384	19	13	4	6	46	187
Utah	374	480	25	41	2	4	5	12	6	24
Wyoming	164	175	7	13	2	2	1	–	1	19
Pacific:										
Alaska	118	138	7	4	3	6	3	6	72	47
California	4,573	5,741	2,797	3,105	1,992	782	430	708	42	63
Hawaii	40	93	14	30	4	8	64	206	1	–
Oregon	685	928	20	80	28	7	6	18	8	26
Washington	900	1,372	46	135	85	54	28	61	27	61

¹Data for non-Hispanic white and Hispanic totals do not include the nonreporting States (New Hampshire or Oklahoma) or New York.²Data are for 1991 only.

Table 3. Firearm and motor vehicle death rates, number of deaths, and ratio of firearm to motor vehicle deaths, for persons 15–34 years of age by State: United States, 1990–91

State	Deaths per 100,000 population		Deaths		
	Firearm	Motor vehicle	Firearm	Motor vehicle	Ratio
United States	24.4	27.3	38,911	43,534	0.89
New England:					
Connecticut	15.3	20.1	315	415	0.76
Maine	14.2	27.3	107	206	0.52
Massachusetts	8.3	15.9	330	633	0.52
New Hampshire	11.6	23.1	83	165	0.50
Rhode Island	9.5	14.6	62	95	0.65
Vermont	15.4	29.3	55	105	0.53
Middle Atlantic:					
New Jersey	9.6	15.3	461	738	0.63
New York	28.1	17.4	3,223	2,001	1.61
Pennsylvania	18.8	23.4	1,339	1,672	0.80
East North Central:					
Illinois	25.5	22.5	1,865	1,643	1.13
Indiana	20.1	29.4	708	1,032	0.68
Michigan	26.9	24.6	1,593	1,458	1.09
Ohio	16.7	24.7	1,127	1,664	0.68
Wisconsin	17.1	25.5	521	778	0.67
West North Central:					
Iowa	11.0	29.9	180	491	0.37
Kansas	19.4	29.6	296	451	0.66
Minnesota	12.1	22.3	334	619	0.54
Missouri	28.1	34.2	879	1,072	0.82
Nebraska	14.7	27.9	140	266	0.53
North Dakota	9.7	26.0	38	102	0.37
South Dakota	16.0	32.4	66	134	0.49
South Atlantic:					
Delaware	11.6	24.3	51	107	0.48
District of Columbia	119.8	14.0	522	61	8.56
Florida	27.2	30.8	2,058	2,328	0.88
Georgia	29.1	33.2	1,281	1,459	0.88
Maryland	27.4	22.4	861	704	1.22
North Carolina	26.9	31.6	1,179	1,384	0.85
South Carolina	26.3	40.4	608	933	0.65
Virginia	23.4	24.3	977	1,015	0.96
West Virginia	22.6	44.2	237	463	0.51
East South Central:					
Alabama	33.1	44.2	844	1,125	0.75
Kentucky	22.0	36.9	514	863	0.60
Mississippi	34.9	49.3	572	807	0.71
Tennessee	30.3	36.9	938	1,143	0.82
West South Central:					
Arkansas	32.5	43.7	455	612	0.74
Louisiana	45.4	36.0	1,233	978	1.26
Oklahoma	21.9	33.0	423	637	0.66
Texas	33.2	29.3	3,807	3,367	1.13
Mountain:					
Arizona	27.2	32.5	639	763	0.84
Colorado	17.1	26.8	369	578	0.64
Idaho	18.8	36.3	114	220	0.52
Montana	24.4	40.8	111	186	0.60
Nevada	33.8	37.2	267	294	0.91
New Mexico	28.6	49.2	273	470	0.58
Utah	16.7	22.8	192	262	0.73
Wyoming	29.4	40.7	81	112	0.72
Pacific:					
Alaska	32.8	28.4	126	109	1.15
California	27.6	25.9	5,643	5,298	1.07
Hawaii	8.2	21.9	60	160	0.37
Oregon	17.1	30.3	287	508	0.56
Washington	15.2	27.6	467	848	0.55

Table 4. Death rates due to firearm and motor vehicle injuries among persons 15–34 years of age by race, ethnicity, and State: United States, 1990–91—Con.

State	Non-Hispanic white		Hispanic		Black		Asian and Pacific Islander		American Indian/ Alaskan native	
	Firearm	Motor vehicle	Firearm	Motor vehicle	Firearm	Motor vehicle	Firearm	Motor vehicle	Firearm	Motor vehicle
Pacific:										
Alaska	19.4	26.6	*	*	*	*	*	*	100.6	*41.9
California	15.5	25.8	33.5	29.5	89.7	21.4	13.5	14.2	*14.6	*15.6
Hawaii	*	21.2	*	*	*	*	*8.8	22.3	*	*
Oregon	16.4	28.5	*	67.0	*64.8	*	*	*	*	*
Washington	12.9	25.8	*21.1	49.6	51.1	*30.2	*	*14.7	*	*58.1

¹Data for non-Hispanic white and Hispanic totals do not include the nonreporting States (New Hampshire or Oklahoma) or New York.

²Data are for 1991 only.

Notes: Rates shown if based on at least 20 deaths.

Rates are asterisked (*) when they are based on fewer than 50 deaths.

Technical notes

Mortality

Deaths are based on information from all death certificates filed in the 50 States and the District of Columbia. Mortality statistics are based on information coded by the National Center for Health Statistics (NCHS) from copies of the original death certificates received from the State registration offices and on State coded data provided to NCHS through the Vital Statistics Cooperative Program.

For each year 1980 through 1991, the numbers of deaths reported by Alaska have been different from the numbers reported for Alaska by the NCHS because NCHS did not receive changes resulting from Alaska's amended vital records. These differences have been larger for external than for natural causes of death. Alaska reported 221 deaths among residents from firearms and 238 deaths from motor vehicles for 1990-91.

Residence versus occurrence

Firearm and motor vehicle deaths were classified by State of residence of the decedent. Classifying death rates by State (or county) of residence is the usual practice in mortality reporting because population counts (the denominators of the death rates) are based on place of residence. (County of occurrence of death is also coded from the death certificate and is available for analysis from data tapes.) For deaths caused by injuries, residence may not be the most meaningful method of classification. For injury prevention activities, it is more useful to know where the injury event occurred rather than where the victim resided or where the death occurred. National vital statistics data are not coded to identify the location of where the event occurred (e.g., the motor vehicle crash site or the street corner where the firearm was discharged) but rather where the death occurred (e.g., location of hospital). It is known, however, that for 94 percent of all injury fatalities, the State of residence and occurrence were the same. Differences between the State of occurrence of the death and the State of

residence are less frequent for firearm fatalities than for motor vehicle crashes. In 1991, 96 percent of firearm fatality victims died in their State of residence compared with 90 percent of motor vehicle crash victims.

Cause-of-death classification

Cause of death was coded in accordance with the Ninth Revision of the International Classification of Diseases (9). Firearm deaths include external cause codes: E922 (unintentional firearm injury), E965.0-E965.4, E970 (firearm homicide), E955.0-E955.4 (firearm suicide), and E985.0-E985.4 (firearm deaths for which the intent was unknown). Motor vehicle deaths include external cause codes E810-E825.

Population

Population counts for 1990 are based on the April 1990 enumeration and 1991 counts are postcensal population estimates (10).

Random variation

Although the mortality data in this report are not subject to sampling error, they may be affected by random variation in the number of deaths involved. When the number of events is small (perhaps less than 100) and the probability of such an event is small, considerable caution must be observed in interpreting the data. Such infrequent events may be assumed to follow a Poisson probability distribution. For this distribution, a simple approximation may be used to estimate the confidence interval, as follows:

If N is the number of registered deaths in the population and R is the corresponding rate, the chances are 19 in 20 (approximate 95-percent confidence interval) that

$$1. N - 2\sqrt{N} \text{ and } N + 2\sqrt{N}$$

covers the "true" number of events.

$$2. R - 2\frac{R}{\sqrt{N}} \text{ and } R + 2\frac{R}{\sqrt{N}}$$

covers the "true" rate.

If the rate R_1 corresponding to N_1 events is compared with the rate R_2

corresponding to N_2 events, the difference between the two rates may be regarded as statistically significant if it exceeds

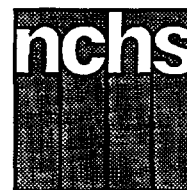
$$2 \sqrt{\frac{R_1^2}{N_1} + \frac{R_2^2}{N_2}}$$

Additional information on random variation may be found in the Technical Appendix of *Vital Statistics of the United States, 1989*, Volume II, Mortality, Part A.

Rates of change

Annual rates of change are represented by the slope of a least squares regression line through the logarithm of the annual rates.

Advance Data



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

AIDS Knowledge and Attitudes for 1992

Data From the National Health Interview Survey

by Charlotte A. Schoenborn, M.P.H., Shannon L. Marsh, and Ann M. Hardy, Dr.P.H.,
Division of Health Interview Statistics

Highlights

In 1992, levels of knowledge about the major modes of human immunodeficiency (HIV) transmission remained high in all sociodemographic groups examined. Knowledge about other aspects of acquired immunodeficiency syndrome (AIDS) was more variable with older and less educated adults generally being less knowledgeable. Changes in knowledge between 1991 and 1992 included:

- An increase from 86 to 95 percent in the proportion who had heard the AIDS virus referred to as "HIV"
- An increase from 15 to 22 percent in the proportion of young adults (18–29 years of age) who planned to be tested in the next year
- An increase from 13 to 17 percent in the proportion of adults who had a coworker, relative, or friend with AIDS
- An increase from 69 to 75 percent in the proportion of parents of 10–17-year-olds who had ever discussed AIDS with their children

Introduction

The National Center for Health Statistics (NCHS) has included

questions about HIV and AIDS as part of the National Health Interview Survey (NHIS) since 1987. The purpose of these questions is to provide population-based data on adults' knowledge about AIDS and transmission of HIV and on their experience with HIV antibody testing. Such information is used to help plan and monitor various educational and prevention programs. The questionnaire used in 1991 and 1992 is the fourth version of this survey. While new questions have been introduced in each version to meet changing data needs, many questions have been used repeatedly to allow for examination of trends. NCHS has routinely published results from this survey in the *Advance Data From Vital and Health Statistics* series (1–8). In addition, public use data tapes of the 1987–92 surveys are currently available and more detailed exploration of the data is encouraged.

The NHIS AIDS questionnaires have been developed by NCHS and an Interagency Task Force created by the Public Health Service Health Data Policy Committee. The Task Force includes representatives from other centers within the Centers for Disease Control and Prevention and from the

Office of the Assistant Secretary for Health, the National AIDS Program Office, the National Institutes of Health, the Food and Drug Administration, the Office of Population Affairs, the Indian Health Service, the Agency for Health Care Policy and Research, and the Health Resources and Services Administration.

Data and methods

This report presents data from the 1992 National Health Interview Survey of Aids Knowledge and Attitudes. The 1992 questionnaire was identical to the 1991 NHIS on AIDS. Thus, trend comparisons between 1991 and 1992 can be readily made. Caution should be exercised when comparing these data with data from earlier years due to changes in question wording, placement, and skip patterns in the 1991–92 questionnaire. A discussion of issues related to such trend comparisons may be found in the annual report of 1991 findings (8). Details about the sample design and the estimation procedures can be found in the Technical notes at the end of this report.



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



Table 1 shows percent distributions by response categories to most of the items included in the 1992 NHIS AIDS questionnaire for the total adult population, ages 18 years and over, as well as various subgroups defined by age, sex, race and ethnicity, and education. In most cases, the actual questions asked are reproduced verbatim in the tables along with the response categories. Refusals and other nonresponse categories (generally less than 1 percent of total responses) are excluded from the denominator in the calculation of estimates, but responses of "don't know" are included. The NHIS AIDS survey uses the phrase "the AIDS virus" rather than "HIV" because it is felt to be more widely recognized; however, in this report the two terms are used synonymously.

Selected findings

Sources of information

In 1992, 87 percent of adults stated that they had received information about AIDS in the past month. Of all sources listed, television programs (75 percent), newspaper articles (52 percent), magazine articles (44 percent), and radio programs (38 percent) comprised the primary sources of information. Each of these represent modest increases over 1991 estimates.

When specifically asked about exposure in the previous month to public service announcements (PSA's), 84 percent reported viewing them on television, 49 percent hearing them on radio, and 10 percent seeing public service posters in airports. Generally speaking, persons under age 50 and those with more than 12 years of education appeared to have had more exposure to PSA's than had their counterparts.

Of the parents of 10–17-year-olds, 75 percent reported ever discussing AIDS with them, up from 69 percent in 1991. Overall, white (77 percent) and black (75 percent) parents were more likely to talk to their children than Hispanic parents (67 percent). Women were much more likely than men to have discussed the topic with their children (84 percent versus 64 percent),

and parents 30–49 years old were more likely to have done so than both younger and older parents. The percent of parents discussing AIDS with their children increased with years of education, from 64 percent for those with less than 12 years of education to 79 percent for those with more than 12 years of education. Seventy-six percent of parents reported that their children received instruction on AIDS at school.

General AIDS knowledge

In 1992, of the adults asked to assess their knowledge of AIDS, 26 percent stated they knew "a lot" while 45 percent stated they knew "some." About 28 percent of adults said they knew "little" (21 percent) or "nothing" (7 percent) about AIDS. Marked educational differences were noted: 46 percent of adults with less than 12 years of education felt they knew at least "some" about AIDS compared with 85 percent of those with more than 12 years of education.

Concerning the three main modes of transmission, the level of AIDS knowledge was high in 1992—as it had been the previous year. Ninety-six percent of adults knew that the AIDS virus can be transmitted through sexual intercourse, 94 percent knew that it can pass from a pregnant woman to her baby, and 96 percent said it was "very likely" that a person can get the AIDS virus from sharing needles with an infected person. Knowledge was lowest for items related to the effects and treatment associated with AIDS infection. Fifty-four percent knew that AIDS can damage the brain, 71 percent knew that certain drugs can lengthen the life of an infected person, and 60 percent knew that early treatment of the disease reduces symptoms. Between 20 and 30 percent of respondents did not know the correct responses to these questions. Overall, minority persons, persons with less than 12 years of education, and those 50 years of age and older were less likely to respond correctly to the general AIDS knowledge questions.

The most striking difference in general AIDS awareness between 1991 and 1992 was a 9 percentage point

increase, from 86 percent to 95 percent, in adults who heard the AIDS virus referred to as "HIV." Also in 1992, a greater proportion of adults understood that AIDS was an infectious disease caused by a virus (85 percent versus 81 percent in 1991), a person can be infected with HIV and yet not have AIDS (84 percent versus 78 percent), an infected person can look and feel healthy (86 percent versus 80 percent), drugs can lengthen the life of an infected person (71 percent versus 67 percent), and early treatment of the disease can reduce symptoms (60 percent versus 56 percent). There was little change noted in the proportions of correct responses for other items, such as: there is no cure (93 percent versus 92 percent) and there is no vaccine available (83 percent versus 82 percent).

Misperceptions about HIV transmission

Respondents were asked to evaluate the likelihood that HIV transmission could occur with various forms of casual contact, for example, working near an infected person. Since 1991, the NHIS has used a revised response format with six response categories ranging from "very likely" to "definitely not possible" and "don't know." There was little change between 1991 and 1992 in the estimates for misperceptions. The most notable difference was a 3-point increase in the percent of respondents who felt it was very unlikely that someone could become infected with HIV by attending school with an HIV-infected child or working near someone who is infected with HIV (44 percent in 1992 compared with 41 percent a year earlier). In both items there was a corresponding decrease in the estimate for those who felt transmission was "definitely not possible," suggesting that there might have been a shift between these two response categories. The proportion of adults who felt contracting AIDS through being cared for by an infected health care worker was "very likely" remained relatively unchanged between 1991 (27 percent) and 1992 (26 percent) while the proportions who said it was

“somewhat likely” (36 percent) or “somewhat unlikely” (15 percent) in 1992 were slightly higher than in 1991 (33 percent and 13 percent, respectively).

The 1992 NHIS revealed little difference between males and females regarding misperceptions about transmission. Overall, white persons, adults under 50 years of age, and persons with more than 12 years of education were more likely to believe that HIV transmission through casual contact was “very unlikely” or “definitely not possible.” The modes of casual contact with the lowest percentage of respondents believing that HIV transmission was “very likely” or “somewhat likely” were working near someone (7 percent) and attending school with someone who is infected with HIV (7 percent). The mode of transmission that was most likely to be perceived incorrectly as “very likely” or “somewhat likely” was being cared for by an infected health care worker (62 percent). Regarding all other modes of casual contact, between 17 and 27 percent of adults believed HIV transmission was “very likely” or “somewhat likely.”

Blood donation and blood screening

Patterns of past blood donation remained unchanged compared with earlier years. In 1992, 19 percent of adults reported having donated blood since March 1985 (when routine screening of donated blood for HIV began), and 6 percent had donated in the past year. As was found in previous years, the proportion of adults reporting blood donations increased steadily with years of education: only 2 percent of persons with less than 12 years of education had donated blood in the past 12 months compared with 9 percent of adults with more than 12 years of education. Similarly striking education differences were noted for donations since March 1985: 7 percent of non-high school graduates had donated during this time period compared with 16 percent of high school graduates and 27 percent of adults who had post-high school education.

In 1992, 62 percent of adults reported that a person could not get HIV while giving or donating blood for use by others, 29 percent felt they could, and 9 percent of adults did not know. Misperceptions about transmission of HIV by donating blood were higher among black adults (43 percent reporting AIDS could be transmitted this way compared with 26 percent of white adults), and those with less than 12 years of education (39 percent compared with 23 percent of those with more than 12 years of school). It should be noted that we cannot distinguish if respondents believe such transmission is likely or only a theoretical possibility if standard blood bank practices are not followed. Also, despite attempts to make this question clear, some respondents may still mistakenly believe we are asking about getting HIV from *receiving* blood. Further refinement of this question may help clarify the responses being elicited.

Seventy-nine percent of adults believed that blood donations are routinely tested for the AIDS virus. Men and women did not differ in terms of their knowledge of routine screening of blood donations, but other sociodemographic differences were noted. Knowledge was higher among adults 18–29 years of age (82 percent) and 30–49 years (84 percent) than among persons over age 50 (72 percent). White persons were more knowledgeable (82 percent) than black persons or Hispanic persons (68 percent). Finally, those with more than 12 years of education were considerably more knowledgeable about routine screening (87 percent knew blood was routinely screened) than persons with fewer years of education (62 to 79 percent).

HIV antibody testing

Considering HIV testing done for all reasons, including blood donation, in 1992 an estimated 32 percent of adults in the United States had ever been tested for antibodies to HIV (data not shown) compared with 29 percent a year earlier. All questions related to HIV testing told the respondent to specifically exclude testing that was done as part of blood donations. Thus,

the following discussion is limited to testing not done as part of blood donations.

In 1992, not including blood donations, about 18 percent of adults said they had been tested for the AIDS virus. Testing was more common among persons in the younger age groups: 27 percent of persons ages 18–29 years and 22 percent of those 30–49 years had been tested at least once compared with 8 percent of adults aged 50 years and over. Of those who had been tested, about 6 in 10 had been tested only once. About one-half of those who had been tested were most recently tested in the 12 months prior to interview (9 percent).

In general, the reasons for having had their most recent HIV antibody test did not change dramatically between 1991 and 1992, although the percent of persons who were tested solely to find out if they were infected did increase slightly (from 25 percent in 1991 to 30 percent in 1992). Another 7 percent were referred by their doctor, the health department, or their sex partner for testing. Twelve percent had been tested for hospitalization or a surgical procedure, 16 percent to apply for health or life insurance, 6 percent for military induction, and 6 percent for employment. While immigration was only mentioned by 4 percent of all adults tested, it was mentioned by 23 percent of Hispanic adults tested. Although still quite high, the proportion of Hispanic persons giving this reason in 1992 was down noticeably from 1991 when 31 percent of Hispanic adults cited immigration as a reason for testing. As in 1991, most of those in 1992 who reported testing had their last test at their doctor or HMO (28 percent), at a hospital, emergency room, or an outpatient clinic (24 percent), or at a community health clinic (8 percent).

Eighty percent of persons who had been tested for AIDS received the results of their most recent test. Persons under 30 years of age were slightly more likely than older persons to have gotten their results. The percent of persons receiving their test results remained unchanged between 1991 and 1992 for persons 18–29 years (83 percent) and persons 30–49 years (79 percent), but rose among persons 50

years and older (78 percent compared with 72 percent in 1991). Black adults (85 percent) and Hispanic adults (84 percent) were more likely to have obtained their results than were white adults (78 percent). Among those who received their test results, 58 percent received them in person, 17 percent received them by telephone, and 16 percent were notified in the mail. In 1992, almost all adults tested said they felt their results were accurate (97 percent) and that their results were handled properly in terms of confidentiality (94 percent).

The proportion who indicated that they plan to be tested in the next year was 11 percent, up from 9 percent in 1991. The largest increase in the proportion who planned to be tested was seen among persons 18–29 years of age (22 percent compared with 15 percent in 1991) and among black persons (26 percent compared with 21 percent a year earlier). Of those who planned to be tested, 72 percent said one reason that they would be tested was that they “wanted to know if they were infected,” compared with 67 percent in 1991. Black adults (82 percent) were much more likely than white adults (65 percent) to give this answer. Other reasons cited for testing expected in the next year were blood donation (17 percent), application for a job (7 percent), and application for life or health insurance (9 percent).

In 1992, the NHIS asked those adults who had not been tested for HIV why they had not done so. The most common response, given by 81 percent of those never tested, was that they did not consider themselves to be at risk for AIDS. Very few respondents (less than 2 percent) chose as reasons for not having been tested any of the recognized barriers to testing such as fear of discrimination, not knowing where to go for testing, and not trusting the medical community to keep results confidential. The remainder listed fear of needles (1 percent), another unspecified reason (9 percent), or said they did not know why they had not been tested (9 percent). There were no meaningful changes between 1991 and 1992.

In 1992, 79 percent of adults recognized that after one is infected

with HIV there is a period of time before the blood test shows the infection. Only 2 percent did not believe this to be true and another 18 percent responded “don’t know.” In 1991, 74 percent knew about this latent period. Knowledge levels increased across all sociodemographic groups, but persons with less than 12 years of education (63 percent), Hispanic adults (70 percent), and those 50 years and over (70 percent) remained the least likely to be aware of the fact that HIV infection does not show in blood tests immediately.

Awareness about zidovudine

The drug zidovudine (AZT), also known as Retrovir, was the first approved antiviral drug used for the treatment of HIV. Awareness of AZT increased from 51 percent in 1991 to 58 percent in 1992. Awareness was highest among persons between the ages of 30–49 (68 percent) compared with younger and older persons. Sharp educational differences were found. Only 30 percent of adults with less than 12 years of education had heard of AZT compared with about three-fourths of those with more than 12 years. Of the race-ethnic groups shown, knowledge was markedly lower among Hispanic adults (36 percent) compared with black adults (52 percent) and white adults (62 percent). Although significant sociodemographic differentials persist, knowledge levels increased in all subgroups between 1991 and 1992.

Of the adults who had heard of AZT, 83 percent knew that it can delay or slow down the symptoms of HIV infection, 92 percent were aware that AZT does not cure people with AIDS, 61 percent knew that the drug has side effects, and 35 percent knew AZT is only appropriate for an HIV-infected individual at certain times during the illness. Fifty-five percent of the adults surveyed knew there are other drugs available to treat AIDS-related illnesses, up from 50 percent in 1991. Thirty-two percent answered “don’t know” and 12 percent said they did not believe other drugs exist. Knowledge of AZT, like most other AIDS-related knowledge, was lowest among less educated adults

and persons 50 years or older. Men and women generally did not differ in their knowledge of AZT but they did differ in terms of their knowledge of the existence of drugs other than AZT for treatment of AIDS-related illnesses. Fifty-nine percent of the men knew such drugs existed compared with 52 percent of the women. The pattern of sociodemographic variations did not change between 1991 and 1992.

Perceptions about condoms

The NHIS surveyed respondents about their knowledge of condoms. The survey questions included the perceived efficacy of condoms in preventing sexual transmission of HIV, the relative efficacy of latex versus natural-membrane condoms, and the effect of oil-based lubricants on condoms. In 1992, about 8 out of 10 adults believed that condoms were either “very effective” (26 percent) or “somewhat effective” (54 percent) in preventing sexual transmission of HIV. Males were more likely than females to believe that condom use is “very effective” (30 percent versus 22 percent). Not surprisingly, the percent of adults who responded “very effective” increased with education and decreased with age.

The 1992 NHIS also contained two questions intended to measure understanding of correct condom use. The items asked the relative efficacy of latex and natural-membrane condoms and if oil-based lubricants cause condoms to break. Despite a high percent of adults (80 percent) who considered condom use to be at least somewhat effective in preventing HIV transmission, only 27 percent knew that there was a difference in efficacy between latex and natural-membrane condoms. A strikingly high percent of adults (55 percent) said they did not know if latex and natural-membrane condoms were equally effective and 16 percent believed there was no difference.

One-third of adults correctly responded that oil-based lubricants may destroy the effectiveness of condoms while 60 percent did not know the effect of oil-based lubricants. Five percent believed there was no harmful effect. White and black adults were more likely

to respond correctly (34 percent) than were Hispanic adults (28 percent). Younger adults and persons with more than 12 years of education were twice as likely to understand the damaging effect of oil-based lubricants (44 percent and 42 percent, respectively) as were persons 50 years and older (19 percent) or those with less than 12 years of education (21 percent). The latter groups were most likely to respond "don't know" (74 percent and 70 percent, respectively) of all population subgroups shown. Finally, men were somewhat more knowledgeable than women with 36 percent responding that oil-based lubricants destroyed condom effectiveness, compared with 30 percent of women; women were more likely to say they didn't know (63 percent compared with 56 percent of men.)

Risk of HIV infection

The percent of adults who felt there was no chance they currently had AIDS virus declined from 80 percent to 73 percent between 1991 and 1992. The percent who felt they had no chance of contracting HIV in the future also declined, from 72 percent in 1991 to 64 percent a year later. The 7 to 8 percent difference between 1991 and 1992 appears to have shifted from those who feel they have no chance to those who feel they have a low chance. The percent of adults who felt they had no chance of having or getting the virus increased with age. About one-half of persons under age 30 years felt they had no chance of getting AIDS compared with three-fourths of those 50 years and older. Perception of personal risk increased with level of education; 72 percent of persons with less than 12 years of education felt they had no chance of getting the virus compared with 57 percent of persons with more than 12 years of education. Finally, women (67 percent) were more likely than men (62 percent) to report that they were not at any risk of getting the AIDS virus.

Overall, 2 percent of adults reported a "high" or "medium" chance of currently having AIDS. Persons under age 30 years, black persons, and Hispanic persons were the most likely to

believe that they might have been infected (4 percent each). In terms of the chances for future infection, 4 percent of respondents reported a "high" or "medium" chance of becoming infected. Again, younger adults, black persons, and Hispanic persons were the most likely to feel they had at least a "medium" chance of getting AIDS in the future.

In 1992, 4 percent of adults reported participating in one or more high risk behaviors associated with HIV infection. This percentage does not vary significantly from past years. The only significant difference between sociodemographic groups can be found in individuals 50 years of age and older. Only 1 percent of persons in this age group reported participation in any of the high risk behaviors compared with 3 to 6 percent of persons in the other population subgroups.

Knowing someone with AIDS

Since 1991, respondents have been asked whether they ever had a coworker, friend, or relative who has had AIDS or the AIDS virus. In 1992, 5 percent of the respondents reported having had a coworker with HIV or AIDS. Adults 30–49 years of age and those with more than 12 years of education were the most likely of all groups shown to have had a coworker with HIV or AIDS (8 percent and 9 percent, respectively).

In 1992, excluding coworkers, 12 percent of adults reported having a friend or relative with HIV or AIDS compared with 9 percent a year earlier. Black adults were more likely than white adults to report having a friend or relative with HIV or AIDS (17 percent versus 12 percent). Age and educational differences were also noted. Eight percent of adults 50 years of age and older had a friend or relative with HIV or AIDS compared with 15 percent of persons 30–49 years of age. Similarly, 7 percent of persons with less than 12 years of education had an infected friend or relative compared with 16 percent of persons with more than 12 years of education.

References

1. Dawson DA, Thornberry OT. AIDS knowledge and attitudes for December 1987: Provisional data from the National Health Interview Survey. Advance data from vital and health statistics; no 153. Hyattsville, Maryland: National Center for Health Statistics. 1988.
2. Hardy AM, Dawson DA. AIDS knowledge and attitudes for December 1988: Provisional data from the National Health Interview Survey. Advance data from vital and health statistics; no 175. Hyattsville, Maryland: National Center for Health Statistics. 1989.
3. Hardy AM. AIDS knowledge and attitudes for October–December 1989: Provisional data from the National Health Interview Survey. Advance data from vital and health statistics; no 186. Hyattsville, Maryland: National Center for Health Statistics. 1990.
4. Dawson DA. AIDS knowledge and attitudes for January–March 1990: Provisional data from the National Health Interview Survey. Advance data from vital and health statistics; no 193. Hyattsville, Maryland: National Center for Health Statistics. 1990.
5. Fitti JE, Cynamon M. AIDS knowledge and attitudes for April–June 1990: Provisional data from the National Health Interview Survey. Advance data from vital and health statistics; no 195. Hyattsville, Maryland: National Center for Health Statistics. 1990.
6. Adams PF, Hardy AM. AIDS knowledge and attitudes for July–September 1990: Provisional data from the National Health Interview Survey. Advance data from vital and health statistics; no 198. Hyattsville, Maryland: National Center for Health Statistics. 1991.
7. Hardy AM. AIDS knowledge and attitudes for October–December 1990: Provisional data from the National Health Interview Survey. Advance data from vital and health statistics; no 204. Hyattsville, Maryland: National Center for Health Statistics. 1991.
8. Hardy AM. AIDS knowledge and attitudes for January–March 1991: Provisional data from the National Health Interview Survey. Advance data from vital and health statistics; no 216. Hyattsville, Maryland: National Center for Health Statistics. 1992.

Symbols

- - - Data not available
 - . . . Category not applicable
 - Quantity zero
 - 0.0 Quantity more than zero but less than 0.05
 - Z Quantity more than zero but less than 500 where numbers are rounded to thousands
 - * Figure does not meet standard of reliability or precision (see Technical notes)
-

Table 1. Estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1992 National Health Interview Survey, by selected characteristics: United States, 1992

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in Technical notes]

AIDS knowledge or attitude	Total	Age			Sex		Race or ethnicity			Education		
		18-29 years	30-49 years	50 years and over	Male	Female	Non-Hispanic			Less than 12 years	12 years	More than 12 years
							White	Black	Hispanic			
Percent distribution												
Total	100	100	100	100	100	100	100	100	100	100	100	100
1. How much would you say you know about AIDS?												
A lot	26	31	31	18	26	27	27	25	25	14	23	36
Some	45	50	50	37	45	45	47	39	40	32	48	49
A little	21	17	17	29	22	20	20	23	27	32	24	13
Nothing	7	2	3	16	7	7	6	13	8	22	5	2
Don't know	0	0	0	0	0	0	0	-	-	0	0	0
2. In the past month have you—												
2a. Seen any Public Service Announcements about AIDS on television?												
Yes	84	85	87	80	84	84	84	86	81	77	86	86
No	14	14	12	18	15	14	14	13	18	21	13	13
Don't know	2	1	1	3	2	2	2	1	1	3	1	1
2b. Heard any Public Service Announcements about AIDS on the radio?												
Yes	49	57	54	37	52	46	47	57	57	37	48	55
No	48	40	43	60	45	52	50	42	40	60	49	42
Don't know	3	3	3	3	3	3	3	2	2	3	3	3
2c. Seen any Public Service Posters in airports about AIDS?												
Yes	10	11	11	8	11	10	9	14	15	7	8	13
No	88	87	87	90	87	89	90	84	82	91	90	85
Don't know	2	2	2	2	2	2	2	2	4	2	2	2
3. In the past month, have you received information about AIDS from any of these sources? ¹												
Television programs	75	77	77	71	75	74	74	76	75	69	75	77
Radio programs	38	45	41	29	42	34	36	44	46	28	37	43
Magazine articles	44	49	47	37	41	47	44	44	41	26	42	55
Newspaper articles	52	48	56	51	53	51	53	49	49	35	51	62
Street signs/billboards	19	27	21	12	21	18	18	25	25	12	18	24
Store displays/store distributed brochures	9	12	9	6	9	8	7	12	14	7	9	9
Bus/streetcar/subway displays	7	12	8	4	8	7	5	14	13	6	6	9
Health department brochures	16	23	17	10	14	18	14	24	22	13	15	18
Workplace distributed brochures	12	13	16	6	12	13	11	17	12	5	11	17
School distributed brochures	10	18	11	3	9	11	9	13	12	7	9	12
Church distributed brochures	5	5	5	5	5	6	4	11	8	4	5	6
Community organization	5	6	6	4	5	5	4	9	5	4	4	7
Friend/acquaintance	10	15	11	6	10	11	9	15	13	8	10	12
AIDS hotline	1	2	2	1	1	2	1	3	3	1	1	1
Other	3	3	4	2	3	4	3	4	3	2	2	5
Don't know	1	0	0	1	1	1	1	1	0	1	1	0
Received no AIDS information in past month	13	9	11	17	12	13	13	13	12	21	13	8
4. Have you heard the AIDS virus called by the name "HIV"?												
Yes	95	97	97	91	95	95	96	94	84	85	96	98
No	4	3	3	7	4	4	3	4	14	12	3	1
Don't know	1	0	0	2	1	1	1	1	2	3	1	0
5. Tell me whether you think the following statements are true or false or if you don't know if they are true or false.												
5a. AIDS can reduce the body's natural protection against disease.												
True	87	90	92	79	88	86	90	76	79	68	87	96
False	3	3	3	4	3	4	3	8	5	6	4	2
Don't know	10	7	6	17	9	10	8	17	16	26	9	3
5b. AIDS can damage the brain.												
True	54	46	55	59	54	54	53	59	59	55	54	54
False	15	24	17	7	16	14	16	11	14	8	14	20
Don't know	30	30	27	34	30	31	31	30	27	37	32	26
5c. AIDS is an infectious disease caused by a virus.												
True	85	92	90	75	87	83	85	88	86	75	85	91
False	4	3	4	6	4	5	5	2	4	4	5	4
Don't know	10	5	6	19	9	12	10	10	10	21	10	5
5d. A person can be infected with the AIDS virus and not have the disease AIDS.												
True	84	88	89	75	84	84	86	80	77	68	84	92
False	4	5	4	4	4	4	3	6	7	6	4	3
Don't know	12	7	7	21	12	12	11	14	16	26	11	5
5e. ANY person with the AIDS virus can pass it on to someone else through sexual intercourse.												
True	96	98	98	93	96	96	96	95	96	91	97	98
False	1	1	1	0	1	0	1	1	1	1	1	1
Don't know	3	2	2	6	3	3	3	4	3	8	3	1

See footnotes at end of table.

Table 1. Estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1992 National Health Interview Survey, by selected characteristics: United States, 1992—Con.

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in Technical notes]

AIDS knowledge or attitude	Total	Age			Sex		Race or ethnicity			Education		
		18-29 years	30-49 years	50 years and over	Male	Female	Non-Hispanic			Less than 12 years	12 years	More than 12 years
		White	Black	Hispanic								
Percent distribution												
5f. A pregnant woman who has the AIDS virus can give it to her baby.												
True	94	96	96	91	93	95	95	92	94	89	94	96
False	1	1	1	1	1	1	1	1	1	1	1	1
Don't know	5	3	4	9	6	4	5	8	6	10	5	3
5g. A person who has the AIDS virus can look and feel well and healthy.												
True	86	91	91	77	87	85	88	84	75	69	87	94
False	5	4	4	7	4	6	4	5	11	10	5	3
Don't know	9	5	5	16	9	9	8	11	14	22	8	3
5h. There are drugs available which can lengthen the life of a person infected with the AIDS virus.												
True	71	71	75	65	71	71	73	67	60	54	68	81
False	7	9	7	6	8	7	6	9	12	8	8	6
Don't know	22	20	18	29	22	22	21	24	27	37	24	13
5i. Early treatment of the AIDS virus infection can reduce symptoms in an infected person.												
True	60	61	65	53	61	59	61	59	54	46	57	70
False	10	12	10	8	10	10	9	11	12	10	11	9
Don't know	30	27	25	39	30	31	30	31	34	45	33	21
5j. There is a vaccine available to the public that protects a person from getting the AIDS virus.												
True	3	4	2	4	3	3	2	6	6	6	3	2
False	83	85	88	75	84	82	86	74	73	66	83	91
Don't know	14	11	9	21	13	15	12	19	22	28	14	7
5k. There is no cure for AIDS at present.												
True	93	93	95	90	93	93	95	90	84	83	94	96
False	2	3	2	3	3	2	2	3	6	4	2	2
Don't know	5	4	3	7	5	5	4	7	10	12	4	2
6. How likely do you think it is that a person will get AIDS or the AIDS virus infection from—												
6a. Working near someone with the AIDS virus?												
Very likely	2	2	2	3	2	2	2	4	6	4	2	1
Somewhat likely	5	4	5	5	5	5	4	6	6	6	6	4
Somewhat unlikely	7	7	7	7	7	7	7	7	9	8	8	6
Very unlikely	44	45	44	44	46	43	46	43	32	38	45	47
Definitely not possible	36	39	39	31	35	37	37	32	40	29	35	40
Don't know	6	3	3	11	5	6	5	8	7	15	4	2
6b. Eating in a restaurant where the cook has the AIDS virus?												
Very likely	7	5	6	8	6	7	5	10	10	10	7	4
Somewhat likely	17	18	16	17	17	17	17	19	16	20	19	13
Somewhat unlikely	13	15	14	11	13	13	13	13	12	11	13	14
Very unlikely	35	37	37	32	37	34	37	30	28	25	33	42
Definitely not possible	19	19	21	15	18	19	19	16	23	15	17	22
Don't know	10	5	7	17	9	11	9	13	10	19	10	5
6c. Sharing plates, forks, or glasses with someone who has the AIDS virus?												
Very likely	9	7	9	11	9	9	9	12	12	14	11	6
Somewhat likely	18	15	17	20	18	17	18	19	15	19	19	16
Somewhat unlikely	13	15	14	11	13	13	14	11	13	10	13	15
Very unlikely	32	36	34	27	33	32	33	28	29	24	31	37
Definitely not possible	18	22	19	14	17	19	18	16	22	14	17	21
Don't know	10	5	7	16	9	10	9	13	10	20	10	5
6d. Using public toilets?												
Very likely	6	5	5	7	5	6	4	10	9	10	6	3
Somewhat likely	11	11	9	14	11	12	11	12	14	16	12	8
Somewhat unlikely	11	13	11	10	11	11	11	11	11	9	12	11
Very unlikely	38	39	40	35	39	37	40	33	29	29	37	43
Definitely not possible	26	28	29	21	25	26	26	22	27	18	24	31
Don't know	9	4	6	15	8	9	8	12	9	19	8	4
6e. Sharing needles for drug use with someone who has the AIDS virus?												
Very likely	96	97	97	92	96	95	96	94	94	90	96	98
Somewhat likely	1	1	1	2	1	1	1	2	1	2	1	1
Somewhat unlikely	0	0	0	0	0	0	0	0	1	0	0	0
Very unlikely	0	1	0	0	0	0	0	0	1	1	0	0
Definitely not possible	0	0	0	0	0	0	0	0	1	0	0	0
Don't know	2	1	1	5	2	2	2	4	2	7	2	1

See footnotes at end of table.

Table 1. Estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1992 National Health Interview Survey, by selected characteristics: United States, 1992—Con.

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in Technical notes]

AIDS knowledge or attitude	Race or ethnicity											
	Total	Age			Sex		Non-Hispanic			Education		
		18-29 years	30-49 years	50 years and over	Male	Female	White	Black	Hispanic	Less than 12 years	12 years	More than 12 years
Percent distribution												
6f. Being coughed or sneezed on by someone who has the AIDS virus?												
Very likely	9	5	8	12	9	9	8	12	10	13	10	5
Somewhat likely	18	15	17	21	17	19	18	18	20	21	19	16
Somewhat unlikely	15	16	16	13	15	15	15	15	13	11	15	16
Very unlikely	32	36	36	25	33	31	33	28	26	21	31	39
Definitely not possible	15	20	16	11	15	16	15	14	20	13	14	17
Don't know	11	7	7	18	10	11	10	13	11	21	11	6
6g. Attending school with a child who has the AIDS virus?												
Very likely	2	1	2	2	2	2	1	3	3	4	2	1
Somewhat likely	5	4	5	6	5	5	4	6	5	7	5	3
Somewhat unlikely	7	7	7	7	7	7	7	8	8	7	8	7
Very unlikely	44	43	46	43	46	43	46	42	32	36	45	48
Definitely not possible	35	43	37	29	34	37	35	31	43	30	34	38
Don't know	7	3	4	13	7	7	6	10	8	17	6	3
6h. Mosquitoes or other insects?												
Very likely	9	9	9	9	9	9	8	12	12	13	10	6
Somewhat likely	16	18	16	15	17	16	15	21	18	19	17	14
Somewhat unlikely	9	11	9	6	10	8	9	7	10	7	9	10
Very unlikely	25	25	27	23	26	25	27	22	18	17	24	30
Definitely not possible	20	20	22	17	19	21	21	14	21	14	18	24
Don't know	21	16	17	29	20	22	21	23	21	31	22	16
6i. Being cared for by a nurse, doctor, dentist, or other health care worker who has the AIDS virus?												
Very likely	26	22	24	30	24	27	24	33	30	33	29	19
Somewhat likely	36	38	36	34	35	36	37	33	32	30	37	37
Somewhat unlikely	15	17	17	11	16	14	15	12	13	9	13	19
Very unlikely	15	16	16	12	17	13	16	9	12	10	12	20
Definitely not possible	3	3	3	3	3	3	3	3	6	4	2	3
Don't know	6	4	4	10	6	7	5	9	7	14	5	3
7. Can a person get AIDS or the AIDS virus infection while giving or donating blood for use by others?												
Yes	29	31	28	30	30	28	26	43	36	39	31	23
No	62	61	66	56	61	62	66	45	51	42	60	72
Don't know	9	8	6	14	9	10	8	12	13	19	9	5
10. Have you ever discussed AIDS with any of your children aged 10-17? ²												
Yes	75	55	76	68	64	84	77	75	67	64	74	79
No	25	43	23	30	35	16	23	25	33	36	25	20
Don't know	0	0	0	—	0	0	0	0	—	0	0	0
11. Have any or all of your children aged 10-17 had instruction at school about AIDS? ²												
Yes	76	64	77	77	72	80	77	74	75	72	77	78
No	8	20	8	5	7	10	8	8	8	9	8	8
Don't know	15	15	15	16	20	10	14	17	16	19	15	14
12. Have you ever given or donated blood?												
Yes	42	34	45	44	53	32	45	34	28	27	39	52
No	58	66	55	55	47	67	54	66	72	72	61	48
Don't know	0	0	0	1	0	0	0	1	0	1	0	0
13a. Have you donated blood since March 1985?												
Yes	19	26	23	9	23	16	20	14	14	7	16	27
No	80	73	76	90	76	84	79	85	85	92	83	72
Don't know	1	1	1	1	1	1	1	1	1	1	1	1
13b. Have you donated blood in the past 12 months?												
Yes	6	8	8	3	7	5	7	4	4	2	5	9
No	93	91	91	96	91	94	92	95	95	97	94	90
Don't know	1	1	1	1	1	1	1	1	1	1	1	1
14. How many times in the past 12 months have you donated blood?												
Once	3	5	4	1	4	3	3	2	3	1	3	5
Twice	2	2	2	1	2	1	2	1	1	1	1	2
Three times or more	1	1	2	1	2	1	1	0	1	0	1	2
Don't know	0	0	0	0	0	0	0	—	—	0	0	0
Did not donate blood in past 12 months ³	94	92	92	97	93	95	93	96	96	96	95	91

See footnotes at end of table.

Table 1. Estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1992 National Health Interview Survey, by selected characteristics: United States, 1992—Con.

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in Technical notes]

AIDS knowledge or attitude	Total	Race or ethnicity										
		Age			Sex		Non-Hispanic			Education		
		18-29 years	30-49 years	50 years and over	Male	Female	White	Black	Hispanic	Less than 12 years	12 years	More than 12 years
Percent distribution												
15. To the best of your knowledge, are blood donations routinely tested for the AIDS virus infection?												
Yes	79	82	84	72	79	80	82	68	68	62	79	87
No	7	6	6	8	7	7	6	12	9	10	7	5
Don't know	14	12	10	20	15	13	12	19	23	28	14	7
16. Was one of your reasons for donating blood because you wanted to be tested for the AIDS virus infection? ⁴												
Yes	3	4	2	1	3	2	2	7	3	4	3	2
No	88	87	89	90	89	88	89	88	85	81	88	89
Don't know	—	—	—	—	—	—	—	—	—	—	—	—
17a. Except for blood donations since 1985, have you had your blood tested for the AIDS virus infection?												
Yes	18	27	22	8	20	17	16	29	28	14	17	22
No	76	69	73	83	74	77	78	64	67	78	77	74
Don't know	6	4	5	9	6	6	6	7	5	8	6	5
17b. Why haven't you been tested? ^{1,5}												
Don't consider myself at risk of AIDS	81	71	82	86	79	83	83	73	76	76	81	84
Don't believe anything can be done if I am positive	0	1	0	0	1	0	0	1	1	0	1	0
Don't like needles	1	2	1	0	1	1	1	3	1	1	1	1
Afraid of losing job, insurance, housing, friends, family if people knew I was positive	0	0	0	0	0	0	0	0	0	0	0	0
Don't trust medical clinics/hospitals to keep test results confidential	0	0	0	0	0	0	0	1	0	0	0	0
Already know whether I have the AIDS virus infection	1	1	0	0	1	1	1	0	1	0	1	1
Don't know where to go for a test	1	2	1	0	1	1	0	1	2	1	1	0
Other	9	12	9	7	9	9	8	11	11	9	8	9
Don't know	9	13	8	7	10	7	8	12	9	13	9	6
18. How many times have you had your blood tested for the AIDS virus infection, not including blood donations?												
Once	11	16	14	5	12	11	10	15	20	9	10	14
Twice	3	5	4	1	3	3	3	7	5	2	3	4
Three times or more	3	4	3	1	4	2	2	6	3	2	2	3
Don't know	0	0	0	1	1	0	0	1	0	1	0	0
Never had test ⁶	82	73	78	93	81	84	85	71	72	86	84	79
19. How many times in the past 12 months have you had your blood tested for the AIDS virus infection, not including blood donations?												
None	9	12	11	3	10	8	8	11	15	6	8	11
Once	8	12	8	3	8	7	6	14	11	6	7	9
Twice	1	2	1	0	1	1	1	3	1	1	1	1
Three times or more	0	0	0	0	0	0	0	1	0	0	0	0
Don't know	0	0	0	0	0	0	0	0	0	0	0	0
Never had test ⁶	82	73	78	93	81	84	85	71	73	86	84	79
20. Did you have any of the AIDS blood tests: ^{1,7}												
For hospitalization or a surgical procedure?	13	12	12	23	10	17	14	14	10	20	15	10
To apply for health insurance?	5	3	6	4	6	3	5	4	2	2	4	6
To apply for life insurance?	12	6	17	10	16	8	15	7	5	2	9	17
For employment?	6	7	7	3	8	5	5	7	10	5	7	6
To apply for a marriage license?	4	7	3	2	4	5	5	3	5	3	6	4
For military induction or military service?	7	11	5	1	11	2	7	8	3	2	8	7
For immigration?	5	5	5	3	4	5	1	2	23	13	2	3
Just to find out if you were infected?	30	35	28	23	28	32	28	39	27	28	33	29
Because of referral by the doctor?	5	5	4	7	4	5	4	8	4	6	5	3
Because of referral by the Health Department?	1	1	1	0	1	1	0	2	0	1	1	1
Referred by your sex partner?	1	2	1	0	1	1	1	1	1	1	1	1
Other	20	22	18	22	14	25	21	19	12	22	21	18
Don't know	0	—	0	1	0	0	0	0	—	0	—	0
21. When was your last AIDS blood test for the AIDS virus infection not including blood donation? ⁷												
1992	26	29	24	24	26	26	25	30	23	24	27	25
1991	29	31	28	30	28	31	28	37	24	29	30	30
1990	13	12	13	11	13	12	14	9	14	10	13	14
1989	9	8	10	10	9	9	10	7	9	8	9	9
1988	7	6	7	5	7	7	6	4	11	8	7	6
1987	3	3	4	3	3	3	4	1	2	3	3	3
1986	2	1	2	2	2	1	2	1	3	1	1	2
1985	1	1	1	1	1	1	1	1	0	1	1	1
Don't know	6	6	6	8	6	7	5	7	8	9	6	5

See footnotes at end of table.

Table 1. Estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1992 National Health Interview Survey, by selected characteristics: United States, 1992—Con.

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in Technical notes]

AIDS knowledge or attitude	Total	Age			Sex		Race or ethnicity			Education		
		18-29 years	30-49 years	50 years and over	Male	Female	Non-Hispanic			Less than 12 years	12 years	More than 12 years
							White	Black	Hispanic			
Percent distribution												
22. Did you have your last AIDS blood test— ^{1,7}												
For hospitalization or a surgical procedure?	12	10	11	22	9	16	13	12	11	18	14	10
To apply for health insurance?	4	3	6	4	6	3	5	3	2	1	3	6
To apply for life insurance?	12	6	16	10	16	7	15	6	5	2	8	17
For employment?	6	7	7	4	8	5	5	7	10	5	7	6
To apply for a marriage license?	3	5	3	2	3	3	4	2	4	2	4	3
For military induction or military service?	6	9	5	2	10	2	7	7	3	2	7	7
For immigration?	4	5	4	3	4	5	1	1	23	13	2	3
Just to find out if you were infected?	30	34	29	23	27	32	28	38	27	29	31	28
Because of referral by the doctor?	5	4	4	7	4	5	4	9	4	6	5	3
Because of referral by the Health Department?	1	1	0	0	1	0	0	1	0	1	1	0
Referred by your sex partner?	1	1	1	0	1	0	1	1	1	0	1	1
Other	20	22	18	23	15	25	22	17	12	21	21	19
Don't know	0	0	0	1	0	0	0	0	0	0	0	0
23. Not including a blood donation, where did you have your last blood test for the AIDS virus? ⁷												
AIDS clinic/counseling/testing site	1	2	2	0	1	1	1	1	2	1	1	1
Community health clinic	8	10	7	6	7	8	6	13	11	10	8	7
Clinic run by employer	2	2	2	2	2	2	2	2	3	2	2	2
Doctor/HMO	28	28	27	31	24	32	29	28	22	24	29	28
Hospital/emergency room/outpatient clinic	24	22	23	31	21	27	23	26	23	31	24	22
STD clinic	0	0	0	0	0	0	0	0	—	0	0	0
Family planning clinic	1	2	1	—	1	2	1	1	2	1	2	1
Prenatal clinic	0	1	0	—	0	1	0	1	1	1	0	0
Tuberculosis clinic	0	—	0	—	—	0	—	—	0	—	0	—
Public clinic	5	7	4	1	5	5	3	7	11	9	6	3
Other clinic	4	3	4	3	4	3	3	2	6	5	3	4
Drug treatment facility	0	0	0	0	1	—	0	0	—	0	1	0
Military induction/service site	6	9	5	2	10	2	7	7	3	2	7	7
Immigration site	1	0	1	1	1	1	0	1	4	2	1	1
Other	10	8	11	10	12	8	11	6	8	7	9	12
Don't know	1	0	1	1	1	0	1	0	0	0	0	1
25. Did you get the results of your last test? ⁷												
Yes	80	83	79	78	78	82	78	85	84	80	83	78
No	19	16	21	20	21	17	21	15	15	18	17	21
Don't know	1	1	1	1	1	1	1	0	1	2	0	1
26. Was this because you decided you didn't want the results or was it because you were unable to get the results? ⁸												
Didn't want	9	10	8	10	9	8	7	10	17	8	7	10
Unable to get	21	20	24	12	26	15	18	28	34	26	24	18
Both	1	1	1	—	1	1	1	1	—	1	1	1
Other	56	57	55	54	52	60	61	44	35	49	51	60
Don't know	13	12	10	23	11	15	12	16	10	17	15	10
28. Were the results given in person, by telephone, by mail, or in some other way? ⁹												
In person	58	62	55	59	54	63	52	68	74	75	61	51
By telephone	17	14	19	18	17	18	20	14	10	12	18	19
By mail	16	13	17	16	20	12	18	13	12	9	14	20
Other	8	9	7	6	9	6	9	5	4	4	7	10
Don't know	0	0	0	1	0	0	1	0	—	0	0	1
29. Do you believe the results of your last test were accurate? ⁹												
Yes	97	97	98	97	97	98	98	97	97	96	97	98
No	1	1	1	—	1	1	1	1	0	0	1	1
Don't know	2	2	1	3	2	1	1	2	3	4	2	1
30. Do you feel that the confidentiality of the results of your last test for the AIDS virus infection was handled properly? ⁹												
Yes	94	94	94	92	94	94	94	95	91	92	95	93
No	2	4	2	1	2	3	2	2	2	2	2	3
Don't know	4	2	4	6	4	3	3	3	6	6	2	3
31. Do you expect to have a blood test for the AIDS virus infection in the next 12 months?												
Yes	11	22	11	4	13	10	9	26	17	11	11	12
No	81	68	81	89	79	82	85	59	70	78	81	81
Don't know	8	11	8	7	8	8	6	15	12	11	8	7

See footnotes at end of table.

Table 1. Estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1992 National Health Interview Survey, by selected characteristics: United States, 1992—Con.

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in Technical notes]

AIDS knowledge or attitude	Total	Age			Sex		Race or ethnicity			Education		
		18-29 years	30-49 years	50 years and over	Male	Female	Non-Hispanic			Less than 12 years	12 years	More than 12 years
							White	Black	Hispanic			
Percent distribution												
32. Tell me if each of these statements explain why you expect to have the blood test in the next 12 months. ¹⁰												
Because it will be part of a blood donation	17	15	18	18	18	15	21	10	8	10	15	21
Because it will be part of hospitalization or surgery you expect to have	6	6	6	8	5	8	5	7	9	12	6	4
Because you expect to apply for life or health insurance.	9	10	9	4	11	6	7	10	12	8	9	9
Because you expect to apply for a job	7	10	7	2	9	6	4	11	12	9	9	6
Because you expect to join the military	2	3	1	2	3	1	1	3	4	4	1	2
Because you expect to apply for a marriage license	7	11	5	1	8	6	8	7	7	10	6	7
Because you want to know the results.	72	76	69	66	68	76	65	82	78	80	73	67
Because it will be a required part of some other activity that includes automatic AIDS testing	20	19	20	21	22	18	18	24	21	22	22	18
33. Where will you go to have a blood test for the AIDS virus infection? ¹⁰												
AIDS clinic/counseling/testing site	2	2	2	1	2	2	2	1	3	2	2	2
Community health clinic	10	12	10	9	9	12	8	17	9	13	11	9
Clinic run by employer	2	2	2	2	3	2	2	2	4	1	3	2
Doctor/HMO	36	32	38	46	35	38	38	36	32	31	36	39
Hospital/emergency room/outpatient clinic.	17	17	16	20	18	16	15	19	15	21	18	14
STD clinic	0	0	0	0	0	0	0	0	—	0	0	0
Family planning clinic	1	2	1	—	1	2	2	1	1	1	2	1
Prenatal clinic	0	0	—	—	—	0	—	0	—	—	0	—
Tuberculosis clinic	0	—	0	—	—	0	—	—	0	—	0	—
Public clinic	6	7	6	2	6	6	5	8	8	9	7	4
Other clinic	3	3	2	3	2	3	2	2	5	4	3	2
Drug treatment facility	—	—	—	—	—	—	—	—	—	—	—	—
Military induction/service site	3	3	3	1	5	1	4	3	2	1	3	4
Immigration site.	0	0	0	—	0	0	0	—	0	—	0	0
Other.	1	1	2	2	1	2	2	1	1	1	1	2
Don't know	7	9	5	3	7	6	6	6	13	9	7	5
34. Tell me whether you think the following statements about the blood test for the AIDS virus infection are true or false or if you do not know whether they are true or false.												
34a. Sometimes the results of a blood test for the AIDS virus infection can be wrong.												
True	76	76	79	73	76	76	78	74	65	62	75	83
False	6	8	7	3	6	6	6	6	10	7	6	6
Don't know	18	16	14	24	18	18	17	20	5	32	18	11
34b. After a person becomes infected with the AIDS virus, there can be a period of time before the test shows the infection.												
True	79	85	83	70	79	80	81	80	70	63	79	88
False	2	3	3	2	3	2	2	2	3	3	3	2
Don't know	18	12	14	28	19	18	17	18	27	35	18	10
37. Have you ever heard of a drug called AZT, also known as zidovudine or Retrovir?												
Yes	58	56	68	48	59	57	62	52	36	30	54	76
No	38	42	30	46	37	39	34	43	61	65	42	22
Don't know	4	2	3	5	4	4	3	5	3	5	4	2
38. Tell me whether you think the following statements about AZT are true or false or if you don't know whether they are true or false. ¹¹												
38a. AZT can delay or slow down the symptoms of AIDS virus infection.												
True	83	86	85	77	83	82	83	79	82	70	78	88
False	2	1	2	2	2	2	1	2	2	3	2	1
Don't know	15	12	13	22	15	16	15	19	16	27	20	11
38b. AZT cures people with AIDS.												
True	1	1	1	1	1	1	1	1	1	1	1	1
False	92	94	93	88	92	91	92	88	91	82	90	94
Don't know	7	5	6	11	7	8	7	10	8	16	9	5
38c. AZT has no known side effects.												
True	4	4	4	5	4	4	3	7	6	5	4	4
False	61	65	65	51	61	61	62	57	56	45	54	69
Don't know	35	30	31	44	35	35	34	36	37	51	42	27

See footnotes at end of table.

Table 1. Estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1992 National Health Interview Survey, by selected characteristics: United States, 1992—Con.

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in Technical notes]

AIDS knowledge or attitude	Total	Age			Sex		Race or ethnicity			Education		
		18-29 years	30-49 years	50 years and over	Male	Female	Non-Hispanic		Hispanic	Less than 12 years	12 years	More than 12 years
							White	Black				
Percent distribution												
38d. AZT is appropriate for a person with the AIDS virus infection only at certain times during the illness.												
True	35	40	37	27	35	35	34	36	41	25	30	40
False	12	12	13	10	12	12	11	15	15	12	12	12
Don't know	53	48	50	63	52	54	54	49	43	63	58	48
38e. There are other drugs available to treat AIDS-related illnesses.												
True	55	54	60	50	59	52	57	49	47	39	47	63
False	12	14	11	11	11	13	11	15	19	15	13	10
Don't know	32	32	29	39	30	35	32	36	33	46	39	26
39. Did you have a blood transfusion at any time between 1977 and 1985?												
Yes	5	2	5	7	5	5	5	5	4	5	5	5
No	94	97	94	91	93	94	94	93	95	92	94	94
Don't know	1	1	1	2	1	1	1	1	1	2	1	1
40. Do you have frequent blood transfusions because of sickle cell or chronic anemia?												
Yes	0	0	0	0	0	0	0	0	0	0	0	0
No	100	100	100	100	100	100	100	100	100	100	100	100
Don't know	0	0	0	0	0	0	0	0	0	0	0	0
41. How effective do you think the use of a condom is to prevent getting the AIDS virus through sexual activity?												
Very effective	26	32	28	18	30	22	25	26	27	19	24	30
Somewhat effective	54	56	57	49	52	56	56	47	46	42	56	58
Not at all effective	4	3	4	5	3	5	4	5	5	6	4	3
Don't know how effective	14	7	10	24	13	15	13	20	16	28	14	7
Don't know method	2	1	1	3	1	2	1	2	6	5	2	1
42. Tell me whether you think the following statements are true or false or whether you don't know whether they are true or false.												
42a. Latex condoms and natural-membrane condoms are equally good at preventing transmission of the AIDS virus.												
True	16	23	17	11	19	14	15	21	19	15	18	15
False	27	34	33	15	30	25	29	20	21	13	22	39
Don't know	55	42	49	71	50	59	55	56	54	68	58	45
Don't know method	2	1	1	3	1	2	1	2	6	5	2	1
42b. Oil-based lubricants can cause latex condoms to break.												
True	33	44	38	19	36	30	34	34	28	21	29	42
False	5	7	6	4	7	4	5	6	7	4	6	6
Don't know	60	47	55	74	56	63	60	58	59	70	63	51
Don't know method	2	1	1	3	1	2	1	2	6	5	2	1
43. What are your chances of having the AIDS virus?												
High	0	1	1	0	0	1	0	1	1	1	0	0
Medium	2	3	2	1	2	2	2	3	3	2	2	2
Low	22	32	25	12	23	21	23	22	17	13	20	28
None	73	62	71	83	72	74	74	67	74	78	75	68
Don't know	2	2	2	3	2	2	2	6	5	5	2	1
44. What are your chances of getting the AIDS virus?												
High	1	1	1	0	1	0	0	1	1	1	1	1
Medium	3	5	3	1	3	3	3	4	4	3	3	3
Low	29	38	33	18	31	27	30	27	22	17	26	37
None	64	53	60	77	62	67	65	60	67	72	68	57
Don't know	3	2	3	4	3	3	2	6	5	6	3	2
N/A—High chance of already having the AIDS virus	0	1	1	0	0	1	0	1	1	1	0	0
45. Have you ever had a coworker who had AIDS or the AIDS virus?												
Yes	5	5	8	3	6	5	5	6	5	2	4	9
No	86	86	83	89	84	87	86	84	83	90	89	82
Never worked, never had a coworker	1	1	0	1	0	1	1	1	3	2	1	0
Don't know	8	8	9	7	10	6	8	9	8	7	7	9
46. Besides a co-worker, have you ever had a friend or relative who had AIDS or the AIDS virus?												
Yes	12	13	15	8	11	13	12	17	14	7	10	16
No	84	83	81	89	85	84	85	78	81	89	86	80
Don't know	4	4	4	3	4	3	3	5	4	4	4	4

See footnotes at end of table.

Table 1. Estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1992 National Health Interview Survey, by selected characteristics: United States, 1992—Con.

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in Technical notes]

AIDS knowledge or attitude	Percent distribution											
	Total	Age			Sex		Race or ethnicity			Education		
		18-29 years	30-49 years	50 years and over	Male	Female	Non-Hispanic			Less than 12 years	12 years	More than 12 years
						White	Black	Hispanic				
47. Are any of these statements true for you?												
a. You have hemophilia or another clotting disorder and have received clotting factor concentrations since 1977.												
b. You are a man who has had sex with another man at some time since 1977, even 1 time.												
c. You have taken illegal drugs by needle at any time since 1977.												
d. You have had sex for money or drugs at any time since 1977.												
e. Since 1977, you are or have been the sex partner of any person who would answer yes to any of the items above (a-d)												
Yes to at least 1 statement	4	6	5	1	4	3	4	5	5	3	4	4
No to all statements	96	94	95	99	95	97	96	95	95	97	96	96
Don't know	0	0	0	0	0	0	0	1	0	0	0	0

¹Multiple responses may add to more than 100.
²Based on persons answering "yes" to question 8, "Do you have any children aged 10 through 17?"
³Based on persons answering "no" or "don't know" to questions 12, 13a, or 13b.
⁴Based on persons answering "yes" to questions 13a and 15.
⁵Based on persons answering "no" to question 17a.
⁶Based on persons answering "no" or "don't know" to question 17a.
⁷Based on persons answering "yes" to question 17a.
⁸Based on persons answering "no" or "don't know" to question 25.
⁹Based on persons answering "yes" to question 25.
¹⁰Based on persons answering "yes" to question 31.
¹¹Based on persons answering "yes" to question 37.

NOTE: HMO is health maintenance organization. STD is sexually transmitted disease.

Technical notes

The National Health Interview Survey (NHIS) is a continuous, cross-sectional household interview survey. Each week, a probability sample of the civilian noninstitutionalized population residing in the United States is interviewed by personnel of the U.S. Bureau of the Census to obtain information on the health and other characteristics of each member of the household. Information on special health topics is collected for all or a sample of household members. The 1992 National

Health Interview Survey of AIDS Knowledge and Attitudes was asked of one randomly chosen adult 18 years of age or over in each family. The AIDS portion of the 1992 NHIS was administered in one-half of sample households; thus estimates in this report are based on completed interviews with 20,974 individuals—approximately one-half of the sample size in 1991. Responses were weighted to produce population estimates, although variances are somewhat larger due to the reduced sample size. In 1992, the response rate to the basic NHIS core questionnaire

was 95.7 percent; for the NHIS AIDS supplement it was 86.9 percent. Therefore, the overall response rate to the 1992 AIDS survey was 83.2 percent (core response rate x supplement response rate).

Table I contains the estimated population size of each of the demographic subgroups included in table 1 to allow readers to derive estimates of the number of people in the United States with a given characteristic, for example, the number of women who have had their blood tested for HIV. The population estimates in table I are based on 1992 data from the NHIS inflated to national population controls by age, race, and sex. The population controls are based on the 1980 census carried forward to 1992. These estimates, therefore, may differ from 1990 census results brought forward to the survey date. Population controls incorporating 1990 census results will be used for survey estimation beginning later in the decade.

Table II shows approximate standard errors for most of the estimates presented in table 1. These standard error estimates were derived by applying a design effect of 1.3 to the standard errors that would have been obtained with a simple random sample design. The reader is cautioned about comparing estimates when the denominator is small (for example, when looking only at those persons who did not receive the results of their HIV antibody test). A final data file covering the entire 1992 data collection period is available.

Table I. Sample sizes for 1992 National Health Interview Survey of AIDS Knowledge and Attitudes and estimated adult population 18 years of age and over, by selected characteristics: United States, 1992

Characteristic	Sample size	Estimated population in thousands
All adults	20,974	184,963
Age		
18-29 years	4,679	44,049
30-49 years	8,729	76,840
50 years and over	7,566	64,074
Sex		
Male	8,922	88,157
Female	12,052	96,806
Race and ethnicity		
Non-Hispanic white	15,863	140,497
Non-Hispanic black	2,781	20,287
Hispanic	1,456	14,398
Education		
Less than 12 years	4,332	37,722
12 years	7,652	69,315
More than 12 years	8,947	75,764

Table II. Standard errors, expressed in percentage points, of estimated percents from the 1992 National Health Interview Survey of AIDS Knowledge and Attitudes, by selected characteristics: United States, 1992

Estimated percent	Age				Sex		Race and ethnicity			Education		
	Total	18-29 years	30-49 years	50 years and over	Male	Female	White	Black	Hispanic	Less than 12 years	12 years	More than 12 years
5 or 95	0.2	0.4	0.3	0.3	0.3	0.3	0.2	0.5	0.7	0.4	0.3	0.3
10 or 90	0.3	0.6	0.4	0.4	0.4	0.4	0.3	0.7	1.0	0.6	0.4	0.4
15 or 85	0.3	0.7	0.5	0.5	0.5	0.4	0.4	0.9	1.2	0.7	0.5	0.5
20 or 80	0.4	0.8	0.6	0.6	0.5	0.5	0.4	1.0	1.3	0.8	0.6	0.5
25 or 75	0.4	0.8	0.6	0.6	0.6	0.5	0.4	1.1	1.5	0.8	0.6	0.6
30 or 70	0.4	0.9	0.7	0.7	0.6	0.5	0.5	1.1	1.5	0.9	0.7	0.6
35 or 65	0.4	0.9	0.7	0.7	0.6	0.6	0.5	1.2	1.6	0.9	0.7	0.6
40 or 60	0.4	0.9	0.7	0.7	0.7	0.6	0.5	1.2	1.7	1.0	0.7	0.7
45 or 55	0.4	0.9	0.7	0.7	0.7	0.6	0.5	1.2	1.7	1.0	0.7	0.7
50	0.4	0.9	0.7	0.7	0.7	0.6	0.5	1.2	1.7	1.0	0.7	0.7

Suggested citation

Schoenborn CA, Marsh SL, Hardy AM. AIDS knowledge and attitudes for 1992: data from the National Health Interview Survey. Advance data from vital and health statistics; no 243. Hyattsville, Maryland: National Center for Health Statistics. 1994.

Copyright Information

All material appearing in this report is in the public domain and may be reproduced or copied without permission; citation as to source, however, is appreciated.

National Center for Health Statistics

Director
Manning Feinleib, M.D., Dr. P.H.
Deputy Director
Jack R. Anderson

U.S. DEPARTMENT OF HEALTH AND
HUMAN SERVICES
Public Health Service
Centers for Disease Control and Prevention
National Center for Health Statistics
6525 Belcrest Road
Hyattsville, Maryland 20782

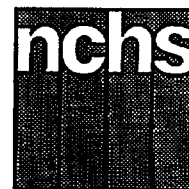
BULK RATE POSTAGE & FEES PAID PHS/NCHS PERMIT NO. G-281
--

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

To receive this publication regularly, contact
the National Center for Health Statistics by
calling 301-436-8500

DHHS Publication No. (PHS) 94-1250

Advance Data



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

Nursing Homes and Board and Care Homes Data From the 1991 National Health Provider Inventory

by Al Sirrocco, Division of Health Care Statistics

Introduction

The 1991 National Health Provider Inventory (NHPI) was a survey of nursing homes, board and care homes, hospices, and home health agencies. This report deals primarily with nursing homes and board and care homes but includes some discussion of home health care.

The NHPI was previously known as the Inventory of Long-Term Care Places (ILTCP), which was conducted in 1986 (1). Before that, it was known as the National Master Facility Inventory (NMFI), which was conducted eight times—the first in 1967 (2) and the last in 1982 (3). These inventories included primarily nursing homes and residential care homes (now called board and care homes).

The current name (National Health Provider Inventory) reflects an

expansion to include home health agencies and hospices, which provide health services to individuals in their place of residence. Information concerning survey mailout procedures, the classification system that was used, and definitions of terms are given in the Technical notes.

Discussion

There were 15,511 nursing homes and 31,431 board and care homes identified in 1991. The nursing homes had 1,615,686 beds and 1,478,217 residents, and the board and care homes had 482,650 beds and 413,040 residents (table 1).

The discussion on nursing homes will center on the 14,744 that were freestanding as opposed to those that were hospital-based. Table 2 summarizes

the data for the 767 nursing homes that were hospital-based. From this point on, all references to nursing homes will be referring only to the freestanding nursing homes. For the board and care homes, the discussion will cover only the 31,431 responding homes. It was not feasible to impute data for the 8,578 nonresponding homes.

The 14,744 nursing homes, consisting of 1,559,394 beds and 1,426,320 residents are distributed by bed-size groups, by ownership type, and by geographic region (table 3). The table shows that almost 90 percent (13,069) of these nursing homes had between 25 and 199 beds, and more than 70 percent (10,522) were under for-profit ownership. When combined, the Midwest and South regions had twice as many nursing homes and almost twice as many beds as the Northeast and West regions combined.

Table 4 shows how the distribution of the homes by bed-size groups varied between geographic regions. For example, nearly two-thirds of the nursing homes in the West had fewer than 100 beds, whereas less than one-half of the homes in the Northeast and the South had fewer than 100 beds. The Northeast had a much higher percentage of large homes (200 beds or more) than the other regions. Its

Table 1. Number of nursing homes and board and care homes, beds, and residents, by type of facility: United States, 1991

Type of facility	Facilities	Beds	Residents
All facilities	46,942	2,098,336	1,891,257
Nursing homes	15,511	1,615,686	1,478,217
Freestanding	14,744	1,559,394	1,426,320
Hospital-based	767	56,292	51,897
Board and care homes ¹	31,431	482,650	413,040
Not for the mentally retarded	18,262	362,014	302,820
For the mentally retarded	13,169	120,636	110,220

¹Excludes 8,578 nonresponding board and care homes.



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



Table 2. Number of hospital-based facilities, beds, and residents, by selected characteristics: United States, 1991

<i>Selected characteristic</i>	<i>Facilities</i>	<i>Beds</i>	<i>Residents</i>
Total facilities	767	56,292	51,897
<i>Bed size</i>			
Less than 25 beds	145	2,327	2,022
25-99 beds	477	24,516	22,686
100-199 beds	97	12,518	11,782
200 beds or more	48	16,931	15,407
<i>Ownership</i>			
Profit	63	5,344	4,819
Nonprofit	432	27,563	25,686
Government	272	23,385	21,392
<i>Geographic region</i>			
Northeast	138	16,398	15,233
Midwest	279	17,406	16,132
South	172	12,104	11,234
West	178	10,384	9,298

13.8 percent was in sharp contrast to the West's 4.1 percent, the South's 5.4 percent, and the Midwest's 7.7 percent.

Table 5 shows the difference in the average bed size and occupancy rates by ownership and geographic region. The Northeast, which had the second fewest homes, compensated by having the highest average bed size at 124 beds. (This was reflected in the higher percentage of large homes shown in table 4). On the other hand, the West not

only had the fewest homes it also had the lowest average bed size (93 beds).

The occupancy rates for nursing homes (table 5) indicate that the West had the lowest rate (89.6 percent) of any region. This occurred even though the West had fewer homes and beds than the other regions. This suggests that there was not a shortage of nursing home beds in the West, despite the small number of available beds. By contrast, even with the larger homes, the Northeast had an occupancy rate of

95.3 percent, which indicated a much higher use of nursing homes in that region.

Tables 6 and 7 display, by geographic region and type of home, the number of beds per 1,000 resident population ages 85 years and over and 65 years and over, respectively. Compared with the other regions, the West showed substantially fewer nursing home beds in each population group. Its rate of 376.9 for the 85 and over population was well below the rate of 458.6 of the Northeast (the next lowest) and far below the rate of 605.1 of the Midwest (the highest).

Similarly, the West's 35.3 rate for the 65 and over population in nursing homes was well below the 46.0 of the South (the next lowest), and far below the 66.0 of the Midwest (the highest).

The bed to population rates for board and care homes, compared with the rates for nursing homes, were virtually reversed in each region (tables 6 and 7). The West had, by far, the highest board and care home bed rates for both population groups; the Midwest, which had the highest nursing home bed rates for both groups, had, by far, the lowest board and care home bed rates. The Northeast and South flip-flopped their positions as well.

While tables 6 and 7 looked at nursing home and board and care home

Table 3. Number of homes, beds, and residents for nursing homes and board and care homes by type of home and selected characteristics: United States, 1991

<i>Selected characteristic</i>	<i>Nursing homes¹</i>			<i>All board and care homes²</i>		
	<i>Facilities</i>	<i>Beds</i>	<i>Residents</i>	<i>Facilities</i>	<i>Beds</i>	<i>Residents</i>
Total facilities	14,744	1,559,394	1,426,320	31,431	482,650	413,040
<i>Bed size</i>						
Less than 25 beds	563	8,101	7,105	27,377	204,816	179,473
25-99 beds	7,041	456,704	418,225	3,352	160,883	138,035
100-199 beds	6,028	792,348	724,966	544	71,863	59,605
200 beds or more	1,112	302,241	276,024	158	45,088	35,927
<i>Ownership</i>						
Profit	10,522	1,086,907	984,560	19,726	309,469	259,041
Nonprofit	3,497	372,272	348,090	9,694	143,142	128,516
Government	725	100,215	93,670	2,011	30,039	25,483
<i>Geographic region</i>						
Northeast	2,654	328,435	312,864	5,660	110,359	97,134
Midwest	5,137	518,917	468,636	8,817	105,515	91,742
South	4,708	503,522	457,944	7,090	131,982	111,840
West	2,245	208,520	186,876	9,864	134,794	112,324

¹Excludes hospital-based facilities.

²Excludes 8,578 nonresponding board and care homes.

Table 4. Number and percent distribution of nursing homes and board and care homes by bed size, according to geographic region: United States, 1991

Geographic region	Nursing homes ¹	Board and care homes ²
	Number	
United States	14,744	31,431
Northeast	2,654	5,660
Midwest	5,137	8,817
South	4,708	7,090
West	2,245	9,864
	Percent distribution	
Northeast	100.0	100.0
Less than 25 beds	4.9	82.0
25-99	37.3	15.0
100-199	43.9	2.1
200 beds or more	13.8	1.0
Midwest	100.0	100.0
Less than 25 beds	3.7	91.8
25-99	52.6	6.8
100-199	36.0	1.0
200 beds or more	7.7	0.3
South	100.0	100.0
Less than 25 beds	2.7	81.5
25-99	42.8	15.7
100-199	49.1	2.4
200 beds or more	5.4	0.5
West	100.0	100.0
Less than 25 beds	5.1	89.8
25-99	59.5	8.0
100-199	31.4	1.7
200 beds or more	4.1	0.5

¹Excludes hospital-based facilities.
²Excludes 8,578 nonresponding board and care homes.

Table 5. Average number of beds and percent occupancy rate of nursing homes and board and care homes, by type of home and selected characteristics: United States, 1991

Selected characteristic	Nursing homes ¹		Board and care homes ²	
	Average bed size Number	Occupancy rate Percent	Average bed size Number	Occupancy rate Percent
Total homes	106	91.5	15	85.6
Bed size				
Less than 25 beds	14	87.7	8	87.6
25-99 beds	65	91.6	48	85.8
100-199 beds	131	91.5	132	82.9
200 beds or more	272	91.3	285	79.7
Ownership				
Profit	103	90.6	16	83.7
Nonprofit	107	93.5	15	89.8
Government	138	93.5	15	84.8
Geographic region				
Northeast	124	95.3	19	88.0
Midwest	101	90.3	12	86.9
South	107	90.9	19	84.7
West	93	89.6	14	83.3

¹Excludes hospital-based facilities.
²Excludes 8,578 nonresponding board and care homes.

Table 6. Number of nursing home beds and board and care home beds per 1,000 population 85 years and over, by type of home and geographic region: United States, 1991

Geographic region	Beds per 1,000 U.S. population ¹ 85 years and over in—		
	All homes	Nursing homes ²	Board and care homes ^{3,4}
United States	609.3	494.5	114.8
Northeast	578.7	458.6	120.1
Midwest	679.9	605.1	74.8
South	593.5	490.6	102.9
West	569.0	376.9	192.1

¹ Based on U.S. Bureau of the Census estimates of the United States resident population ages 85 years and over, as of July 1, 1991.
² Excludes hospital-based facilities.
³ Excludes 8,578 nonresponding board and care homes.
⁴ Excludes 13,169 board and care homes for the mentally retarded.

bed supply for the aged population in each region, tables 8 and 9 approached this issue from the utilization side (actual usage by the aged population). Since the population figures were for the 85 years and over and the 65 years and over groups, estimates for these age groups were made for the residents in nursing homes and board and care homes. Board and care homes for the mentally retarded were excluded from tables 6-9 because almost 90 percent of their residents were under 65 years of age (see table 12).

The number of residents 85 years and over and 65 years and over were estimated for each type of home and geographic region. These estimates, along with their rates per 1,000 U.S. population, are found in tables 8 and 9, respectively. The rates showed the same pattern as in tables 6 and 7. Namely, the Midwest was a big user of nursing homes and a relatively small user of board and care homes, while the West was a small user of nursing homes and a relatively big user of board and care homes. The Northeast and South were between these extremes.

Several possibilities emerged from these findings.

- The elderly in the West were healthier and not as dependent on nursing home care as those in other regions. This allowed them to use the less intensive services found in board and care homes.
- The need for nursing home care was similar in each region. However, due to a lack of nursing home beds in certain areas, or due to the higher cost of nursing home care, board and care homes were chosen instead of nursing homes.
- The use of board and care homes was independent of the use of nursing homes. The higher use of board and care homes in some regions merely reflected an alternative, not to nursing homes but to home health care in those parts of the country.

To study this third possibility, data from the home health agency portion of

Table 7. Number of nursing home beds and board and care home beds per 1,000 population 65 years and over, by type of home and geographic region: United States, 1991

Geographic region	Beds per 1,000 U.S. population ¹ 65 years and over in—		
	All homes	Nursing homes ²	Board and care homes ^{3,4}
United States	60.5	49.1	11.4
Northeast	58.8	46.6	12.2
Midwest	74.2	66.0	8.2
South	55.6	46.0	9.6
West	53.3	35.3	18.0

¹ Based on U.S. Bureau of the Census estimates of the United States resident population ages 65 years and over, as of July 1, 1991.

² Excludes hospital-based facilities.

³ Excludes 8,578 nonresponding board and care homes.

⁴ Excludes 13,169 board and care homes for the mentally retarded.

Table 8. Estimated number of residents 85 years and over in nursing homes and board and care homes, and number per 1,000 population 85 years and over, by type of home and geographic region: United States, 1991

Geographic region	Estimated number of residents 85 years and over in—			
	Nursing homes ¹		Board and care homes ^{2,3}	
	Number in thousands	Number per 1,000 population ⁴	Number in thousands	Number per 1,000 population ⁴
United States	552	175.1	64	20.3
Northeast	131	183.0	15	20.9
Midwest	190	221.4	10	11.7
South	162	157.9	19	18.5
West	69	124.8	20	36.2

¹ Excludes hospital-based facilities.

² Excludes 8,578 nonresponding board and care homes.

³ Excludes 13,169 board and care homes for the mentally retarded.

⁴ Based on U.S. Bureau of the Census estimates of the United States resident population ages 85 years and over, as of July 1, 1991.

Table 9. Estimated number of residents 65 years and over in nursing homes and board and care homes, and number per 1,000 population 65 years and over, by type of home and geographic region: United States, 1991

Geographic region	Estimated number of residents 65 years and over in—			
	Nursing homes ¹		Board and care homes ^{2,3}	
	Number in thousands	Number per 1,000 population ⁴	Number in thousands	Number per 1,000 population ⁴
United States	1,318	41.5	207	6.5
Northeast	295	41.8	52	7.4
Midwest	429	54.6	32	4.1
South	421	38.5	61	5.6
West	173	29.3	62	10.5

¹ Excludes hospital-based facilities.

² Excludes 8,578 nonresponding board and care homes.

³ Excludes 13,169 board and care homes for the mentally retarded.

⁴ Based on U.S. Bureau of the Census estimates of the United States resident population ages 65 years and over, as of July 1, 1991.

the 1991 NHPI were examined. Home health care is provided to individuals and families in their places of residence for the purpose of promoting, maintaining, or restoring health, or for maximizing the level of independence

while minimizing the effects of disability and illness—including terminal illness.

Table 10 shows the regional distribution of home health patients in 1991 (4). When the figures in table 10

were viewed in conjunction with the nursing home and board and care home data, the regions showed widely differing health care usages. Since three-fourths of all home health care patients were 65 years and over (5), estimates were made for this age group. Percents of the U.S. population by region were computed for these home health care patients to compare them with the rates that were calculated for the nursing home and board and care home residents 65 years and over in table 9.

Table 10 shows the West had substantially fewer (101,000) home health care patients 65 years and over than the other regions, while the South had the most (321,000). Since the South had nearly twice as many people as the West in the 65 years and over age group (10.9 million versus 5.9 million according to U.S. Bureau of the Census estimates for 1991), this disparity in numbers of home health care patients could be misleading. By dividing the number of patients by the number of people in each region, a standardized rate was produced that gave a more meaningful regional comparison.

Although not as disparate as the raw numbers indicated, the rates per 1,000 population in table 10 still showed that the West used home health care much less than the South (17.1 compared with 29.3). Even more noticeable in this table was the Northeast's 41.8 usage rate, by far the highest of all regions. To put these three figures in perspective, consider the following. If the usage rate in the West were 29.3 instead of 17.1, the number of people 65 years and over using home health care in the West would have been 171,000 instead of 101,000. If it were 41.8, the number would have been 248,000.

Combining the information obtained from tables 9 and 10 showed that for the United States as a whole, for every 1,000 people 65 years of age and over, approximately 77 people were either in nursing homes (42 people), in board and care homes (6 people), or receiving home health care (29 people).

The Northeast, with 91, and the Midwest, with 84, were above this national rate, while the South was

Table 10. Estimated number of current patients 65 years and over receiving home health care, and number per 1,000 population 65 years and over, by geographic region: United States, 1991

Geographic region	Estimated number of current home health patients (in thousands) ¹	Number per 1,000 U.S. population ²
United States	918	28.9
Northeast	295	41.8
Midwest	201	25.6
South	321	29.3
West	101	17.1

¹Source: unpublished home health care data from the 1991 NHPI.

²Based on U.S. Bureau of the Census estimates of the United States resident population ages 65 years and over, as of July 1, 1991.

Table 11. Ratio of board and care home residents 65 years and over to home health care patients 65 years and over, by geographic region: United States, 1991

Geographic region	Ratio of board and care home residents to home health care patients ^{1,2} (percent)
United States	22.5
Northeast	17.6
Midwest	15.9
South	19.0
West	61.4

¹Excludes 8,578 nonresponding board and care homes.

²Excludes 13,169 board and care homes for the mentally retarded.

Table 12. Percent distribution of residents in nursing homes and board and care homes by type of facility and age of resident, according to geographic region: United States, 1991

Type of facility and age of resident	Total	Geographic region			
		Northeast	Midwest	South	West
Nursing homes¹					
Total	100.0	100.0	100.0	100.0	100.0
Under 22 years	0.2	0.2	0.2	0.2	0.3
22 to 64 years	7.4	5.6	7.9	7.2	9.5
65 to 84 years	53.7	52.3	51.3	56.9	54.1
85 years and over	38.7	41.9	40.7	35.6	36.1
All board and care homes²					
Total	100.0	100.0	100.0	100.0	100.0
Under 22 years	4.3	3.7	6.0	3.9	3.8
22 to 64 years	43.4	41.3	56.5	38.3	39.0
65 to 84 years	36.7	39.3	26.5	40.5	39.2
85 years and over	15.6	15.7	11.0	17.3	18.0
Board and care homes not for the mentally retarded²					
Total	100.0	100.0	100.0	100.0	100.0
Under 22 years	2.1	1.5	3.2	2.1	1.9
22 to 64 years	29.7	30.0	39.9	27.4	25.0
65 to 84 years	47.0	48.0	39.1	48.8	49.6
85 years and over	21.2	20.5	17.8	21.7	23.4
Board and care homes for the mentally retarded²					
Total	100.0	100.0	100.0	100.0	100.0
Under 22 years	10.1	10.8	9.8	10.3	9.6
22 to 64 years	79.1	76.9	79.6	76.2	82.9
65 to 84 years	9.6	11.9	9.0	11.6	6.7
85 years and over	1.2	0.4	1.6	1.9	0.9

¹Excludes hospital-based facilities.

²Excludes 8,578 nonresponding board and care homes.

somewhat below it at 73. The West, with 57, was not only well below the national rate but so far below the Northeast rate that it needs to be put in perspective. For example, if the West had the same rate as the Northeast (91 per 1,000 instead of 57), its number of people in nursing homes, board and care homes, and home health care would have been 538,000 instead of 331,000. (Note: These numbers might include multiple counting of some individuals. This was possible because of the 7-month duration of the survey, which was sufficient time for individuals to be discharged from one setting and admitted to another.)

Looking past these combined rates to the three separate rates, it was found that, relative to the other regions:

- The Midwest relied heavily on nursing homes, little on board and care homes, and moderately on home health care.
- The Northeast relied heavily on all three, with much more reliance on home health care than the other regions.
- The South had rates near the national average for all three, so it had moderate usage of all three types of care.
- The West relied relatively little on nursing homes and home health care, while relying more than any other region on board and care homes.

As a further comparison of the use of board and care homes versus the use of home health care by region, table 11 displayed the ratio (expressed as a percent) of board and care home residents 65 years and over, to home health care patients 65 years and over.

The table showed the West with 61.4 percent as many board and care home residents as home health care patients; or, expressed another way, the West had 39 percent more home health patients than board and care home residents. Each of the other three regions, whose ratios ranged between 15.9 percent and 19.0 percent, had better than 80.0 percent more home health care patients than board and care home residents.

This finding for the West seemed to support the third possibility mentioned

Table 13. Number and percent distribution of board and care homes by type of home and bed-size group, according to geographic region: United States, 1991

Type of home and bed-size group	Total	Geographic region			
		Northeast	Midwest	South	West
Board and care homes not for the mentally retarded¹		Number of homes			
Total	18,262	3,180	4,005	4,791	6,286
1-2 beds	868	121	286	221	240
3-9 beds	8,992	900	1,898	2,044	4,150
10-24 beds	4,883	1,241	1,268	1,379	995
25-99 beds	2,927	768	478	979	702
100-199 beds	469	107	59	146	157
200 beds or more	123	43	16	22	42
		Percent distribution			
Total	100.0	100.0	100.0	100.0	100.0
1-2 beds	4.8	3.8	7.1	4.6	3.8
3-9 beds	49.2	28.3	47.4	42.7	66.0
10-24 beds	26.7	39.0	31.7	28.8	15.8
25-99 beds	16.0	24.1	11.9	20.4	11.2
100-199 beds	2.6	3.4	1.5	3.0	2.5
200 beds or more	0.7	1.4	0.4	0.5	0.7
Board and care homes for the mentally retarded¹		Number of homes			
Total	13,169	2,480	4,812	2,299	3,578
1-2 beds	1,645	290	767	216	372
3-9 beds	9,068	1,594	3,187	1,559	2,728
10-24 beds	1,921	495	691	362	373
25-99 beds	425	79	124	131	91
100-199 beds	75	11	32	21	11
200 beds or more	35	11	11	10	3
		Percent distribution			
Total	100.0	100.0	100.0	100.0	100.0
1-2 beds	12.5	11.7	15.9	9.4	10.4
3-9 beds	68.9	64.3	66.2	67.8	76.2
10-24 beds	14.6	20.0	14.4	15.7	10.4
25-99 beds	3.2	3.2	2.6	5.7	2.5
100-199 beds	0.6	0.4	0.7	0.9	0.3
200 beds or more	0.3	0.4	0.2	0.4	0.1

¹Excludes 8,578 nonresponding board and care homes.

earlier—namely, that in some parts of the country, board and care homes were chosen as alternatives to home health care.

The following are additional findings for board and care homes.

- The vast majority were small, with 27,377 (87.1 percent) having less than 25 beds (table 3); and, to be more precise, two-thirds of the homes had less than 10 beds (not shown).
- Most (19,726 or 62.8 percent) were under for-profit ownership (table 3).
- Board and care homes had an overall occupancy rate of 85.6 percent (table 5). The smaller homes had higher occupancy rates than the larger homes; this was directly opposite to the nursing homes, which showed the

larger homes with higher occupancy rates than the smaller homes.

Table 12 shows the distribution of residents in board and care homes. More than one-half of their residents were over 65 years of age and another 43 percent were 22-64 years of age. However, when the board and care homes were split into those primarily serving the mentally retarded and those that were not, a much different age distribution appeared. In the homes that were NOT for the mentally retarded, nearly 70 percent of their residents were 65 years and older. By contrast, only about 10 percent of the residents in homes for the mentally retarded were 65 years and older. These figures were fairly consistent for each region.

Table 13 displays the bed-size differences between these two types of board and care homes. The most common bed size group for both types of homes was three to nine beds (about 9,000 homes in each). In the one to two bed range, there were nearly twice as many board and care homes for the mentally retarded as there were homes not for the mentally retarded. However, for each of the other bed-size groups, there were substantially fewer homes for the mentally retarded.

In summary, the data for nursing homes, board and care homes, and home health agencies suggested that the health care needs of the older population varied greatly from one part of the country to another. The fact that the higher rates for using these services

occurred in the Northeast and Midwest (colder climates), and the lower rates occurred in the South and West (warmer climates) might be significant. In all likelihood, the rates also varied greatly from State to State, even within the same region. These issues will be explored further and will be included in a future report.

References

1. Sirrocco A. Nursing home characteristics: 1986 Inventory of Long-Term Care Places. National Center for Health Statistics. *Vital Health Stat* 14(33). 1989.
2. Hollis G. Design and methodology of the 1967 Master Facility Inventory Survey. National Center for Health Statistics. *Vital Health Stat* 1(9). 1971.
3. Roper D. Nursing and related care homes as reported from the 1982 National Master Facility Inventory Survey. National Center for Health Statistics. *Vital Health Stat* 14(32). 1986.
4. Delfosse R. Hospice and home health agency characteristics: 1991 National Health Provider Inventory. National Center for Health Statistics. *Vital Health Stat*. In preparation.
5. Strahan G. Overview of home health and hospice care patients: Preliminary data from the 1992 National Home and Hospice Care Survey. Advance data from vital health statistics; no 235. Hyattsville, Maryland: National Center for Health Statistics. 1993.
6. Eklund D. The Agency Reporting System for maintaining the national inventory of hospitals and institutions. National Center for Health Statistics. *Vital Health Stat* 1(6). 1968.

Technical notes

Mailout

The National Center for Health Statistics (NCHS), through a Reimbursable Agreement with the Bureau of the Census, conducted the 1991 NHPI. The facility mailing list consisted of 73,106 addresses from a file created by NCHS by matching State and national directories of nursing homes and board and care homes obtained

through the Agency Reporting System (6) against a master file of such places from the 1986 Inventory of Long-Term Care Places (the last such survey conducted).

Any facility found in a directory that did not appear on the master file was considered to be new, was assigned a unique ID number, and was added to the facility file. After adding the new facilities, a matching process was conducted to remove duplicates from the file. Any duplicates remaining on the file after this process would, in theory, be reported by respondents (per instructions on the questionnaire).

The first questionnaire mailout was initiated by the Bureau of the Census on April 5, 1991, and this was followed a week later by a reminder letter. On May 10, a second questionnaire was sent to all nonresponding facilities, and on June 14, a third questionnaire was sent to the remaining nonrespondents.

Two weeks after the end of the third mailout, approximately 21,600 facilities had still not responded to the survey. Of the 21,600 facilities, nearly 17,200 were board and care homes.

Because of this large number of nonrespondents, resource constraints made it impossible to conduct telephone followups for all of these cases. The decision was made to followup all nursing home nonrespondents but only one-half of the board and care nonrespondents. As a result, there were 8,578 nonresponding board and care cases that will not be included in the data presented in this report.

The remaining facilities were followed up by telephone and this procedure was completed on November 1, 1991. The final facility response rate, excluding those board and care places not in the followup, was 99 percent (there were 262 refusals). If the 8,578 were counted in the calculation as in-business and nonresponses, the response rate for facilities would be 84 percent.

Classification system

Excluding the 8,578 nonresponding board and care homes and the 262 facilities that refused to participate, each of the remaining facilities was classified

as either a nursing home (15,511) or a board and care home (31,431).

During the classification process, the file was found to contain many facilities for the mentally retarded, including Intermediate Care Facilities for the Mentally Retarded (ICF-MR). This was expected since State directories of board and care homes often include facilities for the mentally retarded, and State directories of nursing homes often include ICF-MRs.

For purposes of this survey, no facilities for the mentally retarded were classified as nursing homes. However, if a facility was primarily a nursing home and happened to be certified as an ICF-MR, it would have been classified as a nursing home. As a result, this file contains 24 nursing homes that were also ICF-MRs, 1,965 board and care homes that were also ICF-MRs, and 11,204 board and care homes that were non-ICF-MR facilities for the mentally retarded.

The classification system used to separate nursing homes from board and care homes relied heavily on the following criteria:

- how the respondent categorized the home
- if the home was certified or not
- how many beds were set up and staffed for use (a nursing home by NCHS's definition must have three or more beds)
- if registered nurses or licensed practical nurses were employed by the home
- what types of services were offered in the home
- whether the home primarily served people who were mentally retarded

Based on combinations of these results, each facility was assigned a code of either "NH" or "BC." Neither the classification matrix nor the questionnaire could be included in this report due to space limitations. They will instead be shown in future reports.

Definition of terms

Nursing home—A nursing home is a facility with three beds or more that is either licensed as a nursing home, certified as a nursing facility under

Medicare or Medicaid, identified as a nursing care unit of a retirement center, or determined to provide nursing or medical care.

Freestanding nursing home—This is a nursing home that is not part of a hospital (neither structurally connected to, nor organizationally considered part of the hospital).

Hospital-based nursing home—This is a nursing home that is part of a hospital (either organizationally or structurally).

Board and care home—This is a generic term used to describe a residential setting that provides either routine general protective oversight or assistance with activities necessary for independent living to mentally or physically limited persons.

Bed—A nursing home or board and care home bed is one that was set up and staffed for use at the time of the survey. Beds for day-care-only patients were not included. For hospitals and retirement centers, only the beds in their nursing home units were included.

Resident—A resident is a person who has been formally admitted to, but not discharged from, a nursing home or board and care home and who stayed in the home the night prior to the survey.

Ownership—Ownership refers to the type of organization that controls and operates the home. Proprietary homes are operated under private commercial ownership; nonprofit homes are operated under voluntary or nonprofit auspices, which may or may

not be church related; government ownership refers to homes operated under Federal, State, or local government auspices.

Occupancy rate—An occupancy rate is the percent of beds that were occupied by residents at the time of the survey. It is computed by dividing the total number of residents by the total number of beds.

Average bed size—Average bed size is the statistic produced by dividing the total number of beds by the total number of homes.

Beds per 1,000 population—This is the statistic produced by dividing the total number of beds by the total population (for the age group being considered) multiplied by 1,000.

Suggested citation

Sirrocco A. Nursing homes and board and care homes. Advance data from vital and health statistics; no 244. Hyattsville, Maryland: National Center for Health Statistics. 1994.

Copyright information

All material appearing in this report is in the public domain and may be reproduced or copied without permission; citation as to source, however, is appreciated.

National Center for Health Statistics

Director
Manning Feinleib, M.D., Dr. P.H.

Deputy Director
Jack R. Anderson

U.S. DEPARTMENT OF HEALTH AND
HUMAN SERVICES
Public Health Service
Centers for Disease Control and Prevention
National Center for Health Statistics
6525 Belcrest Road
Hyattsville, Maryland 20782

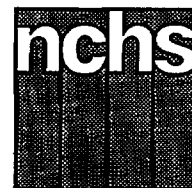
<p>BULK RATE POSTAGE & FEES PAID PHS/NCHS PERMIT NO. G-281</p>
--

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

To receive this publication regularly, contact the National Center for Health Statistics by calling 301-436-8500

DHHS Publication No. (PHS) 94-1250

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: 1992 Emergency Department Summary

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

In December 1991, the National Center for Health Statistics inaugurated the National Hospital Ambulatory Medical Care Survey (NHAMCS) to gather and disseminate information about the health care provided by hospital emergency and outpatient departments to the population of the United States. Ambulatory medical care is the predominant method of providing health care services in the United States. Since 1973, data have been collected 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 (1). Furthermore, hospital ambulatory patients are known to differ from office patients in their demographic characteristics and are also thought to differ in medical aspects (2). Therefore, the omission of hospital ambulatory care from the ambulatory medical care database leaves a significant gap in coverage and limits the utility of the current NAMCS data. The NHAMCS fills this data gap. This survey was endorsed by the American Hospital Association, the Emergency Nurses

Association, and the American College of Emergency Physicians.

This report presents data on emergency department (ED) visits from the 1992 NHAMCS, a national probability survey conducted by the Division of Health Care Statistics, National Center for Health Statistics, Centers for Disease Control and Prevention. A forthcoming report will provide data on visits to outpatient departments.

The estimates presented in this report are based on a sample rather than on the entire universe of hospital ED visits. Therefore, they are subject to sampling variability. The technical notes include a brief overview of the sample design used in the 1992 NHAMCS and an explanation of sampling errors. A detailed description of the 1992 NHAMCS sample design and survey methodology will be published.

The ED Patient Record form is used by hospitals participating in the NHAMCS to record information about patient visits. This form (figure 1) serves as a reference for readers as they review the survey findings presented in this document.

Patient characteristics

During the 12-month period from January–December 1992, an estimated

89.8 million visits were made to ED's of non-Federal, short-stay, or general hospitals in the United States—about 35.7 visits per 100 persons. ED visits by patient's age, sex, and race are shown in table 1. Persons 75 years of age and over had a higher ED visit rate (55.8 visits per 100 persons) than persons in the five other age categories. Females made 51.9 percent of all ED visits. There was no significant difference in total visit rates by sex.

White persons made 78.5 percent of all ED visits, with black persons and Asian/Pacific Islanders accounting for 19.1 percent and 1.6 percent, respectively. The visit rate for black persons was significantly higher than for white persons overall and in the following age categories: 15–24 years, 25–44 years, and 45–64 years.

Emergency department visit characteristics

The largest proportion of ED visits were made in the South (32.9 percent); the Midwest had a higher ED visit rate (42.0 visits per 100 persons) than the West (31.5 visits per 100 persons) (table 1).

Urgency of visit

The majority (55.4 percent) of ED visits were not urgent and 44.6 percent



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



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

OMB No. 0920-0278

CDC 64.53

NOTICE — Information contained on this form which would permit identification of any individual or establishment has been collected with a guarantee that it will be held in strict confidence, will be used only for purposes stated for this study, and will not be disclosed or released to others without the consent of the individual or the establishment in accordance with section 308(d) of the Public Health Service Act (42 USC 242m). Public reporting burden for this phase of the survey is estimated to average 3 minutes per response. If you have any comments regarding the burden estimate or any other aspect of this survey, including suggestions for reducing this burden, send them to the PHS Reports Clearance Officer; Attn: PRA: HHH Building, Rm. 721-B; 200 Independence Ave., S.W., Washington, DC 20201, and to the Office of Management and Budget; Paperwork Reduction Project (0920-0278); Washington, DC 20503.

NATIONAL HOSPITAL AMBULATORY
MEDICAL CARE SURVEY
EMERGENCY DEPARTMENT
PATIENT RECORD

3. DATE OF VISIT _____/_____/_____ Month Day Year		5. SEX 1 <input type="checkbox"/> Female 2 <input type="checkbox"/> Male		6. 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 2 <input type="checkbox"/> Not Hispanic		8. EXPECTED SOURCE(S) OF PAYMENT <i>(Check all that apply)</i> 1 <input type="checkbox"/> Medicare 2 <input type="checkbox"/> Medicaid 3 <input type="checkbox"/> Other government 4 <input type="checkbox"/> Private/Commercial 5 <input type="checkbox"/> HMO/Other prepaid 6 <input type="checkbox"/> Patient paid 7 <input type="checkbox"/> No charge 8 <input type="checkbox"/> Other		9. MAJOR REASON FOR THIS VISIT <i>(Check one)</i> 1 <input type="checkbox"/> Injury, first visit 2 <input type="checkbox"/> Injury, follow-up 3 <input type="checkbox"/> Illness, first visit 4 <input type="checkbox"/> Illness, follow-up 5 <input type="checkbox"/> Other reason	
4. DATE OF BIRTH _____/_____/_____ Month Day Year		10. CAUSE OF INJURY <i>(Complete if injury is marked in 9. Describe cause and place of injury.)</i> _____ _____ _____		11. PATIENT'S COMPLAINT(S), SYMPTOM(S), OR OTHER REASON(S) FOR THIS VISIT <i>(In patient's own words)</i> a. Most important: _____ b. Other: _____ c. Other: _____		12. PHYSICIAN'S DIAGNOSES a. Principal diagnosis/problem associated with item 11a. _____ b. Other: _____ c. Other: _____					
13. URGENCY OF THIS VISIT <i>(Check only one)</i> 1 <input type="checkbox"/> Urgent/Emergent 2 <input type="checkbox"/> Non-urgent		14. IS PROBLEM ALCOHOL- OR DRUG-RELATED? 1 <input type="checkbox"/> Neither 2 <input type="checkbox"/> Alcohol-related 3 <input type="checkbox"/> Drug-related 4 <input type="checkbox"/> Both		15. DIAGNOSTIC/SCREENING SERVICES <i>(Check all ordered or provided.)</i> 1 <input type="checkbox"/> None 2 <input type="checkbox"/> Blood pressure check 3 <input type="checkbox"/> Urinalysis 4 <input type="checkbox"/> HIV serology 5 <input type="checkbox"/> Other blood test 6 <input type="checkbox"/> EKG 7 <input type="checkbox"/> Mental status exam 8 <input type="checkbox"/> Chest x-ray 9 <input type="checkbox"/> Extremity x-ray 10 <input type="checkbox"/> CT scan/MRI 11 <input type="checkbox"/> Other diagnostic imaging 12 <input type="checkbox"/> Other <i>(Specify)</i> _____ _____ _____		16. PROCEDURES <i>(Check all provided on this visit)</i> 1 <input type="checkbox"/> None 2 <input type="checkbox"/> Endotracheal intubation 3 <input type="checkbox"/> CPR 4 <input type="checkbox"/> IV fluids 5 <input type="checkbox"/> NG tube/gastric lavage 6 <input type="checkbox"/> Wound care 7 <input type="checkbox"/> Eye/ENT care 8 <input type="checkbox"/> Orthopedic care 9 <input type="checkbox"/> Bladder catheter 10 <input type="checkbox"/> Lumbar puncture 11 <input type="checkbox"/> Other(s) <i>(Specify)</i> _____ _____ _____					
17. MEDICATION <i>(Record all new or continued medication ordered, administered, or provided at this visit. Use the same brand name or generic name entered on any Rx or medical record. Include immunizations and desensitizing agents.)</i> <input type="checkbox"/> None 1. _____ 2. _____ 3. _____ 4. _____ 5. _____		18. DISPOSITION THIS VISIT <i>(Check all that apply)</i> 1 <input type="checkbox"/> Return to ED PRN 2 <input type="checkbox"/> Return to ED - appointment 3 <input type="checkbox"/> Return to referring physician 4 <input type="checkbox"/> Refer to other physician/clinic 5 <input type="checkbox"/> Admit to hospital 6 <input type="checkbox"/> Transfer to other facility 7 <input type="checkbox"/> DOA/died in ED 8 <input type="checkbox"/> Left AMA 9 <input type="checkbox"/> No follow-up planned 10 <input type="checkbox"/> Other <i>(Specify)</i> _____ _____		19. PROVIDERS SEEN THIS VISIT <i>(Check all that apply)</i> 1 <input type="checkbox"/> Resident/Intern 2 <input type="checkbox"/> Staff physician 3 <input type="checkbox"/> Other physician 4 <input type="checkbox"/> Physician assistant 5 <input type="checkbox"/> Nurse practitioner 6 <input type="checkbox"/> Registered nurse 7 <input type="checkbox"/> Licensed practical nurse 8 <input type="checkbox"/> Nurse's aide							

Figure 1. Patient Record form.

Table 1. Number, percent distribution, and annual rate of emergency department visits with corresponding standard errors by selected patient and emergency department characteristics: United States, 1992

<i>Characteristic</i>	<i>Number of visits in thousands</i>	<i>Standard error in thousands</i>	<i>Percent distribution</i>	<i>Standard error of percent</i>	<i>Number of visits per 100 persons per year¹</i>
All visits	89,796	3,202	100.0	...	35.7
Patient characteristic					
Age:					
Under 15 years	22,523	1,485	25.1	1.3	39.9
15-24 years	14,848	702	16.5	0.4	43.2
25-44 years	27,240	1,097	30.3	0.7	33.5
45-64 years	12,509	528	13.9	0.4	25.8
65-74 years	5,806	267	6.5	0.2	31.4
75 years and over	6,871	313	7.7	0.3	55.8
Sex and age:					
Female					
Under 15 years	46,612	1,688	51.9	0.4	36.1
15-24 years	10,196	640	11.4	0.6	37.0
25-44 years	8,051	421	9.0	0.3	46.6
45-64 years	14,045	615	15.6	0.4	34.0
65-74 years	6,629	302	7.4	0.3	26.3
75 years and over	3,350	175	3.7	0.2	32.9
Male	4,342	216	4.8	0.2	56.4
Under 15 years	43,184	1,605	48.1	0.4	35.3
15-24 years	12,327	878	13.7	0.8	42.7
25-44 years	6,797	336	7.6	0.2	39.8
45-64 years	13,195	560	14.7	0.4	33.0
65-74 years	5,880	279	6.5	0.2	25.2
75 years and over	2,456	121	2.7	0.1	29.7
Male	2,529	148	2.8	0.1	54.8
Race and age:					
White					
Under 15 years	70,478	3,006	78.5	1.3	33.6
15-24 years	16,878	1,028	18.8	0.8	37.5
25-44 years	11,598	628	12.9	0.4	42.2
45-64 years	20,579	945	22.9	0.6	30.4
65-74 years	10,134	477	11.3	0.4	24.3
75 years and over	5,017	252	5.6	0.2	30.7
White	6,272	299	7.0	0.3	56.2
Black					
Under 15 years	17,150	1,082	19.1	1.2	54.5
15-24 years	5,132	761	5.7	0.9	57.3
25-44 years	2,877	214	3.2	0.2	56.4
45-64 years	5,840	437	6.5	0.5	59.6
65-74 years	2,111	190	2.4	0.2	42.3
75 years and over	685	86	0.8	0.1	41.6
Black	505	64	0.6	0.1	51.7
All other races:					
Asian/Pacific Islander	1,400	247	1.6	0.3	---
American Indian/Eskimo/Aleut	*769	315	*0.9	0.4	---
Emergency department characteristic					
Geographic region:					
Northeast	16,950	1,108	18.9	1.2	33.9
Midwest	25,790	2,051	28.7	1.9	42.0
South	29,542	1,778	32.9	1.8	35.0
West	17,515	1,546	19.5	1.6	31.5

¹Based on U.S. Bureau of the Census estimates of the civilian, noninstitutionalized population of the United States as of July 1, 1992.

were urgent/emergent (table 2). When compared with all other age categories, persons 75 years of age and over had the highest urgent visit rate (36.6 visits per 100 persons). Persons 15-24 years of age had a higher rate of nonurgent visits (26.3 visits per 100 persons) than any other age group except children less

than 15 years of age. There was no significant difference between urgent or nonurgent visit rates by sex.

Type of visit

The majority of ED visits (58.5 percent) were made for illness and 35.2 percent were made for injury

(table 3). Eighty-seven percent of all ED visits were first visits for the presenting problem.

Injury-related visits

A visit was considered to be injury related if "injury, first visit" or "injury, follow-up" was recorded in

Table 2. Number and annual rate of urgent/emergent and nonurgent emergency department visits with corresponding standard errors by patient's age, sex, and race: United States, 1992

Patient characteristic	Number of urgent visits in thousands	Standard error in thousands	Number of urgent visits per 100 persons per year ¹	Number of nonurgent visits in thousands	Standard error in thousands	Number of nonurgent visits per 100 persons per year ¹
All urgent/emergent visits	40,079	1,803	15.9	49,718	2,175	19.8
Age						
Under 15 years	8,874	1,030	15.7	13,649	756	24.2
15–24 years	5,800	353	16.9	9,048	499	26.3
25–44 years	11,080	514	13.6	16,160	818	19.9
45–64 years	6,379	321	13.2	6,131	334	12.6
65–74 years	3,434	193	18.6	2,371	164	12.8
75 years and over	4,513	236	36.6	2,358	148	19.1
Sex and age						
Female	20,338	904	15.7	26,275	1,216	20.3
Under 15 years	3,842	418	13.9	6,353	348	23.1
15–24 years	2,992	213	17.3	5,059	299	29.3
25–44 years	5,573	295	13.5	8,472	484	20.5
45–64 years	3,159	174	12.5	3,471	226	13.8
65–74 years	1,943	114	19.1	1,407	119	13.8
75 years and over	2,829	161	36.7	1,513	106	19.6
Male	19,741	945	16.2	23,443	1,067	19.2
Under 15 years	5,031	628	17.4	7,296	448	25.3
15–24 years	2,807	181	16.4	3,990	241	23.3
25–44 years	5,506	258	13.8	7,689	422	19.2
45–64 years	3,220	187	13.8	2,660	154	11.4
65–74 years	1,492	109	18.0	964	74	11.7
75 years and over	1,684	107	36.5	845	73	18.3
Race and age						
White	32,097	1,560	15.3	38,381	2,005	18.3
Under 15 years	6,629	589	14.7	10,250	664	22.8
15–24 years	4,662	325	17.0	6,936	437	25.2
25–44 years	8,473	452	12.5	12,106	692	17.9
45–64 years	5,206	300	12.5	4,928	286	11.8
65–74 years	2,997	180	18.3	2,020	160	12.3
75 years and over	4,131	222	37.0	2,141	143	19.2
Black	7,158	633	22.8	9,992	703	31.8
Under 15 years	2,087	531	23.3	3,045	330	34.0
15–24 years	1,030	99	20.2	1,847	178	36.2
25–44 years	2,271	191	23.2	3,569	307	36.4
45–64 years	1,035	109	20.7	1,076	111	21.6
65–74 years	396	56	24.1	289	40	17.6
75 years and over	339	51	34.7	166	25	17.0

¹Based on U.S. Bureau of the Census estimates of the civilian, noninstitutionalized population of the United States as of July 1, 1992.

item 9. Almost 31.6 million ED visits were made for injury (table 4). Persons 15–24 years of age had a higher injury-related visit rate (18.9 visits per 100 persons) than persons in each of the other five age categories. Males had higher injury-related visit rates (14.8 per 100 persons) than females (10.5 per 100 persons) overall and in each age category except for 65–74 years and 75 years and over, where females had higher rates. There was no significant difference between injury-related visit

rates by race. However, black people had a higher rate than white people among persons 25–44 years of age, while white people had a higher rate than black people in the 75 years and over age category.

Cause of injury

Up to three external causes of injury are coded and classified according to the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (3).

Displayed in table 5 are ED visits by the first-listed cause of injury using the major cause of injury categories specified by the ICD–9–CM. “Other accidents” was the most frequently recorded cause of injury and represented 35.8 percent of visits in which a cause was reported. Accidental falls (26.6 percent) and motor vehicle accidents (14.3 percent) were also prominent on the list.

Table 3. Number and percent distribution of emergency department visits with corresponding standard errors by major reason for this visit: United States, 1992

Visit characteristic	Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent
All visits	89,796	3,202	100.0	...
Major reason for this visit				
All illness visits	52,528	2,128	58.5	0.9
Illness, first visit	49,691	2,033	55.3	0.9
Illness, follow-up	2,837	229	3.2	0.2
All injury visits	31,567	1,210	35.2	0.7
Injury, first visit	28,389	1,046	31.6	0.7
Injury, follow-up	3,178	241	3.5	0.2
All visits for other reasons	4,430	511	4.9	0.6
Unknown	1,271	168	1.4	0.2

Table 4. Number, percent distribution, and annual rate of injury-related emergency department visits with corresponding standard errors by patient's age, sex, and race: United States, 1992

Patient characteristic	Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent	Number of visits per 100 persons per year ¹
All injury-related visits	31,567	1,210	100.0	...	12.6
Age					
Under 15 years	8,162	426	25.9	0.9	14.5
15-24 years	6,489	307	20.6	0.5	18.9
25-44 years	10,500	446	33.3	0.8	12.9
45-64 years	3,681	207	11.7	0.5	7.6
65-74 years	1,305	98	4.1	0.3	7.1
75 years and over	1,430	100	4.5	0.3	11.6
Sex and age					
Female	13,540	539	42.9	0.6	10.5
Under 15 years	3,290	181	10.4	0.4	11.9
15-24 years	2,442	148	7.7	0.3	14.1
25-44 years	4,305	237	13.6	0.6	10.4
45-64 years	1,647	101	5.2	0.3	6.5
65-74 years	852	69	2.7	0.2	8.4
75 years and over	1,004	77	3.2	0.2	13.0
Male	18,027	734	57.1	0.6	14.8
Under 15 years	4,872	278	15.4	0.6	16.9
15-24 years	4,048	206	12.8	0.4	23.7
25-44 years	6,195	280	19.6	0.6	15.5
45-64 years	2,034	151	6.4	0.4	8.7
65-74 years	453	49	1.4	0.1	5.5
75 years and over	426	50	1.3	0.2	9.2
Race and age					
White	26,271	1,180	83.2	1.1	12.5
Under 15 years	6,794	372	21.5	0.7	15.1
15-24 years	5,456	293	17.3	0.5	19.9
25-44 years	8,405	418	26.6	0.7	12.4
45-64 years	3,096	197	9.8	0.5	7.4
65-74 years	1,160	93	3.7	0.3	7.1
75 years and over	1,359	101	4.3	0.3	12.2
Black	4,556	304	14.4	1.0	14.5
Under 15 years	1,214	138	3.8	0.5	13.6
15-24 years	903	82	2.9	0.3	17.7
25-44 years	1,783	151	5.6	0.5	18.2
45-64 years	490	61	1.6	0.2	9.8
65-74 years	111	23	0.4	0.1	6.8
75 years and over	54	12	0.2	0.0	5.5

¹Based on U.S. Bureau of the Census estimates of the civilian, noninstitutionalized population of the United States as of July 1, 1992.

Alcohol- or drug-related problem

Over 2.7 percent of ED visits were recorded as being alcohol related and 1.1 percent were drug related (table 6). For injury-related ED visits, the proportion of visits that were alcohol related (3.6 percent) was higher than that for noninjury-related visits (2.3 percent). The most commonly recorded principal diagnosis for an alcohol-related ED visit was alcohol abuse, and for a drug-related visit it was "poisoning by other and unspecified drugs and medicinal substances."

Reason for visit

In item 11 of the Patient Record form, the patient's (or patient surrogate's) "complaint(s), symptom(s), or other reason(s) for this visit (In patient's own words)" is recorded. Up to three reasons for visit are coded and classified according to *A Reason for Visit Classification for Ambulatory Care (RVC) (4)*. The principal reason is the problem, complaint, or reason listed first in item 11a of the ED Patient Record form.

The RVC is divided into eight modules or groups of reasons as shown in table 7. More than 71.3 percent of all visits were made for reasons classified as symptoms with general symptoms accounting for 15.2 percent of all visits and symptoms referable to the musculoskeletal system accounting for 14.8 percent.

The 20 most frequently mentioned principal reasons for visit, representing 46.3 percent of all visits, are shown in table 8. It is important to note that the rank ordering presented in this and other tables may not always be reliable because near estimates may not differ from each other due to sampling variability. "Stomach and abdominal pain, cramps and spasms" was the most frequently mentioned reason for visit overall (5.5 percent), while "laceration and cuts-upper extremity" was the most frequently mentioned reason for visit in the injury module (2.6 percent).

Principal diagnosis

The principal diagnosis or problem associated with the patient's most

Table 5. Number and percent distribution of emergency department visits with corresponding standard errors by cause of injury: United States, 1992

<i>Cause of injury and E code¹</i>	<i>Number of visits in thousands</i>	<i>Standard error in thousands</i>	<i>Percent distribution</i>	<i>Standard error of percent</i>
All visits with an E code entered	28,812	1,127	100.0	...
Other accidents E916–E928	10,309	477	35.8	0.7
Accidental falls E880–E888	7,669	348	26.6	0.8
Motor vehicle accidents, traffic and non-traffic; E810–E825	4,130	196	14.3	0.5
Homicide and injury purposely inflicted by other persons E960–E969	1,553	119	5.4	0.4
Accidents due to natural and environmental factors E900–E909	1,374	110	4.8	0.3
Accidents caused by submersion, suffocation, and foreign bodies E910–E915	1,040	84	3.6	0.3
Other road vehicle accidents E826–E829	635	71	2.2	0.2
Surgical and medical procedures as the cause of abnormal reaction of patient or later complication without mention of misadventure at the time of procedure E878–E879	404	49	1.4	0.2
Drugs, medicinal and biological substances causing adverse effects in therapeutic use E930–E949	370	52	1.3	0.2
Accidental poisoning by drugs, medicinal substances, and biologicals E850–E858	332	50	1.2	0.2
Accidental poisoning by other solid and liquid substances, gases, and vapors E860–E869	192	35	0.7	0.1
Suicide and self-inflicted injury E950–E959	160	38	0.6	0.1
Accidents caused by fire and flames E890–E899	127	25	0.4	0.1
Late effects of accidental injury E929	52	13	0.2	0.0
Injury undetermined whether accidentally or purposely inflicted E980–E989	39	10	0.1	0.0
Other ²	109	21	0.4	0.1
Unknown ³	315	45	1.1	0.2

¹Based on the *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM)(3)*.

²Includes railway accidents (E800–E807); water transport accidents (E830–E838); air and space transport accidents (E840–E845); vehicle accidents not elsewhere classifiable (E846–E848); misadventures to patients during surgical and medical care (E870–E876); legal intervention (E970–E978); and injury resulting from operations of war (E990–E999).

³Includes uncodable E codes and illegible E codes.

important reason for visit and any other significant current diagnoses are recorded in item 12. Up to three diagnoses are coded and classified according to the ICD-9-CM (3). Displayed in table 9 are ED visits by principal diagnosis using the major disease categories specified by the ICD-9-CM. Injury and poisoning accounted for 32.7 percent of all visits, and diseases of the respiratory system accounted for 12.1 percent.

The 20 most frequently reported principal diagnoses are shown in table 10. These are categorized at the three-digit coding level of the ICD-9-CM and account for 38.4 percent of all ED visits. The most commonly recorded diagnosis was suppurative and

unspecified otitis media, occurring at 3.5 percent of all visits.

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 11. Approximately 87.9 percent of all ED visits included one or more diagnostic or screening service. The most frequently mentioned diagnostic service was blood pressure check, recorded at 73.7 percent of visits. Other frequently mentioned services included other blood test (28.7 percent), chest x ray (16.8 percent), urinalysis (15.2 percent), and extremity x ray (15.1 percent).

Readers should note that for items 8, 15, 16, 18, and 19, hospital staff were asked to check all of the applicable categories for that item, with the result that multiple responses could be coded for each visit.

Procedures

Procedures were performed at 42.3 percent of ED visits (table 12). The most frequently mentioned procedure was the administration of intravenous fluids, recorded at 14.4 percent of visits. Other frequently mentioned procedures were wound care (12.9 percent) and orthopedic care (7.9 percent).

Expected source of payment

Expected sources of payment were most often private/commercial insurance (36.0 percent), Medicaid (22.7 percent), and Medicare (15.1 percent) (table 13). "Patient paid" and "HMO/other prepaid" were mentioned at 13.8 and 7.3 percent of ED visits, respectively. The patient-paid category includes the patient's contribution toward "co-payments" and "deductibles."

Table 6. Number and percent distribution of alcohol- or drug-related emergency department visits with corresponding standard errors: United States, 1992

<i>Visit characteristic</i>	<i>Number of visits in thousands</i>	<i>Standard error in thousands</i>	<i>Percent distribution</i>	<i>Standard error of percent</i>
All visits	89,796	3,202	100.0	...
Alcohol- or drug-related visit				
Neither	86,015	3,026	95.8	0.2
Alcohol-related	2,459	196	2.7	0.2
Drug-related	996	91	1.1	0.1
Both	327	44	0.4	0.0

Table 7. Number and percent distribution of emergency department visits with corresponding standard errors by patient's principal reason for visit: United States, 1992

<i>Principal reason for visit and RVC code¹</i>	<i>Number of visits in thousands</i>	<i>Standard error in thousands</i>	<i>Percent distribution</i>	<i>Standard error of percent</i>
All visits	89,796	3,202	100.0	...
Symptom moduleS001-S999	64,049	2,420	71.3	0.6
General symptomsS001-S099	13,615	543	15.2	0.3
Symptoms referable to psychological/mental disordersS100-S199	1,399	131	1.6	0.1
Symptoms referable to the nervous system (excluding sense organs)S200-S259	5,350	248	6.0	0.2
Symptoms referable to the cardiovascular/lymphatic systemS260-S299	659	62	0.7	0.1
Symptoms referable to the eyes and earsS300-S399	3,426	201	3.8	0.2
Symptoms referable to the respiratory systemS400-S499	10,333	583	11.5	0.4
Symptoms referable to the digestive systemS500-S639	10,359	476	11.5	0.3
Symptoms referable to the genitourinary systemS640-S829	3,131	175	3.5	0.1
Symptoms referable to the skin, hair, and nailsS830-S899	2,453	156	2.7	0.1
Symptoms referable to the musculoskeletal systemS900-S999	13,324	580	14.8	0.4
Disease moduleD001-D999	2,828	1,668	3.1	0.2
Diagnostic, screening, and preventive moduleX100-X599	754	69	0.8	0.1
Treatment moduleT100-T899	2,364	143	2.6	0.1
Injuries and adverse effects moduleJ001-J999	18,261	773	20.3	0.6
Test results moduleR100-R700	183	33	0.2	0.0
Administrative moduleA100-A140	128	26	0.1	0.0
Other ²U990-U999	1,231	161	1.4	0.2

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.

Table 8. Number and percent distribution of emergency department visits with corresponding standard errors by the 20 principal reasons for visit most frequently mentioned by patients: United States, 1992

<i>Reason for visit and RVC code¹</i>	<i>Number of visits in thousands</i>	<i>Standard error in thousands</i>	<i>Percent distribution</i>	<i>Standard error of percent</i>
All visits	89,796	3,202	100.0	...
Stomach and abdominal pain, cramps and spasmsS545	4,955	246	5.5	0.2
Chest pain and related symptomsS050	4,625	250	5.2	0.2
FeverS010	3,678	271	4.1	0.3
Headache, pain in headS210	2,545	155	2.8	0.2
Laceration and cuts—upper extremityJ225	2,347	143	2.6	0.1
Shortness of breathS415	2,025	131	2.3	0.1
CoughS440	1,997	204	2.2	0.2
Back symptomsS905	1,959	116	2.2	0.1
Symptoms referable to throatS455	1,957	172	2.2	0.2
VomitingS530	1,877	169	2.1	0.2
Pain, site not referable to a specific body systemS055	1,812	120	2.0	0.1
Earache or ear infectionS355	1,614	133	1.8	0.1
Laceration and cuts - facial areaJ210	1,485	99	1.7	0.1
Hand and finger symptomsS960	1,390	101	1.5	0.1
Neck symptomsS900	1,325	88	1.5	0.1
Skin rashS860	1,305	97	1.5	0.1
Labored or difficult breathing (dyspnea)S420	1,239	95	1.4	0.1
Leg symptomsS920	1,154	82	1.3	0.1
Knee symptomsS925	1,102	85	1.2	0.1
Foot and toe symptomsS935	1,085	82	1.2	0.1
All other reasons	48,322	1,775	53.8	0.5

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

Table 9. Number and percent distribution of emergency department visits with corresponding standard errors by principal diagnosis: United States, 1992

<i>Principal diagnosis and ICD-9-CM code¹</i>	<i>Number of visits in thousands</i>	<i>Standard error in thousands</i>	<i>Percent distribution</i>	<i>Standard error of percent</i>
All visits	89,796	3,202	100.0	...
Infectious and parasitic diseases 001-139	3,113	215	3.5	0.2
Neoplasms 140-239	254	35	0.3	0.0
Endocrine, nutritional, and metabolic diseases and immunity disorders 240-279	1,087	73	1.2	0.1
Mental disorders 290-319	2,381	206	2.7	0.2
Diseases of the nervous system and sense organs 320-389	6,026	365	6.7	0.3
Diseases of the circulatory system 390-459	3,875	179	4.3	0.2
Diseases of the respiratory system 460-519	10,905	605	12.1	0.4
Diseases of the digestive system 520-579	5,469	280	6.1	0.2
Diseases of the genitourinary system 580-629	3,810	202	4.2	0.2
Diseases of the skin and subcutaneous tissue 680-709	2,666	193	3.0	0.2
Diseases of the musculoskeletal system and connective tissue 710-739	3,812	185	4.2	0.2
Symptoms, signs, and ill-defined conditions 780-799	10,484	496	11.7	0.3
Injury and poisoning 800-999	29,389	1,092	32.7	0.7
Supplementary classification V01-V82	3,000	170	3.3	0.2
All other diagnoses ²	2,511	157	2.8	0.2
Unknown ³	1,012	142	1.1	0.2

¹Based on the *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) (3)*.

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.

Table 10. Number and percent distribution of emergency department visits with corresponding standard errors by the 20 principal diagnoses most frequently recorded by physicians: United States, 1992

<i>Principal diagnosis and ICD-9-CM code¹</i>	<i>Number of visits in thousands</i>	<i>Standard error in thousands</i>	<i>Percent distribution</i>	<i>Standard error of percent</i>
All visits	89,796	3,202	100.0	...
Suppurative and unspecified otitis media 382	3,162	302	3.5	0.3
Symptoms involving respiratory system and other chest symptoms 786	2,667	179	3.0	0.2
Other open wound of head 873	2,578	133	2.9	0.1
Other symptoms involving abdomen and pelvis 789	2,353	157	2.6	0.1
General symptoms 780	2,340	145	2.6	0.1
Acute upper respiratory infections of multiple or unspecified sites 465	1,998	199	2.2	0.2
Sprains and strains of other and unspecified parts of back 847	1,829	135	2.0	0.1
Other noninfectious gastroenteritis and colitis 558	1,805	150	2.0	0.2
Contusion of lower limb and of other and unspecified sites 924	1,784	133	2.0	0.1
Open wound of finger(s) 883	1,617	112	1.8	0.1
Asthma 493	1,467	108	1.6	0.1
Sprains and strains of ankle and foot 845	1,357	96	1.5	0.1
Other disorders of urethra and urinary tract 599	1,340	92	1.5	0.1
Open wound of other and unspecified sites, except limbs 879	1,295	115	1.4	0.1
Contusion of upper limb 923	1,273	93	1.4	0.1
Acute pharyngitis 462	1,260	103	1.4	0.1
Symptoms involving head and neck 784	1,244	80	1.4	0.1
Pneumonia, organism unspecified 486	1,142	109	1.3	0.1
Bronchitis, not specified as acute or chronic 490	1,041	77	1.2	0.1
Injury to blood vessels of head and neck 900	1,012	142	1.1	0.2
All other diagnoses	55,233	1,976	61.5	0.6

¹Based on the *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) (3)*.

Table 11. Number and percent distribution of emergency department visits with corresponding standard errors by selected diagnostic/screening services: United States, 1992

<i>Diagnostic/screening services ordered or provided by hospital staff¹</i>	<i>Number of visits in thousands</i>	<i>Standard error in thousands</i>	<i>Percent distribution</i>	<i>Standard error of percent</i>
All visits	89,796	3,202	100.0	...
Blood pressure	66,177	2,637	73.7	1.3
Other blood test	25,812	1,089	28.7	0.6
Chest x ray	15,082	624	16.8	0.4
Urinalysis	13,620	621	15.2	0.4
Extremity x ray	13,539	544	15.1	0.4
EKG ²	11,886	549	13.2	0.4
Other diagnostic imaging	9,363	452	10.4	0.4
Mental status exam	5,276	877	5.9	0.9
CT scan/MRI ³	2,161	157	2.4	0.2
HIV serology ⁴	270	52	0.3	0.1
Other	17,725	1,416	19.7	1.3
None	10,861	727	12.1	0.7

¹Number may exceed total because more than one service may be reported per visit.

²EKG is electrocardiogram.

³CT is computerized tomography. MRI is magnetic resonance imaging.

⁴HIV is human immunodeficiency virus.

Table 12. Number and percent distribution of emergency department visits with corresponding standard errors by selected procedures: United States, 1992

<i>Procedures provided by hospital staff¹</i>	<i>Number of visits in thousands</i>	<i>Standard error in thousands</i>	<i>Percent distribution</i>	<i>Standard error of percent</i>
All visits	89,796	3,202	100.0	...
Intravenous fluids	12,955	601	14.4	0.4
Wound care	11,550	520	12.9	0.4
Orthopedic care	7,072	378	7.9	0.3
Eye/ENT care ²	2,484	216	2.8	0.2
Bladder catheter	2,319	157	2.6	0.2
Nasogastric tube/gastric lavage	878	79	1.0	0.1
Endotracheal intubation	408	44	0.5	0.0
CPR ³	291	31	0.3	0.0
Lumbar puncture	244	41	0.3	0.0
Other	6,692	453	7.5	0.4
None	51,783	1,969	57.7	0.8

¹Number may exceed total because more than one procedure may be reported per visit.

²ENT is ears, nose, and throat.

³CPR is cardiopulmonary resuscitation.

Providers seen

A registered nurse and staff physician were seen at 83.1 percent and 82.5 percent of ED visits, respectively (table 14).

Disposition of visit

About 14 percent of ED visits resulted in hospital admission (table 15). Thirty-seven percent of ED visits resulted in a referral to another physician or clinic, and for 25.0 percent the disposition was "return to ED PRN."

References

1. Bryant E, Shimizu I. Sample design, sampling variance, and estimation procedures for the National

- Ambulatory Medical Care Survey. National Center for Health Statistics. Vital Health Stat 2(108). 1988.
2. Loft JD, Sheatsley PB, Frankel MR. Comparison report on the hospital ambulatory medical care evaluation study. Contract No. 282-82-2111. Chicago, Illinois: National Opinion Research Center. 1985.
3. Public Health Service and Health Care Financing Administration. International Classification of Diseases, 9th revision, Clinical Modification. Washington, D.C.: Public Health Service. 1991.
4. Schneider D, Appleton L, McLemore T. A reason for visit classification for ambulatory care. National Center for Health Statistics. Vital Health Stat 2(78). 1979.
5. Shah BV, Barnwell BG, Hunt PN, La Vange LM. SUDAAN user's manual,

release 5.50. Research Triangle Park, North Carolina: Research Triangle Institute. 1991.

Additional information

Additional reports that utilize 1992 NHAMCS data are forthcoming. Survey data will also be available on computer tape from the National Technical Information Service at a nominal cost in summer 1994. Questions regarding this report, future reports, or the NHAMCS may be directed to the Ambulatory Care Statistics Branch by calling (301) 436-7132.

Table 13. Number and percent distribution of emergency department visits with corresponding standard errors by patient's expected source of payment: United States, 1992

<i>Expected source of payment¹</i>	<i>Number of visits in thousands</i>	<i>Standard error in thousands</i>	<i>Percent distribution</i>	<i>Standard error of percent</i>
All visits	89,796	3,202	100.0	...
Private/commercial	32,332	1,614	36.0	1.1
Medicaid	20,340	1,215	22.7	1.0
Medicare	13,582	561	15.1	0.5
Patient paid	12,402	708	13.8	0.7
HMO/other prepaid ²	6,566	756	7.3	0.8
Other government	4,032	399	4.5	0.4
No charge	*778	357	*0.0	0.4
Other	6,117	468	6.8	0.5
Unknown	1,505	271	1.7	0.3

¹Numbers may exceed total because more than one source of payment may be coded for each visit.

²HMO is health maintenance organization.

Table 14. Number and percent distribution of emergency department visits with corresponding standard errors by type of provider seen: United States, 1992

<i>Type of provider¹</i>	<i>Number of visits in thousands</i>	<i>Standard error in thousands</i>	<i>Percent distribution</i>	<i>Standard error of percent</i>
All visits	89,796	3,202	100.0	...
Registered nurse	74,635	3,112	83.1	1.5
Staff physician	74,080	3,062	82.5	1.6
Resident/intern	12,294	1,385	13.7	1.5
Other physician	10,535	1,209	11.7	1.3
Nurse's aide	8,494	1,195	9.5	1.3
Licensed practical nurse	5,837	898	6.5	1.0
Physician assistant	1,757	353	2.0	0.4
Nurse practitioner	1,748	451	1.9	0.5

¹Numbers may exceed total because more than one provider may be reported per visit.

Table 15. Number and percent distribution of emergency department visits with corresponding standard errors by disposition of visit: United States, 1992

<i>Disposition¹</i>	<i>Number of visits in thousands</i>	<i>Standard error in thousands</i>	<i>Percent distribution</i>	<i>Standard error of percent</i>
All visits	89,796	3,202	100.0	...
Refer to other physician/clinic	33,215	1,606	37.0	1.4
Return to ED PRN ²	22,429	1,507	25.0	1.4
Return to referring physician	19,030	1,404	21.2	1.4
Admit to hospital	12,110	583	13.5	0.5
No follow-up planned	5,339	529	5.9	0.6
Return to ED appointment	4,322	403	4.8	0.4
Transfer to other facility	1,093	85	1.2	0.1
Left AMA ³	1,047	107	1.2	0.1
DOA/died in ED ⁴	282	36	0.3	0.0
Other	4,589	545	5.1	0.6

¹Numbers may exceed total because more than one disposition may be reported per visit.

²PRN is as needed.

³AMA is against medical advice.

⁴DOA is dead on arrival.

Technical notes

Source of data and sample design

The information presented in this report is based on data collected in the 1992 National Hospital Ambulatory Medical Care Survey (NHAMCS) from December 2, 1991, through December 27, 1992. The data were adjusted to produce annual estimates. The target universe of the NHAMCS includes visits made in the United States by patients to emergency departments (ED's) and outpatient departments (OPD's) of non-Federal, short-stay, or general hospitals. Telephone contacts are excluded.

A four-stage probability sample design is used in the NHAMCS, involving samples of primary sampling units (PSU's), hospitals with ED's and/or OPD's within PSU's, ED's within hospitals and/or clinics within OPD's, and patient visits within ED's and/or clinics. For 1992, a sample of 524 non-Federal, short-stay, or general hospitals was selected from the SMG Hospital Market Database. Of this group, 474 hospitals were in scope, or eligible to participate in the survey. The hospital response rate for the NHAMCS during this period was 93 percent. Based on the induction interview, 437 of the sample hospitals had ED's. 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 36,271.

Characteristics of the hospital, such as ownership and expected number of ED visits, were obtained from the hospital administrator during an induction interview. 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 the National Center for Health Statistics, Health Care Surveys Section, Research Triangle Park, North Carolina.

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 this report were approximated 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 (5). Exact standard error estimates were used in tests of significance in this report. Standard errors for all estimates are presented in each table. Standard errors for rates can be calculated using the relative standard errors (RSE) for the number of visits (i.e., multiply the rate by the RSE for the estimate of interest).

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 nonresponse 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 and/or 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 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.

Test of significance and rounding

The determination of statistical inference is based on the t-test. The Bonferroni inequality was used to establish the critical value for statistically significant differences (0.05 level of confidence). Terms relating to differences such as "higher than" indicate that the differences are 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.

Definition of terms

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

Hospital—All 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. Federal hospitals and hospital units of institutions and hospitals with fewer than six beds staffed for patient use are excluded.

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 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 patient visit in which 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.

Symbols

---	Data not available
...	Category not applicable
-	Quantity zero
0.0	Quantity more than zero but less than 0.05
Z	Quantity more than zero but less than 500 where numbers are rounded to thousands
*	Figure does not meet standard of reliability or precision (more than 30-percent relative standard error in numerator of percent or rate)

Suggested citation

McCaig LF. National Hospital Ambulatory Medical Care Survey: 1992 emergency department summary. Advance data from vital and health statistics; no 245. Hyattsville, Maryland: National Center for Health Statistics. 1994.

Copyright information

All material appearing in this report is in the public domain and may be reproduced or copied without permission; citation as to source, however, is appreciated.

National Center for Health Statistics

Director
Manning Feinleib, M.D., Dr. P.H.
Deputy Director
Jack R. Anderson

U.S. DEPARTMENT OF HEALTH AND
HUMAN SERVICES
Public Health Service
Centers for Disease Control and Prevention
National Center for Health Statistics
6525 Belcrest Road
Hyattsville, Maryland 20782

<p>BULK RATE POSTAGE & FEES PAID PHS/NCHS PERMIT NO. G-281</p>
--

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

To receive this publication regularly, contact the National Center for Health Statistics by calling 301-436-8500

DHHS Publication No. (PHS) 94-1250

Advance Data



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

Restricted Activity Days and Other Problems Associated With Use of Marijuana or Cocaine Among Persons 18–44 Years of Age: United States, 1991

by David W. Keer, M.A., Division of Health Interview Statistics, National Center for Health Statistics; James D. Colliver, Ph.D., Andrea N. Kopstein, M.P.H., Arthur L. Hughes, M.S., Division of Epidemiology and Prevention Research, National Institute on Drug Abuse; Joseph C. Gfroerer, Office of Applied Studies, Substance Abuse and Mental Health Services Administration; Stewart C. Rice, Jr., and Charlotte A. Schoenborn, M.P.H., Division of Health Interview Statistics, National Center for Health Statistics

Introduction

In 1991, the Division of Health Interview Statistics (DHIS), the National Center for Health Statistics (NCHS), fielded a Drug and Alcohol Use Survey (DAU) as part of the National Health Interview Survey (NHIS). The DHIS collaborated with the National Institute on Drug Abuse on the development of the survey. The Questionnaire Design Research Laboratory at NCHS assisted in the development of the questionnaire and review of data collection methods. The DAU questionnaire was self-administered and was a part of the NHIS data collection conducted by the U. S. Bureau of the Census. In conjunction with other parts of the NHIS questionnaire, the NHIS-DAU allows one to assess associations between use of marijuana and cocaine, problems related to use of the drugs, and various health status indicators.

The NHIS is a household survey of the civilian noninstitutionalized population of the United States. As with all special topic questionnaires that are

part of the NHIS, the DAU can be linked to general health data and other information obtained in the NHIS to allow extensive analyses. The NHIS data collection consists of two parts: a basic health and demographic questionnaire that remains the same each year and is completed for each household member and special topic questionnaires. The content of the special topic questionnaires varies from year to year, and these questionnaires are usually administered to a randomly sampled adult in each family. In 1991, in addition to the DAU, the special topics included hearing; Health Promotion and Disease Prevention (HPDP); AIDS-related knowledge, attitudes, and behaviors; and family income.

The DAU questionnaire was restricted to persons 18–44 years of age. Although the questions covered use of a range of illicit drugs and licit drugs subject to abuse, the greatest number of items pertained to marijuana and cocaine. For marijuana and cocaine, the questions covered the recency and

frequency of use and included items related to problems and drug-related behaviors associated with abuse and dependence. These latter items were developed to reflect discrete diagnostic criteria for cocaine and marijuana dependence and abuse as described in the *Diagnostic and Statistical Manual of Mental Disorders*, Third edition, Revised (DSM-III-R) (1). Separate sets of items on the questionnaire focused on marijuana- and cocaine-related problem and use behavior during the respondent's lifetime and during the year prior to the survey.

The primary goals of this Advance Data are to:

- briefly discuss the relationship between restricted activity days and use of cocaine and marijuana,
- present data on problems and drug-related behaviors associated with cocaine and marijuana dependence and abuse, and
- provide documentation of the methodology of the NHIS-DAU.

Restricted activity days, which are sometimes used as indicators of health



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



status, may also reflect a pattern of drug use. As noted earlier, the items that assess dependency and abuse were developed based upon clinical criteria provided in the DSM-III-R.

All tables presented in this report use standard NHIS age groupings to differentiate persons 18–44 years of age; however, the age categories are wide enough to allow some age effects within them, so that some of the differences between drug use categories may be confounded by age differences. Data are also shown separately for males and females. At the present time, these demographic groupings have proven the most statistically reliable for reporting results from the drug use questionnaire. Recency of use of marijuana and cocaine, whether “past year” or “lifetime” use, forms the basis of most tables in this report. The past year frame corresponds to the time reference period for many measures in the NHIS. For reasons discussed in the Technical notes, this Advance Data does not report overall prevalence of drug use.

Restricted activity days and marijuana and cocaine use

Initially, three measures of health status were considered for inclusion in the current report: perceived or self-perceived health status, limitation of major life activities, and restricted activity (RA) days. Early analyses (not shown here) indicate that, when controlling for age and sex, there are few, if any, statistically significant associations between use of marijuana or cocaine and self-perceived health status or limitations of activity, as measured in the NHIS basic health and demographic interview. The apparent lack of statistical significance seems intuitive given that the age group for the DAU, 18–44 years of age, has a low incidence of fair or poor health and limitations of activity.

In the analysis of associations between use of marijuana or cocaine and selected health status measures, respondents were grouped according to six categories of drug use:

1. Persons who had never used either drug.
2. Persons who had used marijuana during the past year but who had never used cocaine.
3. Persons who had used marijuana during the past year and had used cocaine at some point prior to the past year (lifetime use).
4. Persons who had used both marijuana and cocaine during the past year.
5. Persons who had used marijuana at some point prior to the past year (lifetime use), but had not used marijuana during the past year and had never used cocaine.
6. Persons who had used both marijuana and cocaine at some point prior to the past year (lifetime use), but had not used either drug during the past year.

The groupings were designed to include all possible combinations of marijuana and cocaine use. Numbers for persons who had used cocaine but had never used marijuana are not shown in this report because so few persons were in this group.

The question used to determine recency of use of marijuana or cocaine asked:

When was the most recent time that you used (*marijuana/cocaine*)?

- A. Within the past week (7 days).
- B. More than 1 week but less than 1 month (30 days) ago.
- C. One or more months ago but less than 1 year ago.
- D. One or more years ago.
- E. I HAVE NEVER used (*marijuana/cocaine*), not even once.

Three types of RA days are included in the measure reported in table 1: work-loss days for currently employed persons, bed days, and cut-down days. A work-loss day is one on which a currently employed person 18–44 years of age missed more than half a day from a job or business because of illness or injury. A bed day is one during which a person stayed in bed more than half a day because of illness or injury. A cut-down day is a day on which a person cut down for more than half a day on the things he or she usually does.

The measures of RA days were obtained from a series of questions asked of the household respondent during the NHIS basic interview. In the NHIS, RA days are measured for the 2-week period that immediately preceded the interview week. The questions and data edits are designed to account for overlap among the types of RA days and to specify that the RA days of interest are those that occur “because of illness or injury”; the RA days are included whether caused by acute or chronic illness. It is important to note that it is assumed that the respondent can identify and report only those RA days that arose because of illness or injury.

Table 1 shows the percent of persons 18–44 years of age with one or more RA days during the 2 weeks prior to the household interview, by marijuana and cocaine use, age, and sex. Figure 1 illustrates differences in the percent of persons with RA days by marijuana and cocaine use. Generally, discussion of RA days is more difficult than discussion of yearly estimates because the NHIS measures RA days that occurred in the 2-week period preceding the interview week. In the current case, however, the comparison is of the differences between users or nonusers of marijuana or cocaine. If the 2-week estimate were converted to an annual figure, any conversion factors would affect all classes equally and would not change the underlying relationships between different groups of drug users.

RA days are less likely to be reported for a person who had never used cocaine or marijuana or had used marijuana at some point but had never used cocaine. Put another way, among persons 18–44 years of age, use of cocaine—whether during the year prior to the interview or in the more distant past—is associated with a greater likelihood of having RA days. The differences are statistically significant, occur across most groupings by drug use and age, and are seen for both men and women. Not shown are data indicating that the patterns are the same whether respondents are white or black. Because of sample size, the number of respondents who were black and reported any past year use of marijuana

Table 1. Percent (and standard error) of persons 18–44 years of age with one or more restricted activity days during the 2 weeks prior to the household interview, by marijuana and cocaine use, age, and sex: United States, 1991

Age and sex	Marijuana and cocaine use ¹					
	Never used marijuana or cocaine	Used within past year			Lifetime use but not past year	
		Marijuana only, never used cocaine	Marijuana only, prior cocaine use	Marijuana and cocaine	Marijuana only	Marijuana and cocaine
Age						
18–44 years	8.7 (0.3)	10.5 (1.1)	14.7 (1.3)	16.2 (2.6)	10.2 (0.5)	13.6 (1.1)
18–24 years	8.2 (0.6)	10.0 (1.7)	14.3 (3.1)	17.0 (4.6)	10.3 (1.4)	18.2 (4.1)
25–34 years	7.9 (0.5)	10.1 (1.8)	13.2 (1.8)	15.9 (2.9)	9.4 (0.6)	12.6 (1.3)
35–44 years	9.7 (0.5)	12.8 (2.8)	18.2 (3.3)	*15.5 (6.8)	11.0 (0.8)	14.0 (1.7)
Sex						
Male, 18–44 years	6.9 (0.4)	9.5 (1.3)	13.2 (1.7)	15.8 (3.0)	8.2 (0.7)	11.7 (1.4)
18–24 years	6.3 (0.8)	7.3 (1.7)	*11.1 (3.5)	*17.0 (5.9)	8.8 (1.9)	19.8 (5.8)
25–34 years	6.3 (0.7)	9.9 (2.3)	11.8 (2.1)	15.1 (3.6)	6.8 (0.8)	9.7 (1.6)
35–44 years	7.9 (0.8)	13.8 (3.6)	17.3 (4.2)	*16.1 (9.1)	9.3 (1.2)	12.7 (2.2)
Female, 18–44 years	10.1 (0.4)	11.9 (1.9)	17.7 (2.7)	17.2 (3.7)	12.3 (0.6)	16.2 (1.6)
18–24 years	9.9 (1.0)	13.2 (2.8)	*19.8 (6.2)	*17.2 (7.1)	11.7 (1.8)	*16.8 (5.1)
25–34 years	9.2 (0.6)	10.4 (2.4)	16.0 (3.4)	18.7 (5.2)	11.8 (0.8)	16.0 (2.0)
35–44 years	11.0 (0.7)	*10.7 (4.3)	*20.3 (6.9)	*13.8 (6.1)	13.2 (1.2)	16.3 (2.3)

NOTE: All standard errors are shown in parentheses.

¹Very few respondents who reported using cocaine said that they had never used marijuana. For that reason, no figures are shown for "cocaine only" use.

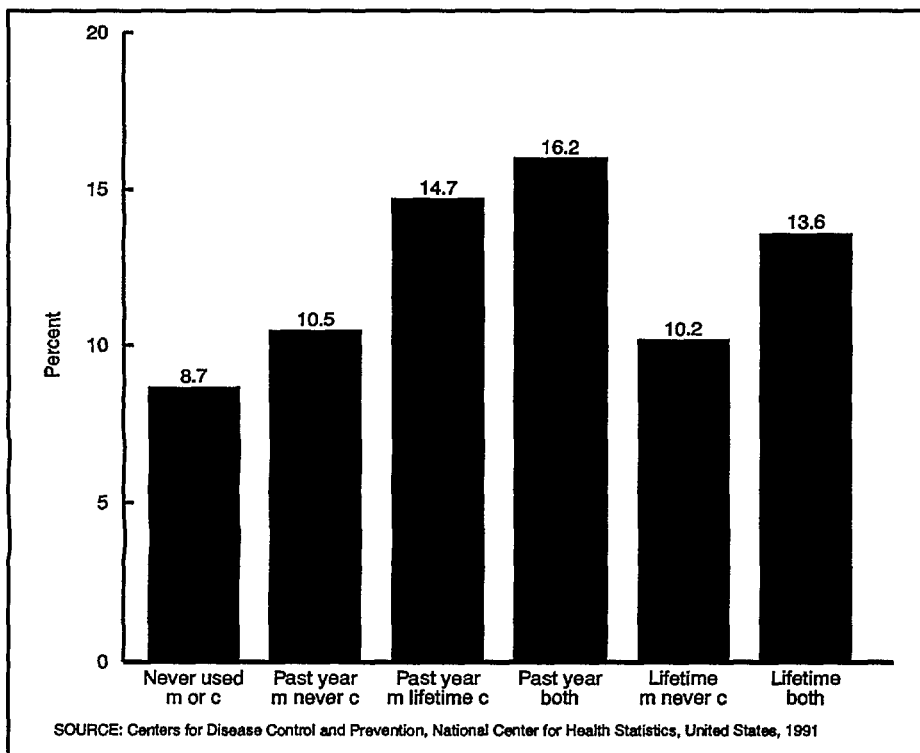


Figure 1. Percent of persons 18–44 years of age with one or more restricted activity days in past 2 weeks, by use of marijuana (m) and cocaine (c): United States, 1991

or cocaine was too small to allow reliable analysis; for that reason, the data are not shown in table 1.

Depending upon the recency of cocaine use, 13.6 to 16.2 percent of all persons ages 18–44 who had used cocaine had one or more RA days

during the 2 weeks prior to the household interview. Of people who had never used cocaine, the estimates of those with one or more RA days ranged from 8.7 to 10.5 percent, depending upon whether or not the person had used marijuana at some point.

As table 1 indicates, the positive association between RA days and use of cocaine is consistent for both men and women 18–44 years of age. Among men 18–44 who had used cocaine, the range having RA days during the 2-week period was 11.7 to 15.8 percent, while among women who had used cocaine, the range was 16.2 to 17.7 percent. For men who had never used cocaine, 6.9 to 9.5 percent had RA days and for women who had never used cocaine, RA days were reported for 10.1 to 12.3 percent.

It is found, then, that 18–44 year olds who use, or used, cocaine, have significantly more RA days related to illness and injury. However, it is noteworthy that the DAU was administered *only* to persons ages 18–44, a group less likely than older persons to be in fair or poor health or to have activity limitations. As the current report suggests, the relationship between RA days and drug use warrants further study and might be analyzed in the context of other health-related activities and specific health conditions.

Behaviors associated with marijuana use

Persons who had used marijuana during the 12 months prior to the survey were asked 19 questions regarding problems or marijuana-related behaviors

they might have experienced in the same time period as a result of using the drug. The items were selected to reflect components of abuse and dependence based on DSM-III-R diagnostic criteria. This section includes data only for persons reporting past year marijuana use. The data for individual items discussed here excludes 10.4 to 11.0 percent of persons because of item nonresponse; see the Technical notes for further information.

Table 2 shows the prevalence of reported problems and marijuana-related

behaviors among past year users. The data are displayed by sex and three age groupings (18–24, 25–34, and 35–44). The problem questions include no information on frequency of occurrences. Therefore, a positive response could mean as few as one occurrence during the year prior to the interview.

Overall, 20.0 percent of past year marijuana users reported using marijuana more often than planned. There was not much difference by sex, but 18–24-year-old users were more

likely than users in the two older age groups to respond positively to this question.

A large percent (26.7) of past year marijuana users responded positively to the item on being high on at least one occasion while at home caring for their family. A greater proportion of men (29.3 percent) responded positively to this item as compared with women (22.0 percent). Past year users 25 and older were more likely than the youngest age group to report this problem behavior; 34.3 percent of those

Table 2. Percent (and standard error) of past year marijuana users 18–44 years of age reporting behaviors associated with marijuana use, by sex and age: United States, 1991

Problems associated with marijuana use experienced in the past year	Total	Sex		Age		
		Male	Female	18–24 years	25–34 years	35–44 years
Percent (SE) of past year marijuana users responding yes ¹						
During the past 12 months, have you—						
Ended up using marijuana more often than you thought you would?	20.0 (1.1)	20.6 (1.4)	19.0 (1.8)	25.7 (2.1)	19.1 (1.6)	12.3 (1.8)
Tried to cut down or stop using marijuana but found that you couldn't?	6.7 (0.7)	7.4 (0.9)	5.5 (1.0)	5.9 (0.9)	8.4 (1.2)	4.5 (1.2)
Used marijuana every day for 2 weeks or more? . . .	21.0 (1.1)	24.0 (1.5)	15.5 (1.7)	19.5 (1.7)	22.9 (1.8)	19.4 (2.2)
Been high on marijuana while you were at work or at school?	21.6 (1.1)	25.8 (1.5)	13.9 (1.5)	25.1 (2.1)	21.2 (1.6)	16.6 (2.1)
Been high on marijuana while you were at home taking care of your home or family?	26.7 (1.2)	29.3 (1.5)	22.0 (1.7)	19.0 (1.8)	29.4 (1.8)	34.3 (2.7)
Skipped going to work or school because you were high on marijuana?	3.8 (0.5)	5.1 (0.7)	1.5 (0.4)	6.2 (1.1)	3.4 (0.7)	*0.7 (0.4)
Had problems with work, school, or with the police because of using marijuana?	4.0 (0.6)	5.3 (0.9)	*1.5 (0.5)	5.8 (1.3)	3.6 (0.8)	*1.5 (0.7)
Continued to use marijuana even when you knew it was causing you problems with work, school, or with the police?	3.7 (0.5)	4.7 (0.8)	2.0 (0.5)	4.8 (1.1)	3.8 (0.7)	*1.8 (0.8)
Failed to take care of your home or family because you were high on marijuana?	2.6 (0.5)	3.1 (0.6)	*1.7 (0.8)	*3.4 (1.1)	2.6 (0.7)	*1.3 (0.6)
Had problems with your family or friends because of using marijuana?	4.9 (0.7)	6.1 (0.9)	2.6 (0.7)	6.7 (1.3)	4.6 (0.9)	*2.4 (0.9)
Continued to use marijuana even when you knew it was causing you problems with your family or friends?	4.8 (0.6)	6.1 (0.9)	2.4 (0.6)	5.7 (1.1)	5.0 (0.9)	*3.0 (0.9)
Driven a car or other vehicle within 3 hours after using marijuana?	45.9 (1.3)	51.0 (1.7)	36.4 (2.0)	41.9 (2.3)	48.5 (1.9)	47.0 (3.1)
Spent less time on activities that used to be important to you—like playing sports, hobbies, or other interests—so that you could use marijuana?	7.8 (0.8)	8.9 (1.1)	5.7 (0.9)	9.2 (1.4)	7.9 (1.2)	4.9 (1.2)
Felt depressed, anxious, or uninterested in things because of using marijuana?	10.4 (0.9)	11.4 (1.2)	8.5 (1.1)	11.5 (1.4)	11.3 (1.3)	6.6 (1.3)
Continued to use marijuana even though you knew it made you feel depressed, anxious, or uninterested in things?	8.9 (0.8)	10.0 (1.1)	7.0 (1.0)	8.8 (1.3)	10.6 (1.3)	5.5 (1.2)
Built up a tolerance to marijuana so that the same amount of marijuana had less effect than before? . .	16.2 (1.1)	18.3 (1.5)	12.4 (1.5)	18.8 (1.9)	17.1 (1.6)	9.9 (1.8)
Felt sick or irritable because you stopped or cut down on your marijuana use?	5.8 (0.7)	6.4 (1.0)	4.7 (0.9)	6.2 (1.2)	6.6 (1.1)	3.6 (1.0)
Used alcohol or drugs because you felt sick or irritable when you stopped or cut down on your marijuana use?	5.0 (0.7)	6.0 (1.0)	3.1 (0.8)	5.7 (1.2)	5.2 (1.0)	*3.3 (1.1)
Gone to self-help group, counselor, doctor, or other professional to get help because of your marijuana use?	2.4 (0.4)	2.5 (0.5)	2.1 (0.5)	*2.1 (0.7)	2.7 (0.6)	*2.0 (0.8)

NOTE: All standard errors are shown in parentheses.

¹Percentages calculated excluding unknowns; see Technical notes.

users 35–44 years of age and 29.4 percent of those 25–34 years of age responded positively compared with 19.0 percent of those 18–24 years of age.

Overall, 16.2 percent of past year marijuana users reported that they had built up a tolerance to the drug so that the same amount of marijuana had less effect than before. This problem was more likely among male past year users (18.3 percent for males versus 12.4 percent of the female users). This problem was also more likely to occur among users who were 18–34 years of age as compared with the oldest users.

One statistic from the survey was the percent of past year marijuana users that reported driving at least once in the past year within 3 hours of smoking marijuana. Overall, 45.9 percent of the past year users reported driving under the influence of this drug. Males were much more likely than females to report this problem behavior (51.0 percent of male users compared with 36.4 percent of female users).

Approximately one-fifth of past year marijuana users reported being high on marijuana while at school or while at work. Males were about twice as likely as their female counterparts (25.8 compared with 13.9 percent) to report this problem behavior. Users between the ages of 18–24 were more likely than users in the oldest age group to report being high on marijuana at school or work.

A large proportion of past year users reported frequent use of the drug. Overall, 21.0 percent of past year users reported using marijuana every day for 2 weeks or more in the past year. Although frequent use did not differ much by age, a greater proportion of males (24.0 percent) as compared with females (15.5 percent) reported this behavior.

Figure 2 illustrates reporting of selected behaviors by all past year users. Figure 3 shows the percent of past year marijuana users reporting selected problems by sex. Figure 4 shows the percent of past year marijuana users reporting selected problems by age.

Behaviors associated with cocaine use

Persons who had used cocaine during the 12 months prior to the survey

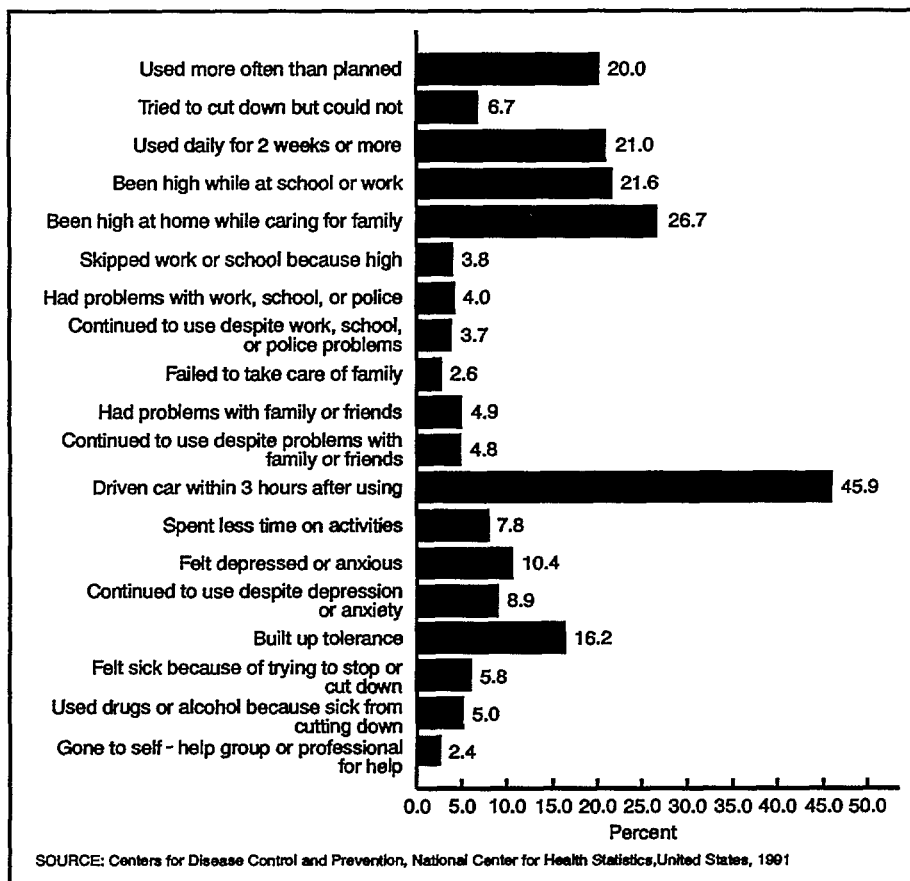


Figure 2. Percent of past year marijuana users reporting selected behaviors in the past year: United States, 1991

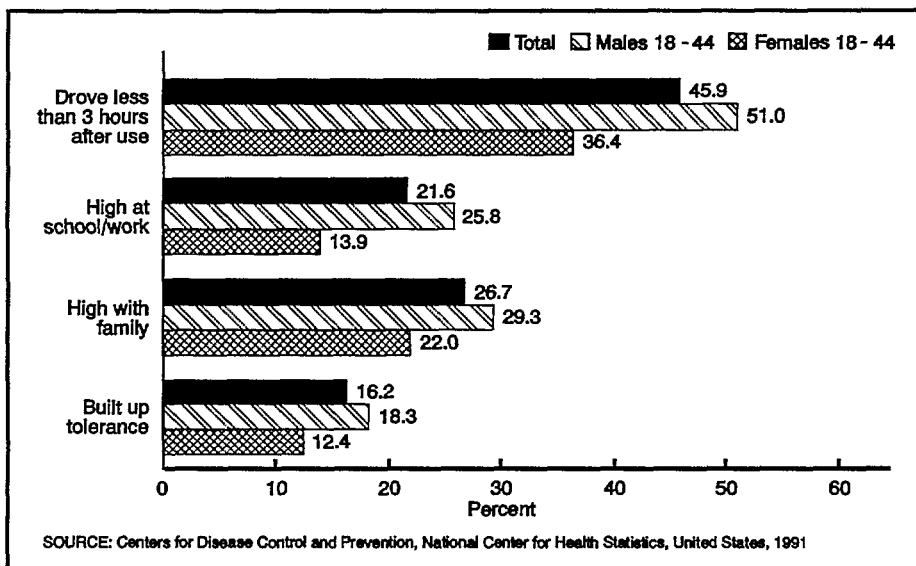


Figure 3. Percent of past year marijuana users reporting selected problems in past year, by sex: United States, 1991

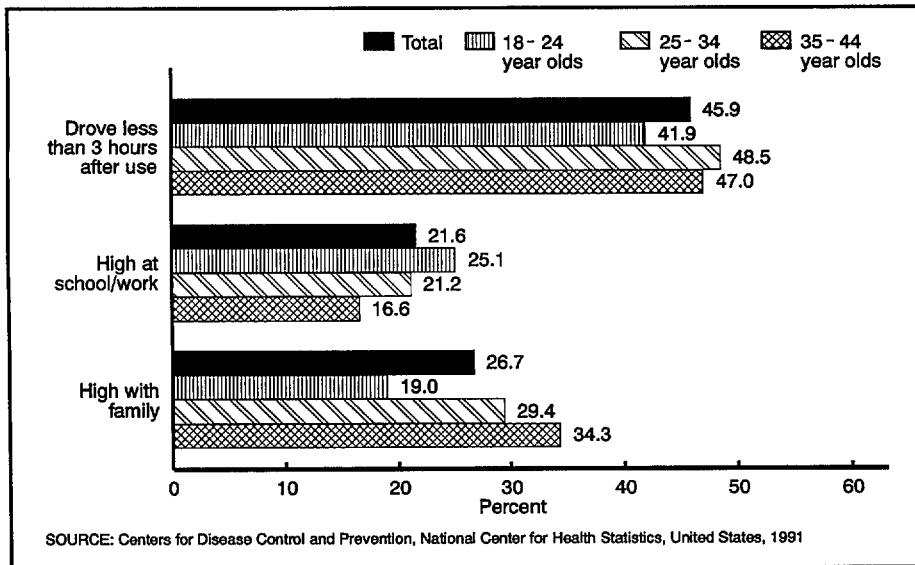


Figure 4. Percent of past year marijuana users reporting selected problems in past year, by age: United States, 1991

were asked 21 questions regarding problems or cocaine-related behaviors they might have experienced in the same time period as a result of using the drug. The items were selected to reflect components of abuse and dependence based on DSM-III-R diagnostic criteria. Figure 5 and table 3 show the estimated percentage reporting cocaine-related problems or behaviors in the overall user population and according to sex and age. The data for individual items discussed here excludes 13.3 to 14.5 percent of persons because of item nonresponse; see the Technical notes for further information.

One-quarter (26.7 percent) of past year cocaine users said that, in the past year, they had used the drug more often than they had planned. Around one-half as many (13.4 percent) had tried to cut down or stop using cocaine but found they could not.

Driving a car, at least once in the past year, within an hour after using cocaine was reported by 43.5 percent of past year users. Male users were more likely than female users (49.2 percent versus 29.1 percent, respectively) to have driven after using cocaine.

More than one-sixth (17.9 percent) of cocaine users said they had been high on the drug at school or work. Males were more likely than females (20.8 versus 10.5 percent, respectively) to have been high in these settings. Skipping school or work because of

being high on cocaine or experiencing its aftereffects was acknowledged by 10.7 percent of users, and 9.1 percent said they had experienced problems with school, work, or the police because of using cocaine.

Over one-sixth (17.2 percent) of the past year cocaine users said they had been high on the drug while at home caring for their family, and 10.0 percent had at least one occasion on which they failed to take care of their home or family because they were high on cocaine or feeling its aftereffects. Problems with family or friends because of cocaine use were reported by 16.4 percent of users, and 14.8 percent had continued to take the drug despite these problems with family or friends.

One-fifth (20.4 percent) of cocaine users said the drug had made them feel depressed, anxious, uninterested in things, or suspicious or distrustful of people. This percent was higher for persons 25–34 years of age than for those 18–24 years of age (23.2 versus 13.9 percent, respectively). Continued use of cocaine despite these emotional effects was reported by 16.1 percent. One-eighth (13.2 percent) said their use of cocaine had caused them to spend less time on activities that used to be

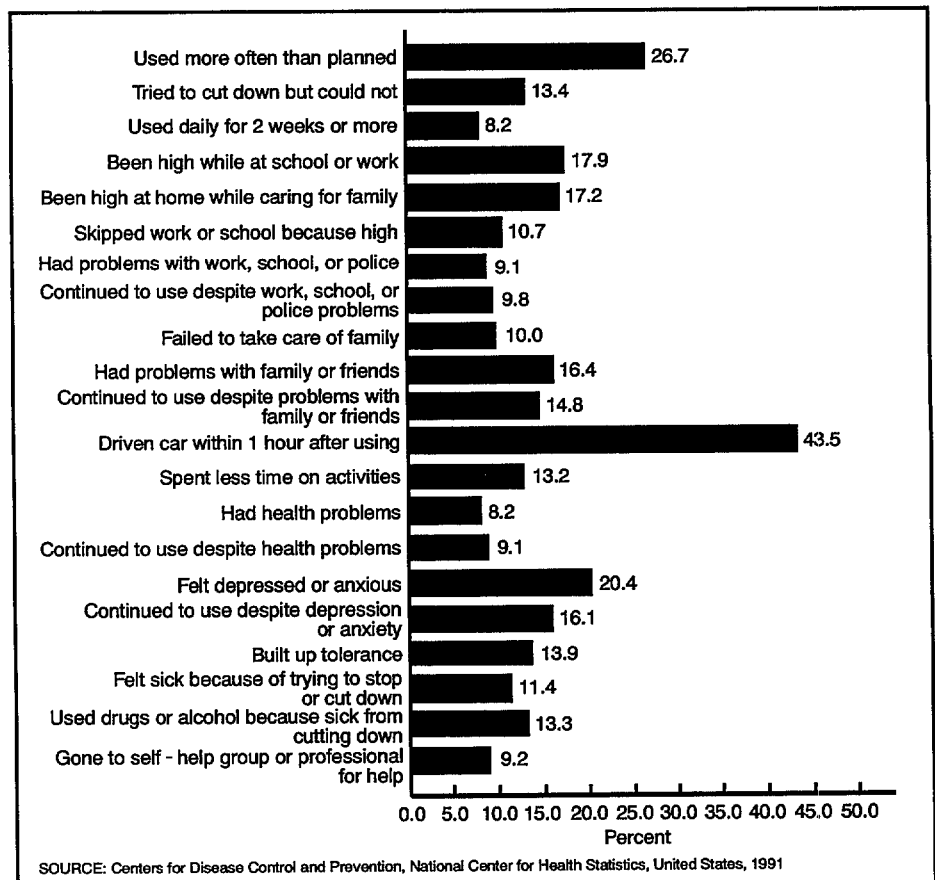


Figure 5. Percent of past year cocaine users reporting selected behaviors in the past year: United States, 1991

Table 3. Percent (and standard error) of past year cocaine users 18–44 years of age reporting behaviors associated with cocaine use, by sex and age: United States, 1991

Problems associated with cocaine use experienced in the past year	Total	Sex		Age		
		Male	Female	18–24 years	25–34 years	35–44 years
Percent (SE) of past year cocaine users responding yes ¹						
During the past 12 months, have you—						
Ended up using cocaine more often than you thought you would?	26.7 (2.7)	27.9 (3.3)	23.7 (3.6)	25.8 (5.0)	27.8 (3.6)	25.4 (4.8)
Tried to cut down or stop using cocaine but found that you couldn't?	13.4 (2.0)	14.7 (2.5)	10.2 (2.5)	*9.0 (2.8)	13.5 (3.0)	19.0 (4.3)
Used cocaine every day for 2 weeks or more?	8.2 (1.5)	9.4 (1.8)	*5.0 (1.8)	*8.4 (2.6)	*6.0 (2.1)	*12.9 (4.2)
Been high on cocaine or feeling its after effects while you were at work or at school?	17.9 (2.1)	20.8 (2.7)	10.5 (2.6)	11.5 (3.1)	19.3 (2.9)	22.9 (5.8)
Been high on cocaine or feeling its aftereffects while you were at home taking care of your home or family?	17.2 (2.2)	18.8 (2.7)	13.2 (3.3)	10.1 (2.9)	19.1 (3.3)	21.9 (5.1)
Skipped going to work or school because you were high on cocaine or feeling its aftereffects?	10.7 (1.6)	11.9 (2.0)	*7.7 (2.4)	10.7 (2.9)	10.2 (2.4)	*11.9 (4.2)
Had problems with work, school, or with the police because of using cocaine?	9.1 (1.5)	11.4 (2.1)	*3.4 (1.5)	*6.0 (2.3)	10.9 (2.6)	*9.0 (4.1)
Continued to use cocaine even when you knew it was causing you problems with work, school, or with the police?	9.8 (1.7)	11.1 (2.1)	*6.6 (2.2)	*7.8 (2.5)	10.4 (3.0)	*11.1 (4.0)
Failed to take care of your home or family because you were high on cocaine or feeling its aftereffects?	10.0 (1.8)	10.8 (2.2)	7.9 (2.3)	*7.5 (2.5)	10.5 (2.8)	*12.1 (4.2)
Had problems with your family or friends because of using cocaine?	16.4 (2.0)	17.5 (2.4)	13.5 (3.0)	12.7 (3.2)	18.4 (3.1)	16.5 (4.8)
Continued to use cocaine even when you knew it was causing you problems with your family or friends?	14.8 (1.9)	16.2 (2.4)	11.1 (2.6)	*8.4 (2.6)	18.7 (3.1)	*13.9 (4.5)
Driven a car or other vehicle within 1 hour after using cocaine?	43.5 (2.8)	49.2 (3.4)	29.1 (4.2)	39.7 (6.1)	46.7 (4.0)	40.9 (6.0)
Spent less time on activities that used to be important to you—like playing sports, hobbies, or other interests—so that you could use cocaine?	13.2 (2.0)	14.3 (2.5)	10.3 (2.5)	*10.0 (3.0)	13.6 (2.9)	16.4 (4.2)
Had health problems caused by using cocaine?	8.2 (1.6)	9.0 (2.0)	*6.0 (2.0)	*3.2 (1.7)	8.8 (2.5)	*13.2 (4.1)
Continued to use cocaine even when you knew it was causing you health problems?	9.1 (1.6)	10.2 (2.1)	*6.4 (2.1)	*3.5 (1.7)	10.7 (2.5)	*12.6 (4.1)
Felt depressed, anxious, uninterested in things, or suspicious or distrustful of people because of using cocaine?	20.4 (2.3)	22.2 (2.9)	16.0 (3.1)	13.9 (3.4)	23.2 (3.2)	22.5 (6.6)
Continued to use cocaine even though you knew it made you feel depressed, anxious, or uninterested in things, or suspicious or distrustful of people?	16.1 (2.1)	18.0 (2.7)	11.4 (2.7)	11.8 (3.1)	17.8 (3.1)	17.9 (5.2)
Built up a tolerance to cocaine so that the same amount of cocaine had less effect than before?	13.9 (2.0)	15.6 (2.5)	9.6 (2.5)	12.5 (3.5)	13.3 (2.5)	17.1 (4.7)
Felt sick or irritable because you stopped or cut down on your cocaine use?	11.4 (1.8)	13.0 (2.3)	7.3 (2.2)	9.2 (2.8)	11.9 (2.9)	*13.2 (4.3)
Used alcohol or drugs because you felt sick or irritable when you stopped or cut down on your cocaine use?	13.3 (1.9)	13.5 (2.3)	12.9 (2.8)	10.6 (3.1)	16.5 (3.0)	*9.4 (3.2)
Gone to self-help group, counselor, doctor, or other professional to get help because of your cocaine use?	9.2 (1.5)	10.5 (1.9)	*6.1 (2.0)	*5.3 (2.1)	11.3 (2.6)	*9.6 (3.8)

NOTE: All standard errors are shown in parentheses.
¹Percentages calculated excluding unknowns; see Technical notes.

important to them, such as playing sports, hobbies, or other interests.

During the year prior to the interview, 8.2 percent of the cocaine users had experienced health problems that they attributed to the drug.

One cocaine user in 12 (8.2 percent) had used the drug daily for 2 weeks or longer in the past year. One-seventh (13.9 percent) said that they had “built up a tolerance for cocaine so that the same amount of cocaine had less effect

than before.” One in nine (11.4 percent) acknowledged having felt sick or irritable because of stopping or reducing cocaine use, and 13.3 percent had used alcohol or drugs to relieve this sickness or irritability. Nine percent had gone to a self-help group, counselor, doctor, or other professional to get help because of their cocaine use.

References

1. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 3d ed, revised. Washington: American Psychiatric Association. 1987.
2. Massey JT, Moore TF, Parsons VL, Tadros W. Design and estimation for the National Health Interview Survey, 1985–94. National Center for Health Statistics. Vital Health Stat 2(110). 1989.

3. Shah BV, Barnwell BG, Hunt PN, LaVange LM. SUDAAN User's Manual, Release 5.50. Research Triangle Park, North Carolina: Research Triangle Institute. 1991.
4. Shah BV. SESUDAAN: Standard Errors Program for Computing of Standardized Rates from Sample Survey Data. Research Triangle Park, North Carolina: Research Triangle Institute. 1981.
5. Adams PF, Benson V. Current estimates from the National Health Interview Survey, 1991. National Center for Health Statistics. Vital and Health Stat 10(184). 1992.

Technical notes

General information

The estimates presented in this report are based on the National Health Interview Survey (NHIS), an ongoing survey of households in the United States, conducted by the National Center for Health Statistics. Each week, a probability sample of the civilian noninstitutionalized population of the United States is surveyed for the NHIS by interviewers employed by the U.S. Bureau of the Census. Interviewers obtain information about the health and other characteristics of each member of the households in the NHIS sample.

The NHIS has been conducted continuously since 1957. The sample design of the survey has undergone changes following each census. This periodic redesign of the NHIS sample allows the incorporation of the latest population information from the most recent Decennial Census and permits the alignment of the sample design with changes in survey objectives. The data presented in this report were collected based on the NHIS sample design implemented in 1985. A detailed description of the sample design is contained in the publication entitled *Design and Estimation for the National Health Interview Survey, 1985-94* (2).

The 1991 NHIS sample encompassed completed interviews for the basic health questionnaire of 46,761 households and 120,032 persons. The NHIS Drug and Alcohol Use (DAU) questionnaire was completed by 21,174 persons 18-44 years of age. The sample for the DAU was a subset of the sample selected for the 1991 NHIS special topic questionnaire on Health Promotion and Disease Prevention (HPDP). Within each NHIS sample household, one adult 18 years of age or over was randomly selected to be interviewed for several special topic questionnaires, including the HPDP and the DAU. If the sample person was 18-44 years of age, he or she was given the DAU to complete; no proxy responses were allowed. If the sample person was older than 44 years of age, information on drug and alcohol use was not obtained in that household. If the sample person ages 18-44 was

not at home at the time the basic NHIS was administered, the interviewer attempted a return visit so that the sample person could complete the DAU. No telephone followup was permitted for the DAU. In certain circumstances, such as when language or literacy were problems or when the respondent requested that the questions be read, the Bureau of the Census interviewer could read the questions to the respondent.

Response rates

The overall response rate for the 1991 NHIS-DAU was 75.7 percent. The response rate for NHIS sample households was 95.7 percent; among persons identified in the household interview as being eligible for the DAU questionnaire, the response rate was 79.1 percent. The overall response rate is estimated as a product of these two rates (95.7 percent x 79.1 percent = 75.7 percent). Because sociodemographic characteristics of sample persons in nonresponding households are unknown, discussion of response rates for subgroups is limited to rates for those identified as eligible for the DAU questionnaire.

Response rates were noticeably higher for women (82.9 percent) than for men (74.5 percent) and somewhat higher for white persons (79.7 percent) than for black persons (76.9 percent). In terms of the age groups discussed in this report, response rates were about the same for persons 18-24 years (79.5 percent) and persons 25-34 years (80.0 percent); rates were somewhat lower for persons 35-44 years of age (77.9 percent). These response rates are lower than most NHIS special topic surveys. This may be due to the sensitive nature of the questions, or more likely, to the respondent rule that all followup contacts had to be made in person; no telephone followup was permitted as is typical for most NHIS special topic surveys. The relatively low response rate for the DAU may have been a factor in the overall reported drug use if heavy users were less likely to complete the questionnaire than were light users or nonusers.

Comparison to other national data on drug use

The primary purpose of the NHIS-DAU was to collect data to study

relationships between drug use and the various health status indicators provided by the NHIS. Although the DAU was not intended to provide estimates of the prevalence of drug use, such estimates can be produced from the data.

Comparisons to estimates from the National Household Survey on Drug Abuse (NHSDA), the Federal Government's ongoing primary source of drug use data, indicate that the NHIS-DAU generally found lower rates of use than the NHSDA. In interpreting prevalence estimates (and also analyses of the relationship between drug use and health status) from the NHIS-DAU, it is important to recognize the different estimates and to understand the methodological differences between the two surveys that may have caused some of the differences.

Both surveys cover the civilian noninstitutionalized population in the United States, but the NHIS included only 18-44-year-olds, while the NHSDA includes all persons age 12 and older. Because illicit drug use is highly correlated with age, any comparison between the two surveys must control for age, for example, by restricting NHSDA estimates to 18-44-year-olds. The 1991 NHSDA estimate of past year marijuana use among 18-44-year-olds was 15.2 percent compared with 9.3 percent from the NHIS. Past year cocaine prevalence was 5.1 percent from the NHSDA and 2.1 percent from the NHIS.

Even controlling for age, however, there are a number of methodological differences between the two surveys that could explain the inconsistent estimates. Research has shown that drug use prevalence estimates are highly sensitive to the data collection and estimation methods used (for example, mode of administration, privacy during interview, editing, and imputation) so different results could be expected. The following are the major methodological differences between the two surveys:

1. The NHIS was conducted January-December 1991 while the NHSDA was conducted January-June.
2. The questionnaires were different, not only in the wording of the drug

use questions but also in terms of the context. The NHIS-DAU is administered at the end of a comprehensive interview on health-related issues while the NHSDA questionnaire primarily focuses on various aspects of substance use and abuse. Although both surveys employed self-administered answer sheets for drug use questions, the NHIS-DAU was the only self-administered portion of the entire interview while the NHSDA included a series of nearly 20 separate self-administered answer sheets.

3. The fieldwork in the surveys was conducted by different organizations—NHIS by the Census Bureau and NHSDA by Research Triangle Institute.
4. Response rates for sample persons were different in the two studies—83.6 percent for 18–44-year-olds in the NHSDA and 79.1 percent for the NHIS-DAU. Household response rates were 96.5 percent in the NHSDA and 95.7 percent in the NHIS-DAU.
5. Editing, imputation, and nonresponse adjustment procedures were different in the two surveys.

Missing and unknown data

The DAU was self-administered and did not list “don’t know” as a valid response to any question. As a result, in the final data set, one cannot distinguish between missing responses and “don’t know” responses. For that reason, in this report, observations for which tabulation variables are unknown or missing are excluded from the calculations of percentages. For analyses related to the health status variables, fewer than 5 percent of cases had such values in any of the relevant data fields. Item nonresponse appears evenly distributed across the demographic groups shown in the tables related to health status variables. Much of the item nonresponse appears to reflect errors in completion of the questionnaire; for example, individuals who had denied use of marijuana simply skipped over the questions related to cocaine use.

For the questions related to problems associated with drug use, data on the percent of persons experiencing problems excludes persons who failed to respond to the pertinent questions despite having reported use of the pertinent drug. Exclusion of these observations makes the tacit assumption that the persons who failed to respond to the items would have answered them in a manner similar to those who responded. For items on past year marijuana-related problems, 10.4 to 11.0 percent of users did not respond and nonresponse for cocaine-related problems items ranged from 13.3 to 14.5 percent. Nonresponse on these items was largely accounted for by respondents who skipped blocks of questions. Nonresponse was reasonably similar for males and females and across age categories but differed by race. Black respondents were less likely than white respondents to complete all relevant questionnaire items. Disaggregations by race were not shown in the tables because the reduced sample sizes for black respondents for specific items increased the standard errors and may have increased the potential bias of the estimates for persons in that category. The overall estimates and estimates by sex and age may have some potential nonresponse bias, including possible bias resulting from the differential nonresponse across race categories.

Precision of the estimates

When producing estimates from any sample survey, two types of errors are possible—nonsampling error and sampling error. Nonsampling errors result from difficulties in the interpretation of the questionnaire, inability to recall information, reluctance to answer particular questions, coding errors, computer processing errors, and other errors. Nonsampling errors are reduced through use of improved questionnaires, data editing, and periodic retraining of interviewers.

The sampling error of an estimate is the error caused by the selection of a sample instead of a complete enumeration. The standard error and relative standard error are the primary

measures of sampling error in sample surveys. The relative standard error, which is the standard error divided by the value of the estimate itself and expressed as a percent, is used as a criterion of precision. In this report, estimates that have a relative standard error of 30 percent or greater are shown with an asterisk (*) indicating that those estimates do not meet the DHIS standard of precision or reliability. Tables in this report include the standard errors.

Because of the complex design of the NHIS sample, SUDAAN (3) and SESUDAAN (4), computer programs for computing standard errors of rates (or percents) from complex samples were utilized.

Tests of significance

In this report, statistical inference is based on the two-sided test of hypothesis ($H_0: P_1 = P_2$ versus $H_1: P_1 \neq P_2$) with a critical value of 1.96 (0.05 level of significance). Terms such as “higher” and “less” indicate that differences are statistically significant. Terms such as “similar” or “no difference” mean that no statistically significant difference exists between the estimates being compared. A lack of comment on the differences between any two estimates does not necessarily mean that the difference was tested and found not to be significant. In calculating the test statistics, the standard errors of the differences take into account the correlation between the categories being compared. To illustrate, the test statistic used to determine statistical significance was calculated as:

$$z = \frac{(p_1 - p_2)}{SE(p_1 - p_2)}$$

where p_1 and p_2 are the two percents being compared and

$$SE(p_1 - p_2) =$$

$$\sqrt{SE(p_1)^2 + SE(p_2)^2 - \rho \cdot SE(p_1) \cdot SE(p_2)}$$

is the standard error of the difference between p_1 and p_2 with ρ defined as the correlation between p_1 and p_2 . The terms $SE(p_1)$ and $SE(p_2)$ are the standard error of p_1 and p_2 , respectively. In this report, the difference between the two

estimates is said to be statistically significant if z is either greater than 1.96 or less than -1.96 . Note that since $SE(p_1 - p_2)$ takes into account the correlation between the two estimates, calculations of test statistics based simply on the standard errors as shown in the tables of this report (i.e., ignoring the term $\rho \bullet SE(p_1) \bullet SE(p_2)$ in the expression for $SE(p_1 - p_2)$) may not yield the same conclusions regarding statistical significance as those reflected in the discussion. In fact, if this correlation is positive, then the test will always be conservative. That is, results of the revised tests may not reject the null hypothesis ($H_0: P_1 = P_2$) as often as they should.

A difference that is statistically significant does not necessarily correspond to a large or important difference. What it does imply is that one can conclude (with a small chance of being incorrect) that if a census was conducted, the estimates p_1 and p_2 would not be the same. A difference that is not statistically significant may have resulted from random fluctuations in the estimates due to selecting a sample instead of a census. Nonsampling errors such as response and nonresponse errors may also affect the outcome of significance tests.

Related documentation

More detailed discussion of the sample design of the NHIS, estimating procedures, procedures for estimating standard errors, nonsampling errors, and definitions of other sociodemographic terms used in this report has been published in Series 10 of *Vital and Health Statistics* (5).

A public use data file based on the 1991 DAU was released in May 1993. Information regarding its purchase may be obtained by writing to the Division of Health Interview Statistics, National Center for Health Statistics, 6525 Belcrest Road, Hyattsville, Maryland 20782.

Symbols

---	Data not available
...	Category not applicable
—	Quantity zero
0.0	Quantity more than zero but less than 0.05
Z	Quantity more than zero but less than 500 where numbers are rounded to thousands
*	Figure does not meet standard of reliability or precision (more than 30-percent relative standard error in numerator of percent or rate)

Suggested citation

Keer DW, Colliver JD, Kopstein AN, et al. Restricted activity days and other problems associated with use of marijuana or cocaine among persons 18–44 years of age: United States, 1991. Advance data from vital and health statistics; no 246. Hyattsville, Maryland: National Center for Health Statistics. 1994.

Copyright Information

All material appearing in this report is in the public domain and may be reproduced or copied without permission; citation as to source, however, is appreciated.

National Center for Health Statistics

Director
Manning Feinleib, M.D., Dr. P.H.
Deputy Director
Jack R. Anderson

U.S. DEPARTMENT OF HEALTH AND
HUMAN SERVICES
Public Health Service
Centers for Disease Control and Prevention
National Center for Health Statistics
6525 Belcrest Road
Hyattsville, Maryland 20782

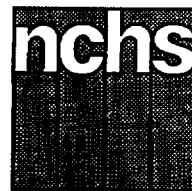
BULK RATE POSTAGE & FEES PAID PHS/NCHS PERMIT NO. G-281
--

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

To receive this publication regularly, contact
the National Center for Health Statistics by
calling 301-436-8500

DHHS Publication No. (PHS) 94-1250

Advance Data



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

Characteristics of Elderly Home Health Patients: Preliminary Data From the 1992 National Home and Hospice Care Survey

by Esther Hing, Division of Health Care Statistics

Introduction

Provision of formal home health services has increased dramatically in the last 30 years, due in large part to increased public funding of home health services through the Medicare and Medicaid programs (1). In 1991, for example, 65 of every 1,000 Medicare enrollees received home health services compared with 16 of every 1,000 Medicare enrollees in 1974 (2,3). Growth in the home health industry has also occurred as the introduction of Medicare's Prospective Payment System for hospitals resulted in the need for more post-acute care in the community (1,4). Home health agencies provide many therapies to assist early discharge from a hospital, including physical therapy, postburn and postsurgical therapy, decubitus treatment, pulmonary therapy, and occupational therapy (4). New opportunities for care in the home have also been created as medical technology has been adapted from the hospital to the home setting. Parenteral therapies (including parenteral nutrition, chemotherapy, antibiotic therapy, anticoagulation infusions, and transfusion of blood and blood products), oxygen therapy, and home dialysis are some of the services previously provided only in acute care

hospitals that are now provided by home health agencies (4).

This report presents findings on home health service utilization by the elderly regardless of agency certification by Medicare or Medicaid, and regardless of patient funding source. The data presented are preliminary estimates from the 1992 National Home and Hospice Care Survey, the first annual survey of hospices, home health agencies, and their respective patients. The National Center for Health Statistics (NCHS) instituted this nationwide sample survey in response to the rapid growth in the number of these agencies in the United States (5). The 1,500 agencies included in the survey were selected from a universe of 8,036 agencies classified by the 1991 National Provider Inventory (NHPI) (6) as agencies providing home health or hospice care. Also included in the universe was a sample of potentially new agencies identified between November 1991 (when the 1991 NHPI was completed) and June 1992. Detailed information on sample design, selection methods, data collection procedures, and sampling errors is included in the Technical notes.

Estimates in this report are based on the two patient samples (current patients on the agency's rolls as of the night

before the survey and discharges [alive and dead] during the last 12 months). Data were collected by interviewing knowledgeable staff members, who referred to the patient's medical records. Although the survey included patients from hospices and home health agencies, data presented in this report are based only on home health patients aged 65 years and over, that is, based on responses from 3,654 discharges and 3,897 current patients. Estimates for this report are preliminary. Further editing of the data may produce estimates slightly different from the estimates shown here.

Current patient characteristics

On any given day during the survey period in 1992, there were 929,500 elderly home health patients, who represented 3 out of 4 of the 1.2 million patients served by home health agencies (7). These patients were predominantly female (66 percent), of white race (70 percent), non-Hispanic (69 percent), widowed (44 percent), or married (35 percent) (table 1). Most of these patients (71 percent) were served by home health agencies located in a Metropolitan Statistical Area (MSA) (table 1). An MSA is an urban area defined by the U.S. Office of Management and Budget on the basis of



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service
Centers for Disease Control and Prevention
National Center for Health Statistics



Table 1. Number and percent distribution of elderly home health patients by demographic characteristics: United States, 1992

<i>Demographic characteristics</i>	<i>Number</i>	<i>Percent distribution</i>
Total 65 years of age	929,500	100.0
Age		
65-74 years	300,000	32.3
75-84 years	415,400	44.7
85 years and over	214,100	23.0
Sex		
Male	280,100	30.1
Female	649,400	69.9
Race		
White	651,400	70.1
Black and other	113,200	12.2
Black	105,800	11.4
Unknown	164,900	17.7
Hispanic Origin		
Hispanic	29,800	3.2
Non-Hispanic	641,900	69.1
Unknown	257,800	27.7
Current marital status		
Married	324,500	34.9
Widowed	406,600	43.7
Divorced/separated	30,200	3.2
Never married	40,500	4.4
Unknown	127,700	13.7
Living quarters		
Private or semiprivate residence:		
Private residence	866,400	93.2
Rented room/board	9,200	1.0
Retirement home	20,100	2.2
Board and care/residential care facility	24,900	2.7
Health facility	4,700	0.5
Other or unknown	*	*
Location		
MSA	658,100	70.8
Non-MSA	271,400	29.2
Census region		
Northeast	287,000	30.9
Midwest	197,900	21.3
South	323,700	34.8
West	121,000	13.0

the 1980 census (8). There was also regional variation in the distribution of home health patients; a larger proportion of home health patients were in the South and Northeast census regions (35 and 31 percent) than in the Midwest or West regions (13 and 21 percent). The regional distribution of patients partially reflects the distributions of home health agencies; according to the 1991 NHPI, 39 percent of home health agencies were located in the South, while 29 percent

were in the Midwest, 19 percent were in the Northeast, and 14 percent were in the West (6).

Most of these patients had been served on a continuing basis; 58 percent had been in the program for more than 90 days (table 2). The average length of service (up to the day of the survey) was 322.4 days. The length of service distribution was skewed, however, since the median length of service since admission was 124 days.

Table 2. Number of elderly home health patients, percent distribution by length of service since admission, mean and median length of service since admission: United States, 1992

<i>Length of service since admission</i>	<i>Current patients in 1992</i>
Total, 65 years of age and over	929,500
Percent distribution	
All lengths of service	100.0
Under 15 days	6.3
15-30 days	11.0
31-60 days	15.9
61-90 days	9.2
91 days or more	57.5
Mean (in days)	322.4
Median (in days)	124.0

As shown in table 1, nearly all current patients (96 percent) were living in a private or semiprivate residence (retirement home, rented room, or boarding home) or some other noninstitutional residential setting (3 percent) while receiving home health services. An estimated 4,700 current patients, however, received home health services while in a hospital, nursing home, or other health facility. Because home health services are primarily used by the noninstitutionalized population, the rates presented in table 3 exclude patients who received home health services in a health care facility.

In 1992, on any given day during the survey period, 30 of every 1,000 civilian noninstitutionalized population aged 65 years and over received home health care (table 3). Use of home health services by the civilian noninstitutionalized population increased with age; home health use increased from 16 per 1,000 population aged 65-74 years to 82 per 1,000 population aged 85 years and over. Elderly women used home health services more often than elderly men. Home health use among elderly women was 67 percent higher than that for elderly men (36 per 1,000 elderly women compared with 22 per 1,000 elderly men). As shown in table 3, home health use varied by location and region. The number of home health patients per 1,000 population in areas outside urban MSA's (34 per 1,000 population aged 65 years and over) was higher than inside MSA's (29 per 1,000 population

Table 3. Civilian noninstitutionalized population 65 years of age and over, and number of current home health patients per 1,000 population 65 years of age and over by age, sex, location, and region: United States, 1992

<i>Population characteristic</i>	<i>1992 civilian non-institutionalized population aged 65 years and over in thousands</i>	<i>Number of 1992 current home health patients per 1,000 population aged 65 years of age and over¹</i>
Total 65 years of age and over	30,792	30.3
<i>Age</i>		
65-74 years	18,470	16.2
75-84 years	9,698	42.8
85 years and over	2,624	81.6
<i>Sex</i>		
Male	12,892	21.7
Female	17,899	36.3
<i>Location</i>		
MSA	22,890	28.8
Non-MSA	7,901	34.4
<i>Census region</i>		
Northeast	6,822	42.1
Midwest	7,490	26.4
South	10,613	30.5
West	5,868	20.6

¹Numerator excludes home health patients who received care in a health facility.

Table 4. Number and percent of elderly home health patients by functional status in the activities of daily living and instrumental activities of daily living, and continence: United States, 1992

<i>Functional status</i>	<i>Current patients</i>
Total 65 years of age and over	929,500
Percent	100.0
<i>Received personal help with the following activities of ADL</i>	
Bathing or showering	56.3
Dressing	49.1
Eating	13.4
Transferring in or out of beds or chair	36.4
Using the toilet room	27.4
<i>Continence status</i>	
Difficulty controlling bladder	13.1
Difficulty controlling bowels	21.3
Had ostomy, indwelling catheter, or similar device	12.7
Received personal help in caring for this device	11.2
<i>Received personal help with the following IADL</i>	
Doing light housework	37.6
Managing money	3.1
Shopping for groceries or clothes	14.9
Using the telephone (dialing or receiving calls)	4.6
Preparing meals	24.9
Taking medications	26.5
<i>Personal help with ADL'S and IADL'S</i>	
None	28.6
Help with IADL's only	10.9
Help with one ADL	7.6
Help with two ADL's	16.1
Help with three ADL's	13.4
Help with four ADL's	14.8
Help with five ADL's	8.7

aged 65 years and over). Home health use was also higher in the Northeast (42 per 1,000 population aged 65 years and over) than in the remaining regions (20-30 per 1,000 population).

In this report health status refers to the patient's functional status (personal help with the activities of daily living, personal help with the instrumental activities of daily living, and continence status) and primary (or first-listed) diagnosis at the time of admission. The activities of daily living (ADL's) are basic activities that reflect an individual's capacity for self-care such as bathing, dressing, using the toilet room, transferring in and out of a bed or chair, and eating. For current patients, ADL assistance refers to help received by home health staff at the time of the survey. The most frequent ADL that elderly current patients received help with was bathing (56 percent), followed by dressing (49 percent), transferring in or out of a bed or chair (37 percent), using the toilet room (27 percent), and eating (13 percent) (table 4). As expected, the proportions of elderly home health patients requiring personal assistance are much higher than found among the noninstitutionalized elderly population. For example, according to data from the 1987 National Medical Expenditures Survey (NMES), 7 percent of noninstitutionalized elderly bathed with personal assistance, 4 percent dressed with personal assistance, and 3 percent transferred out of a bed or chair with personal assistance (9).

In addition to assistance with ADL's, 13 percent of current patients had difficulty controlling bladder function. Eleven percent of current patients had an ostomy, indwelling catheter, or similar device, and 10 percent received help from home health staff in caring for this device.

The instrumental activities of daily living (IADL's) are complex tasks that enable an individual to live independently in the community. The IADL's are more complex than the ADL's since some IADL's such as shopping for groceries involve cognitive and physical functioning, whereas transferring in or out of a bed or chair involves only physical functioning. The IADL's used in this report are doing

light housework, preparing meals, taking medications, shopping for groceries or clothes, using the telephone, and managing money. In this report IADL assistance refers to help received by home health staff at the time of survey. In 1992 the most frequent IADL that elderly current patients received help with was doing light housework (38 percent), followed by taking medications (27 percent), preparing meals (25 percent), shopping for groceries or clothes (16 percent), using the telephone (4 percent), and managing money (4 percent). Home health patients were also more dependent in performing these activities than the noninstitutionalized elderly; according to the 1987 NMES, 6 percent of noninstitutionalized elderly did light housework with personal assistance, 5 percent prepared meals with personal assistance, and 4 percent shopped with personal assistance (9).

Nearly three-fourths of elderly home health patients received help with either an ADL or IADL (73 percent), and 61 percent of current patients received help with at least one ADL. Only 12 percent of current patients

received assistance with only IADL's. These findings indicate the high degree of functional dependence of elderly home health patients compared to most noninstitutionalized elderly persons. Data from the 1987 National Medical Expenditures Survey found that 20 percent of the noninstitutionalized elderly had difficulty with at least one ADL or IADL, 11 percent had difficulty with at least one ADL, and 8 percent had difficulty with only IADL's (9). In 1987, 15 percent of persons with difficulty in basic life (ADL or IADL) activities received formal home care service (10).

Another indicator of elderly home health patients' health status is their primary diagnosis at admission (table 5). Diagnostic information was collected from agency staff, who referred to patient medical records; this information was then coded according to the *International Classification of Diseases, Clinical Modifications, Ninth Revision (ICD-9-CM)*(11). As shown in table 5, elderly home health patients were admitted with a variety of chronic and acute primary diagnoses. The most frequent primary diagnosis was heart

disease (15 percent), followed by diabetes mellitus (8 percent), arthropathies and related disorders (7 percent), cerebrovascular disease (6 percent), malignant neoplasms (6 percent), essential hypertension (5 percent), fractures, all sites (4 percent), and chronic obstructive pulmonary disease (4 percent). These diagnoses accounted for 55 percent of all first-listed diagnoses at admission.

Table 6 presents services received by home health current patients during the last billing period. Although the billing period for current patients showed considerable variation, the most frequent billing period covered one month. In 1992, 4 out of 5 elderly home health patients received skilled nursing services (80 percent), while half (50 percent) received personal care services during the last billing period. Physical therapy (16 percent), homemaker and/or companion services (11 percent), social services (10 percent), medications (7 percent), and occupational and/or vocational therapy (4 percent) were received less frequently.

It should be noted that data on ADL and IADL assistance (table 4) differ from the percent of patients receiving personal care (generally ADL activities) and homemaker and/or companion services (generally IADL activities) in table 6 because of temporal and reporting differences. Personal help from agency staff in performing ADL and IADL activities was reported by agency staff for the time of the survey. In contrast, data on services received were usually obtained from billing records for the last billing period.

In 1992, Medicare was the predominant funding source for home health care; 71 percent of elderly patients relied on Medicare as their primary payment source (table 6). To be eligible for Medicare home health benefits, a beneficiary must be homebound, be under the care of a physician who establishes a home health care plan, and need at least one of the following: *intermittent* skilled nursing care, physical therapy, speech therapy, or continuing occupational therapy. The beneficiary must receive medically reasonable, necessary care from a

Table 5. Number and percent distribution of elderly home health patients by primary diagnosis at admission: United States, 1992

ICD-9-CM diagnostic category and code	Current patients in 1992
Total 65 years of age and over	929,500
Percent distribution	100.0
Infectious and parasitic diseases001-139	0.8
Neoplasms140-239	5.9
Malignant neoplasms140-208,230-234	5.6
Endocrine, nutritional and metabolic diseases and immunity disorders240-279	9.9
Diabetes mellitus250	7.9
Diseases of the blood and blood-forming organs280-289	3.5
Mental disorders290-319	1.8
Diseases of the nervous system and sense organs320-389	4.8
Diseases of the circulatory system390-319	30.2
Essential hypertension401	4.6
Heart disease391-392,0,393-398,402, 404,410-416,420-429	15.4
Cerebrovascular disease430-436	6.4
Diseases of the respiratory system460-519	7.2
Chronic obstructive pulmonary disease490-496	3.6
Diseases of the digestive system520-579	3.5
Diseases of the genitourinary system580-629	2.1
Diseases of the skin and subcutaneous tissue680-709	4.1
Skin ulcers707	2.9
Diseases of the musculoskeletal system and connective tissue710-739	10.4
Arthropathies and related disorders710-719	6.8
Congenital anomalies740-759	*
Symptoms, signs, and ill-defined conditions780-799	4.9
Injury and poisonings800-999	7.7
Fractures, all sites800-829	4.3
Supplementary classification or unknown	3.0

Table 6. Number of elderly home health patients and percent by services received and primary source of payment last billing period: United States, 1992

Services received and primary source of payment last billing period	Current patients in 1992
Total 65 years of age and over	929,500
Percent distribution	100.0
Services received last billing period	
Skilled nursing services	80.2
Personal care	49.6
Social services	9.6
Counseling	2.6
Medications	7.9
Physical therapy	15.9
Homemaker/companion service	11.4
Referral services	2.5
Dietary and nutritional service	2.1
Physician services	2.1
High tech care	0.8
Occupational therapy/ vocational therapy	3.7
Speech therapy/audiology	1.5
Primary source of payment last billing period	
Private insurance	3.3
Own income	3.0
Medicare	71.7
Medicaid	10.1
Other government assistance or welfare	4.5
Other payment sources or unknown	7.5

Medicare-certified home health agency. These restrictions have limited use of Medicare home health services for *chronic* skilled nursing care (12). Such restrictions do not apply to home health services funded by Medicaid or other government programs. In 1992, 10 percent of elderly patients relied on Medicaid for primary payment, while 5 percent relied on other government assistance or welfare. Medicaid is a joint Federal-State medical assistance program for persons who qualify for welfare and to some of the “medically needy” (those who would be on welfare if their incomes were a little lower). The State-set criteria for Medicaid eligibility vary from State to State but cover most poor people in the United States. Other government programs that pay for home health services include State and local governments, the Older Americans Act (Title III), and Title XX Social Service Block Grants.

Although the number of long-term care policies issued in the last few years have increased (13), only 3 percent of

home health patients relied on private insurance as their primary payment source. Three percent of current patients relied on their own income or family income for payment.

Discharged patient characteristics

During 1991–92 there were an estimated 3.1 million discharges from home health agencies (7). Discharges represent discharge events, that is, the number of times patients completed an episode of care and were removed from the home health agency’s rolls during the 12 months preceding the survey. Discharges are not the same as discharged patients, since a patient could be included more than once if that individual had more than one episode of care during the year. The extent of multiple episodes of care by a single individual in the discharge sample is unknown. The annual number of discharges from home health agencies indicates that the volume of services provided by these agencies is extensive. As was found among current patients, nearly three-fourths (74 percent) of home health discharges were aged 65 years and over.

One of the advantages of looking at discharges compared with current patients is that information is available on the completed episode of care, including the reasons for discharge from the home health agency. A discharge may be due either to an improvement or stabilization of the condition causing admission, or due to a worsening of the condition, leading to transfer to a hospital, nursing home, or death. In 1991–92, 92 percent of elderly discharge patients were alive at discharge. The fatality rate among home health agencies is the percent of discharges released from the agency’s roster due to death. In 1991–92, the fatality rate among discharges aged 65 years and over was 8 percent (figure 1). Fifty-three percent of home health discharges were released from care because the patient recovered (14 percent) or stabilized (39 percent), while 20 percent were discharged because their condition worsened such that hospitalization or transfer to a nursing home was necessary.

The distribution of length of service for discharges with completed episodes of care indicates that the majority of discharges had shorter episodes of care than current patients. The average length of service for discharges was 95 days;

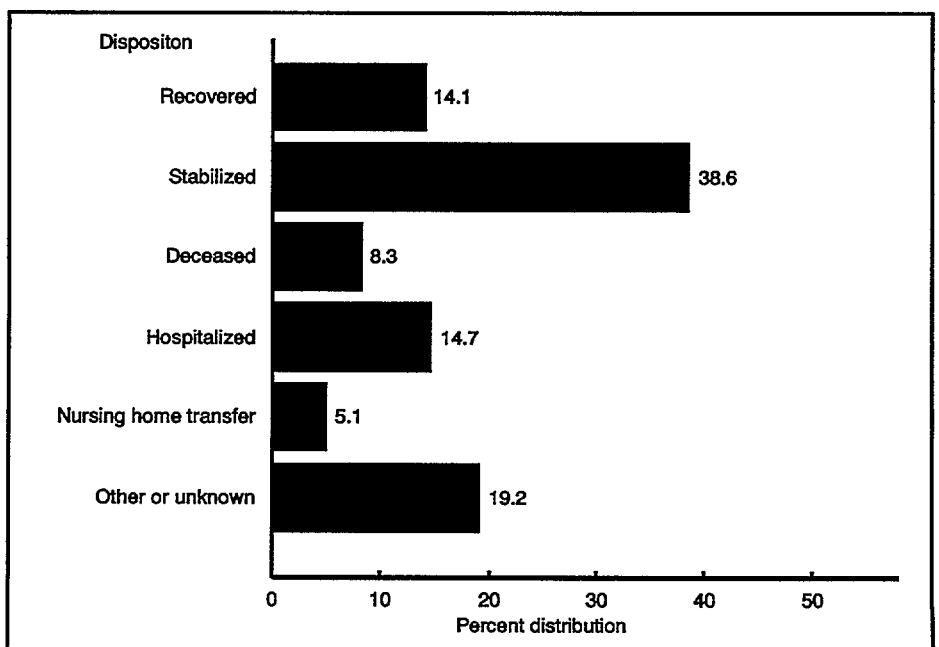


Figure 1. Disposition of elderly home health discharges: United States, 1991–92

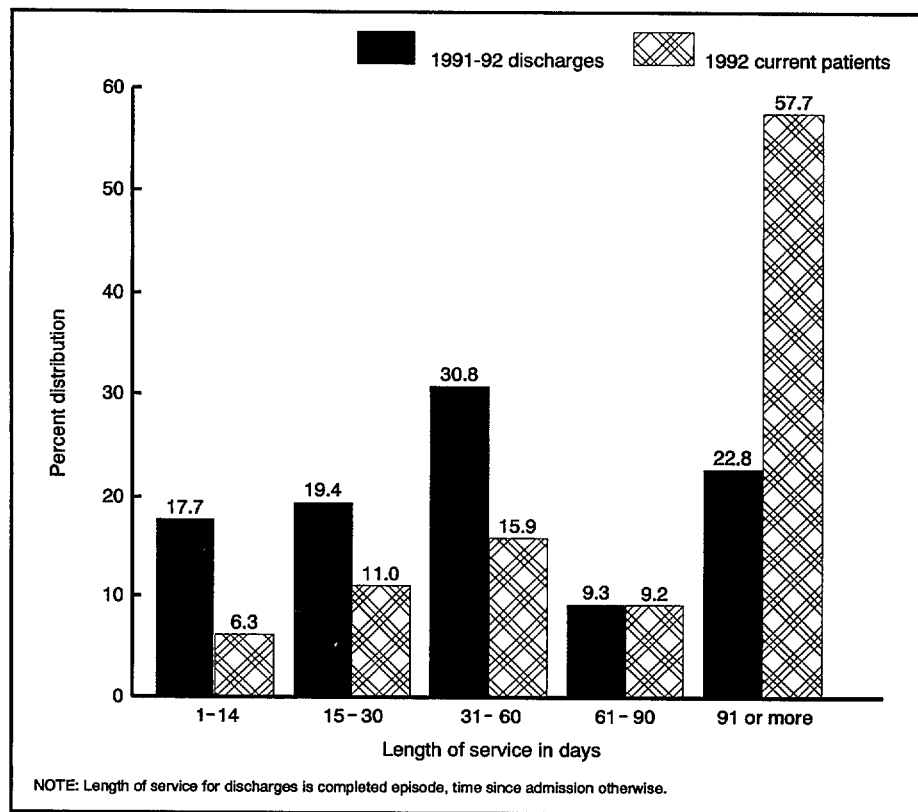


Figure 2. Length of service for elderly home health discharges and current patients: United States, 1991-92

the median length of service was 42 days. In contrast, the average length of service since admission for current patients was 322 days with a median stay of 124 days. As illustrated in figure 2 discharges were more likely to have short episodes of care lasting 60 days or less (68 percent) than current patients (33 percent). Conversely, current patients were more likely to have episodes of care lasting more than 90 days (58 percent) than elderly discharges were (23 percent). This difference is due, in large part, to survey methodology; patients with short episodes of care are more likely to be in the discharge sample than in the current patient (one day) sample (14).

Despite the differences in length of service, home health discharges were similar to current patients in age, sex, location, and regional distributions (table 7). Discharges differed from current patients, however, in health status and services received last billing period.

As measured by help received in performing the ADL's and IADL's, discharges patients appeared to be in

better health than current patients. Overall, 62 percent of discharges received help with either ADL or IADL activities at discharge or just before discharge (table 8), compared with 71 percent of current patients at the time of the interview. A lower proportion of discharges than current patients received help with bathing or showering (46 percent compared with 56 percent) and with dressing (39 percent compared with 49 percent). Similarly, a smaller percentage of discharges received help in doing light housework (26 percent), preparing meals (18 percent), and shopping for groceries or clothes (8 percent) than current patients did.

There were differences in the ranking of primary admitting diagnoses for discharges compared with current patients. The most frequent admitting diagnoses for discharges were: heart disease (18 percent), malignant neoplasms (9 percent), fractures, all sites (8 percent), cerebrovascular disease (7 percent), diabetes mellitus (6 percent), arthropathies and related disorders (5 percent), chronic obstructive pulmonary disease (5 percent), and

essential hypertension (4 percent) (table 9). While heart disease was the most frequent admitting diagnosis for current and discharged patients, the second- and third-ranked admitting diagnoses for discharges were conditions likely to have required post-acute care (malignant neoplasms and fractures, all sites), while the comparably ranked diagnoses for current patients (diabetes mellitus and arthropathies and related disorders) were more chronic in nature. Home health services received by discharges also reflect a greater use of post-acute services than home health services for chronic conditions (table 10). A larger proportion of discharges received skilled nursing services (86 percent) and physical therapy (26 percent) than current patients (80 and 16 percent). Current patients, on the other hand, were more likely to have received personal care (50 percent), and homemaker and/or companion services (11 percent) than discharges (39 and 5 percent).

Similar to current patients, the primary source of payment for home health discharges was third-party payors, principally Medicare. In 1991-92 the most frequent primary source of payment for discharges was Medicare (83 percent), followed by private insurance (5 percent), and Medicaid (4 percent) (table 10). The percent relying on Medicare for primary payment was higher among discharges than current patients, while current patients were more likely to rely on Medicaid as the primary funding source than discharges were.

Conclusions

A previous study found that 15 percent of the population with difficulty in basic life activities received formal home care services (10). The findings of this report indicate the role home health agencies play in providing care to the population at risk of needing long-term care in 1992. Home health agencies provide not only long-term maintenance care, but also skilled rehabilitative and therapeutic services (4). Many of the findings of this report reflect the major role Medicare plays in funding home health care. Starting in

Table 7. Number and percent distribution of elderly discharges from home health agencies by demographic characteristics: United States, 1991–92

<i>Demographic characteristics</i>	<i>Number</i>	<i>Percent distribution</i>
Total, aged 65 years and over	2,274,500	100.0
<i>Age</i>		
65–74 years	762,700	33.5
75–84 years	1,041,400	45.8
85 years and over	470,400	20.7
<i>Sex</i>		
Male	770,000	33.9
Female	1,504,500	66.1
<i>Race</i>		
White	1,614,500	71.0
Black and other	201,200	8.8
Black	173,800	7.6
Unknown	458,800	20.2
<i>Hispanic origin</i>		
Hispanic	106,000	4.7
Non-Hispanic	1,416,800	62.3
Unknown	751,700	33.1
<i>Marital status at discharge</i>		
Married	858,300	37.7
Widowed	905,300	39.8
Divorced/separated	82,600	3.6
Never married	83,600	3.7
Unknown	344,700	15.2
<i>Living quarters</i>		
Private or semiprivate residence:		
Private residence	2,133,400	93.8
Rented room/boarded house	*	*
Retirement home	40,900	1.8
Board and care/residential care facility	45,900	2.0
Health facility	22,300	1.0
Other or unknown	*	*
<i>Location</i>		
MSA	1,771,800	77.9
Non-MSA	502,700	22.1
<i>Census region</i>		
Northeast	708,200	31.1
Midwest	425,400	18.7
South	673,600	29.6
West	467,300	20.5

1965, when Title XVII (Medicare) of the Social Security Act was enacted, Medicare coverage of home health services has been limited to post-acute care focusing on recuperative care rather than long-term maintenance care. Medicare was the primary source of payment for 83 percent of elderly discharges during 1991–92 and for 71 percent of elderly current patients in 1992.

This report has found that home health agencies provide primarily skilled rehabilitative and therapeutic services, or “medically oriented” home care. In 1987, national expenditures for medically oriented home health care were estimated to be 5 billion dollars according to the National Health Accounts (15), while another study, the 1987 National Medical Expenditures Survey (NMES) estimated annual

expenditures for home health care, including care paid to homemakers and personal care providers, to be 11.6 billion dollars (16). This implies that medically oriented home health care represents less than half of formal home health services rendered to the long-term care population.

Home health care is the fastest growing segment of the health care system. In 1991 expenditures for home health care were 29 percent higher than in 1990 (15). Due to the rising cost of long-term care, many legislative proposals have been considered to control these costs. Findings from the National Home and Hospice Care Survey can be used to monitor changes in utilization of home health services as the range of services provided and the types of patients cared for change.

References

1. Applebaum R, Phillips P. Assuring the quality of in-home care: The “other” challenge for long-term care. *Gerontologist* 30(4):444–50. 1990.
2. Silverman HA. Use of Medicare-covered home health agency services, 1988. *Health Care Financing Rev* 12(2):113–126. 1990.
3. Health Care Financing Administration. 1993 data compendium: Health Care Financing Administration. Baltimore, Maryland. 1993.
4. Keenan JM, Fanale JE. Home care: Past and present, problems and potential. *J Am Geriatr Soc* 37:1076–83. 1989.
5. Institute of Medicine. *Toward a National Health Care Survey, a data system for the 21st century*. Washington: National Academy Press. 1992.
6. Delfosse R. Hospice and home health agency characteristics: 1991 National Health Provider Inventory. National Center for Health Statistics. *Vital Health Stat*. In preparation.
7. Strahan GW. Overview of home health and hospice care patients: Preliminary data from the 1992 National Home and Hospice Care Survey. Advance data from vital and health statistics; no 235. Hyattsville, Maryland: National Center for Health Statistics. 1992.
8. Federal Register. January 3, 1980 (part 6).

Table 8. Number and percent of elderly home health discharges by functional status in the activities of daily living and instrumental activities of daily living, and continence: United States, 1991–92

<i>Functional status</i>	<i>Discharges from home health agencies in 1991–92</i>
Total 65 years of age and over	2,274,500
Percent	100.0
Received personal help with the following ADL	
Bathing or showering	45.9
Dressing	39.3
Eating.	12.2
Transferring in or out of beds or chair	32.9
Using the toilet room	24.8
Continence status	
Difficulty controlling bladder	14.8
Difficulty controlling bowels.	15.0
Had ostomy, indwelling catheter, or similar device.	10.9
Received personal help in caring for this device	8.4
Received personal help with the following IADL	
Doing light housework.	26.0
Managing money.	1.5
Shopping for groceries or clothes.	8.2
Using the telephone (dialing or receiving calls)	*
Preparing meals	17.6
Taking medications.	25.4
Personal help with ADL'S and IADL'S	
None	37.9
Help with IADL's only	8.3
Help with one ADL.	5.9
Help with two ADL's	15.5
Help with three ADL's	10.1
Help with four ADL's.	13.5
Help with five ADL's	8.9

9. Leon J, Lair T. Functional status of the noninstitutionalized elderly: Estimates of ADL and IADL difficulties. National Medical Expenditures Survey Research Findings 4. Agency for Health Care Policy and Research. Rockville, Maryland: Public Health Service. 1990.
10. LaPlante MP, Miller KS. People with disabilities in basic life activities in the U.S. Disability statistics abstract number 3. National Institute on Disability and Rehabilitation Research. U.S. Department of Education. 1992.
11. Public Health Service and Health Care Financing Administration. International Classification of Diseases, 9th Revision, clinical modification. Washington: Public Health Service. 1980.
12. Bishop C, Skwara KC. Recent growth of Medicare home health. Health Affairs. 96–103. 1993.

13. Health Insurance Association of America. Highlights from the 1989 Long-Term Care Survey. Unpublished data presented at the annual Private Long-Term Care Insurance Conference. Orlando, Florida: 1990.
14. Keeler E, Kane R, Solomon D. Short- and long-term residents in nursing homes. Med Care 19:363–9. 1981.
15. Letsch SW, Lazenby HC, Levit KR, Cowan CA. National health expenditures, 1991. Health Care Financing Rev 14(2):1–30. 1992.
16. Altman BM, Walden DC. Home health care: Use, expenditures, and sources of payment. National Medical Expenditures Survey Research Findings 15. Agency for Health Care Policy and Research. Rockville, Maryland: Public Health Service. 1993.

17. National Center for Health Statistics. Development and maintenance of a national inventory of hospitals and institutions. National Center for Health Statistics. Vital Health Stat 1(3). 1965.
18. Massey JT, Moore TF, Parsons VL, Tadros W. Design and estimation for the National Health Interview Survey, 1985–94. National Center for Health Statistics. Vital Health Stat 2(110). 1989.
19. Hoffman K. Specifications for selecting NHHCS sample home health agencies and hospices. Unpublished memo. 1992.
20. Shah BV, Barnwell BG, Hunt PN, La Vange LM. SUDAAN user's manual, release 5.50. Research Triangle Park, North Carolina: Research Triangle Institute. 1991.

Symbols

- Data not available
- ... Category not applicable
- Quantity zero
- 0.0 Quantity more than zero but less than 0.05
- Z Quantity more than zero but less than 500 where numbers are rounded to thousands
- * Figure does not meet standard of reliability or precision (more than 30-percent relative standard error in numerator of percent or rate)

Table 9. Number of elderly home health discharges, and percent distribution by primary diagnosis at admission: United States, 1992

<i>ICD-9-CM diagnostic category and code</i>	<i>Discharges from home health agencies in 1991-92</i>
Total 65 years and over	2,274,500
Percent distribution	100.0
Infectious and parasitic diseases001-139	*
Neoplasms140-239	9.1
Malignant neoplasms140-208,230-234	8.8
Endocrine, nutritional and metabolic diseases and immunity disorders.240-279	8.4
Diabetes mellitus.250	6.0
Diseases of the blood and blood-forming organs280-289	0.8
Mental disorders290-319	1.6
Diseases of the nervous system and sense organs320-389	2.6
Diseases of the circulatory system390-319	32.1
Essential hypertension401	3.7
Heart disease391-392,393-398,402, 404,410-416,420-429	18.0
Cerebrovascular disease.430-436	6.6
Diseases of the respiratory system460-519	8.6
Chronic obstructive pulmonary disease490-496	4.5
Diseases of the digestive system520-579	4.9
Diseases of the genitourinary system580-629	3.2
Diseases of the skin and subcutaneous tissue680-709	2.7
Skin ulcers707	1.7
Diseases of the musculoskeletal system and connective tissue710-739	10.2
Arthropathies and related disorders.710-719	5.3
Congenital anomalies740-759	*
Symptoms, signs, and ill-defined conditions.780-799	2.0
Injury and poisonings800-999	12.2
Fractures, all sites800-829	7.6
Supplementary classification or unknown	0.9

Table 10. Number of elderly home health discharges and percent by services received and primary source of payment last billing period: United States, 1991-92

<i>Services received and primary source of payment last billing period</i>	<i>Discharges from home health agencies in 1991-92</i>
Total	2,274,500
Percent.	100.0
Services received last billing period	
Skilled nursing services.	86.1
Personal care	39.2
Social services	12.2
Counseling.	3.8
Medications	6.3
Physical therapy	26.3
Homemaker/companion services	4.5
Respite care.	0.3
Referral services	2.0
Dietary and nutritional services	1.9
Physician services	1.9
High tech care	0.8
Occupational therapy/vocational therapy	5.3
Speech therapy/audiology	2.3
Meals on wheels	0.7
Primary source of payment last billing period	
Private insurance.	4.8
Own income.	1.7
Medicare	83.3
Medicaid	3.7
Other government assistance or welfare	0.7
Other payment sources or unknown	5.8

Technical notes

Source of data

The sampling frame consisted of all home health agencies and hospices identified in the 1991 National Health Provider Inventory (NHPI) and all agencies opened for business between 1991 and June 30, 1992, as identified through the Agency Reporting System (17). The NHPI is a comprehensive census of nursing and related care homes, residential care homes, facilities for the mentally retarded and mentally ill, home health agencies, and hospices conducted by the National Center for Health Statistics (6).

The sample design for the 1992 NHHCS is a stratified three-stage probability design. Primary Sampling Units (PSU's) are selected at the first stage, agencies are selected at the second stage, and current residents and discharges are selected at the third stage.

The first stage utilized the selection procedures that obtained the 198 PSU's used for the National Health Interview Survey (NHIS), a survey of the civilian noninstitutionalized population of the United States (18). The PSU's are counties, groups of counties, county equivalents (such as parishes or independent cities), or towns and townships (for some PSU's in New England). To minimize data collection costs and to establish linkage between the two surveys, home health agencies and hospices were selected within the same PSU's included in the NHIS allowing future research on availability and use of services (5).

The second stage involved the selection of agencies within six primary strata of agencies. These strata were formed in the 1992 sampling frame on the basis of type of agency [hospices compared with home health agencies and mixed agencies (providing both types of care or unknown)], and type of PSU [self-representing (SR) compared with non-self-representing (NSR), and within NSR PSU's, metropolitan statistical area (MSA) compared with non-MSA]. MSA is a metropolitan statistical area defined by the U.S. Office of Management and Budget on the basis of the 1980 census. Within

these sampling stratum, agencies were arrayed by four regions, five types of ownership, two types of certification status, and finally by the number of patients currently being served by the agency. The number of agencies selected from each sampling stratum was based primarily on results of leading to the best sample design for the 1992 NHHCS. Hospices in the NSR PSU's and home health agencies, mixed agencies in the non-MSA, and NSR PSU's were selected with certainty. Hospices in the SR PSU's and home health agencies and mixed agencies in the MSA-NSR PSU's, and the SR PSU's were selected with probability proportional to the current patient size (as reported in the NHPI sampling frame). A total sample of 1,500 agencies were selected; 384 were hospices, and the rest were home health agencies or mixed agencies (19).

The final stage is a systematic random selection of six patients currently served by the agency and six patients discharged from care during the last complete 12-month period.

Response rates for each stage of the sample follow:

<i>Sampling unit</i>	<i>Response rate</i>	<i>Number responding</i>
Agency	90	1,245
Current patients	99	6,897
Discharged patients	99	6,765

Data collection procedures

The data collection for the NHHCS began with a letter sent to all 1,500 sampled agencies informing the administrator of the authorizing legislation, purpose, and content of the survey. Within a week to 10 days after the letter was mailed, the interviewer assigned to conduct the survey for a particular agency made telephone contact to discuss the survey and to arrange an appointment with the administrator or person designated by the administrator.

Three questionnaires and two sampling lists were used to collect the data. The Facility Questionnaire was completed with the administrator or

designee. The interviewer would next complete the Current Patient Sampling List (CPSL) and Discharged Patient Sampling List (DPSL). With the CPSL, the interviewer listed all patients on the register of the agency on the evening before the day of the survey. The DPSL was used to list all discharges from agencies during the 12 full months before the month of the survey. Sampling of current patients and discharged patients within agencies was done by using tables showing sets of sample line numbers for each possible count of current patients and discharged patients in the agency. The interviewer drew a sample of up to six current patients and up to six discharges.

After the samples had been selected, the Current Patient Questionnaire and Discharged Patient Questionnaire were completed for each sampled person by interviewing the staff member most familiar with the care provided to the patient. The respondent was requested to refer to the medical or other records whenever necessary.

Sampling variability

Because the statistics presented in this report are based on a sample, they will differ somewhat from figures that would have been obtained if a complete census had been taken using the same schedules, instructions, and procedures. The standard error is primarily a measure of the variability that occurs by chance because only a sample, rather than the entire universe, is surveyed. The standard error also reflects part of the measurement error, but it 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 this report were approximated 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 (20). Exact standard error estimates were used in tests of

significance in this report. A generalized variance function was produced for aggregate preliminary estimates of discharges and current patients by fitting the data presented in this report and from an earlier publication (7) into curves using the empirically determined relationship between the size of an estimate \bar{X} and its relative variance (rel var \bar{X}). This relationship is expressed as:

$$\text{rel var } \bar{X} = \frac{S_x^2}{\bar{X}^2} = a + \frac{b}{\bar{X}}$$

where a and b are regression estimates determined by an iterative procedure. Estimates of standard errors for percents of the estimated number of discharges and estimates of standard errors for percents of the estimated number of current patients are presented in table I.

The Z-test with a 0.05 level of significance was used to test all comparisons mentioned in this report. Not all observed differences were tested, so lack of comment in the text does not mean that the difference was not statistically significant.

Table I. Standard errors for percents of estimated number of 1991–92 discharges and number 1992 current patients: National Home and Hospice Care Survey, 1992

<i>Estimated percent</i>	<i>Base of 1991–92 elderly home health discharges (2,274,500)</i>	<i>Base of 1992 current elderly home health patients percentage (929,500)</i>
	Standard error in percentage points	
1 or 99	0.3	0.3
5 or 95	0.7	0.6
10 or 90	0.9	0.8
20 or 80	1.2	1.1
30 or 70	1.4	1.3
50	1.5	1.4

Suggested citation

Hing E. Characteristics of elderly home health patients: Preliminary data from the 1992 National Home and Hospice Care Survey. Advance data from vital and health statistics; no 247. Hyattsville, Maryland: National Center for Health Statistics. 1994.

Copyright information

All material appearing in this report is in the public domain and may be reproduced or copied without permission; citation as to source, however, is appreciated.

National Center for Health Statistics

Director
Manning Feinleib, M.D., Dr. P.H.
Deputy Director
Jack R. Anderson

U.S. DEPARTMENT OF HEALTH AND
HUMAN SERVICES
Public Health Service
Centers for Disease Control and Prevention
National Center for Health Statistics
6525 Belcrest Road
Hyattsville, Maryland 20782

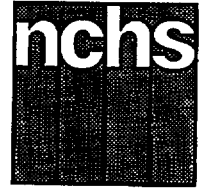
BULK RATE POSTAGE & FEES PAID PHS/NCHS PERMIT NO. G-281
--

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

To receive this publication regularly, contact
the National Center for Health Statistics by
calling 301-436-8500

DHHS Publication No. (PHS) 94-1250

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: 1992 Outpatient Department Summary

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

In December 1991, the National Center for Health Statistics inaugurated the National Hospital Ambulatory Medical Care Survey (NHAMCS) to gather and disseminate information about the health care provided by hospital emergency and outpatient departments to the population of the United States. Ambulatory medical care is the predominant method of providing health care services in the United States. Since 1973, data have been collected 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 (1). Furthermore, hospital ambulatory patients are known to differ from office patients in their demographic characteristics and are also thought to differ in medical aspects (2). Therefore, the omission of hospital ambulatory care from the ambulatory medical care database leaves a significant gap in coverage and limits the utility of the current NAMCS data. The NHAMCS fills this data gap. This survey was endorsed by the American Hospital Association, the Emergency Nurses

Association, and the American College of Emergency Physicians.

This report presents data on outpatient department (OPD) visits from the 1992 (NHAMCS), a national probability survey conducted by the Division of Health Care Statistics, National Center for Health Statistics, Centers for Disease Control and Prevention. A previously published report highlighted visits to emergency departments (3).

The estimates presented in this report are based on a sample rather than on the entire universe of hospital OPD visits. Therefore, they are subject to sampling variability. The technical notes include a brief overview of the sample design used in the 1992 NHAMCS and an explanation of sampling errors. A detailed description of the 1992 NHAMCS sample design and survey methodology will be published.

The OPD Patient Record form is used by hospitals participating in the NHAMCS to record information about patient visits. This form (figure 1) serves as a reference for readers as they review the survey findings presented in this document.

Patient characteristics

During the 12-month period from January through December 1992, an

estimated 56.6 million visits were made to OPD's of non-Federal, short-stay, or general hospitals in the United States—about 22.5 visits per 100 persons. OPD visits by patient's age, sex, and race are shown in table 1. There were no significant differences in OPD visits rates between any of the age groups. Females made 61.4 percent of all OPD visits and had a higher visit rate (26.9 visits per 100 persons) than males (17.9 visits per 100 persons).

White persons made 74.3 percent of all OPD visits, with black persons and Asian/Pacific Islanders accounting for 22.2 and 2.8 percent, respectively. The visit rate for black persons was significantly higher than for white persons overall and in all age categories except persons less than 15 years and 75 years and over.

Outpatient department visit characteristics

By region, the largest proportion of OPD visits were made in the Northeast (29.1 percent). Visit rates in the Northeast (33.0 visits per 100 persons) and the West (25.0 visits per 100 persons) were higher than in the South (13.2 visits per 100 persons).

A clinic was defined as an administrative unit of the outpatient



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



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

OMB No. 0920-0278

CDC 64.54

NOTICE — Information contained on this form which would permit identification of any individual or establishment has been collected with a guarantee that it will be held in strict confidence, will be used only for purposes stated for this study, and will not be disclosed or released to others without the consent of the individual or the establishment in accordance with section 308(d) of the Public Health Service Act (42 USC 242m). Public reporting burden for this phase of the survey is estimated to average 3 minutes per response. If you have any comments regarding the burden estimate or any other aspect of this survey, including suggestions for reducing this burden, send them to the PHS Reports Clearance Officer; Attn: PRA: HHH Building, Rm. 721-B; 200 Independence Ave., S.W., Washington, DC 20201, and to the Office of Management and Budget; Paperwork Reduction Project (0920-0278); Washington, DC 20503.

NATIONAL HOSPITAL AMBULATORY
MEDICAL CARE SURVEY
OUTPATIENT DEPARTMENT
PATIENT RECORD

3. DATE OF VISIT _____/_____/_____ Month Day Year		5. SEX 1 <input type="checkbox"/> Female 2 <input type="checkbox"/> Male		6. 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 2 <input type="checkbox"/> Not Hispanic		8. EXPECTED SOURCE(S) OF PAYMENT <i>(Check all that apply)</i> 1 <input type="checkbox"/> Medicare 2 <input type="checkbox"/> Medicaid 3 <input type="checkbox"/> Other government 4 <input type="checkbox"/> Private/Commercial 5 <input type="checkbox"/> HMO/other prepaid 6 <input type="checkbox"/> Patient paid 7 <input type="checkbox"/> No charge 8 <input type="checkbox"/> Other		9. WAS PATIENT REFERRED FOR THIS VISIT BY ANOTHER PHYSICIAN? 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No	
4. DATE OF BIRTH _____/_____/_____ Month Day Year											
10. PATIENT'S COMPLAINT(S), SYMPTOM(S), OR OTHER REASON(S) FOR THIS VISIT <i>(in patient's own words)</i> a. Most important: _____ b. Other: _____ c. Other: _____				11. PHYSICIAN'S DIAGNOSES a. Principal diagnosis/problem associated with item 10a. _____ b. Other: _____ c. Other: _____				12. HAS PATIENT BEEN SEEN IN THIS CLINIC BEFORE? 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No ↓ If yes, for the condition in item 11a? 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No			
13. AMBULATORY SURGICAL PROCEDURE(S) <i>(Record any outpatient diagnostic or therapeutic procedure. For the first, check appropriate boxes.)</i> a. _____ 1 <input type="checkbox"/> Scheduled 3 <input type="checkbox"/> Local anesthesia 2 <input type="checkbox"/> Performed 4 <input type="checkbox"/> Regional anesthesia 5 <input type="checkbox"/> General anesthesia b. _____				14. DIAGNOSTIC/SCREENING SERVICES <i>(Check all ordered or provided.)</i> 1 <input type="checkbox"/> None 2 <input type="checkbox"/> Blood pressure 3 <input type="checkbox"/> Urinalysis 4 <input type="checkbox"/> EKG resting 5 <input type="checkbox"/> EKG exercise 6 <input type="checkbox"/> Mammogram 7 <input type="checkbox"/> Chest x-ray 8 <input type="checkbox"/> Other radiology 9 <input type="checkbox"/> Allergy testing 10 <input type="checkbox"/> Spirometry 11 <input type="checkbox"/> Pap test 12 <input type="checkbox"/> Strep throat test 13 <input type="checkbox"/> HIV serology 14 <input type="checkbox"/> Cholesterol measure 15 <input type="checkbox"/> Other lab test 16 <input type="checkbox"/> Hearing test 17 <input type="checkbox"/> Visual acuity 18 <input type="checkbox"/> Mental status exam 19 <input type="checkbox"/> Other <i>(Specify)</i> _____				15. THERAPEUTIC SERVICES <i>(Check all ordered or provided. Exclude medication)</i> 1 <input type="checkbox"/> None 2 <input type="checkbox"/> Diet 3 <input type="checkbox"/> Exercise 4 <input type="checkbox"/> Cholesterol reduction 5 <input type="checkbox"/> Weight reduction 6 <input type="checkbox"/> Drug abuse 7 <input type="checkbox"/> Alcohol abuse 13 <input type="checkbox"/> Psychotherapy 14 <input type="checkbox"/> Corrective lenses 15 <input type="checkbox"/> Hearing aid COUNSELING/EDUCATION: 8 <input type="checkbox"/> Smoking cessation 9 <input type="checkbox"/> Family/social 10 <input type="checkbox"/> Growth/development 11 <input type="checkbox"/> Family planning 12 <input type="checkbox"/> Other counseling OTHER THERAPY: 16 <input type="checkbox"/> Physiotherapy 17 <input type="checkbox"/> Other therapy <i>(Specify)</i> _____			
16. MEDICATION <i>(Record all new or continued medications ordered, administered, or provided on this visit. Use the same brand name or generic name on any Rx or medical record. Include immunizations and desensitizing agents.)</i> <input type="checkbox"/> None NEW MEDICATION? 1. _____ 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 2. _____ 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3. _____ 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 4. _____ 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 5. _____ 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No					17. DISPOSITION THIS VISIT <i>(Check all that apply)</i> 1 <input type="checkbox"/> Return to clinic PRN 2 <input type="checkbox"/> Return to clinic - appointment 3 <input type="checkbox"/> Telephone follow-up planned 4 <input type="checkbox"/> Return to referring physician 5 <input type="checkbox"/> Refer to other physician/clinic 6 <input type="checkbox"/> Admit to hospital 7 <input type="checkbox"/> No follow-up planned 8 <input type="checkbox"/> Other <i>(Specify)</i> _____			18. PROVIDERS SEEN THIS VISIT <i>(Check all that apply)</i> 1 <input type="checkbox"/> Resident/Intern 2 <input type="checkbox"/> Staff physician 3 <input type="checkbox"/> Other physician 4 <input type="checkbox"/> Physician assistant 5 <input type="checkbox"/> Nurse practitioner 6 <input type="checkbox"/> Registered nurse 7 <input type="checkbox"/> Licensed practical nurse 8 <input type="checkbox"/> Nurse's aide			

Figure 1. Patient Record form.

Table 1. Number, percent distribution, and annual rate of outpatient department visits with corresponding standard errors by selected patient and outpatient department characteristics: United States, 1992

<i>Characteristic</i>	<i>Number of visits in thousands</i>	<i>Standard error in thousands</i>	<i>Percent distribution</i>	<i>Standard error of percent</i>	<i>Number of visits per 100 persons per year¹</i>
All visits	56,605	4,446	100.0	...	22.5
Patient characteristic					
Age:					
Under 15 years	12,713	1,633	22.5	2.0	22.5
15-24 years	7,242	588	12.8	0.7	21.1
25-44 years	16,484	1,307	29.1	1.1	20.3
45-64 years	11,295	964	20.0	0.9	23.3
65-74 years	5,031	521	8.9	0.6	27.2
75 years and over	3,840	702	6.8	0.9	31.2
Sex and age:					
Female					
Under 15 years	6,148	772	10.9	1.0	22.3
15-24 years	5,222	446	9.2	0.6	30.2
25-44 years	10,682	837	18.9	0.8	25.8
45-64 years	7,130	622	12.6	0.7	28.3
65-74 years	3,137	313	5.5	0.3	30.8
75 years and over	2,423	485	4.3	0.6	31.4
Male					
Under 15 years	6,565	875	11.6	1.1	22.7
15-24 years	2,020	235	3.6	0.3	11.8
25-44 years	5,802	581	10.3	0.7	14.5
45-64 years	4,165	407	7.4	0.4	17.9
65-74 years	1,894	243	3.3	0.3	22.9
75 years and over	1,417	238	2.5	0.3	30.7
Race and age:					
White					
Under 15 years	9,224	1,259	16.3	1.6	20.5
15-24 years	5,329	496	9.4	0.6	19.4
25-44 years	12,280	1,076	21.7	1.0	18.1
45-64 years	8,330	785	14.7	0.8	20.0
65-74 years	3,772	425	6.7	0.5	23.0
75 years and over	3,099	668	5.5	0.9	27.8
Black					
Under 15 years	3,135	570	5.5	0.9	35.0
15-24 years	1,633	184	2.9	0.3	32.0
25-44 years	3,546	465	6.3	0.7	36.2
45-64 years	2,488	325	4.4	0.5	49.9
65-74 years	1,099	203	1.9	0.3	66.8
75 years and over	650	149	1.1	0.2	66.4
All other races:					
Asian/Pacific Islander	1,609	272	2.8	0.5	---
American Indian/Eskimo/Aleut	*414	189	0.7	*0.3	---
Outpatient department characteristic					
Geographic region:					
Northeast	16,497	2,389	29.1	3.5	33.0
West	13,906	1,564	24.6	2.6	25.0
Midwest	15,049	3,176	26.6	4.1	24.5
South	11,153	1,242	19.7	2.3	13.2

¹Based on U.S. Bureau of the Census estimates of the civilian, noninstitutionalized population of the United States as of July 1, 1992.

department where ambulatory medical care is provided under the supervision of a physician. Clinics where only ancillary services, such as radiology, renal dialysis, and pharmacy, were provided or other settings in which physician services were not typically provided were out of scope for the

survey. In addition, ambulatory surgery centers were out of scope because they are included in the National Survey of Ambulatory Surgery.

Clinics were classified into six types as presented in table 2. Half of all OPD visits (49.9 percent) were made to general medicine clinics which included

internal medicine and primary care clinics. Pediatric, surgery, and obstetrics and gynecology clinics accounted for 13.5 percent, 12.7 percent, and 10.1 percent of visits, respectively. The "other" clinic category included psychiatry and neurology clinics. The "substance abuse" category included all

Table 2. Number and percent distribution of outpatient department visits with corresponding standard errors by type of clinic: United States, 1992

Visit characteristic	Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent
All visits	56,605	4,446	100.0	...
Type of clinic				
General medicine	28,248	3,329	49.9	3.5
Pediatrics	7,620	1,296	13.5	2.0
Surgery	7,187	1,164	12.7	2.0
Obstetrics and gynecology	5,740	810	10.1	1.4
Substance abuse	*818	436	*1.4	0.7
Other	6,993	1,684	12.4	2.7

Table 3. Number and percent distribution of outpatient department visits with corresponding standard errors by referral status and prior-visit status: United States, 1992

Visit characteristic	Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent
All visits	56,605	4,446	100.0	...
Referral status				
Not referred by another physician	50,183	4,298	88.7	1.6
Referred by another physician	6,421	936	11.3	1.6
Prior-visit status				
Old patient	44,180	3,953	78.0	1.7
Old problem	35,635	3,014	63.0	1.5
New problem	8,545	1,255	15.1	1.5
New patient	12,425	1,122	22.0	1.7

types of alcohol and drug abuse clinics except methadone maintenance clinics, which were specifically excluded from the survey.

Referral status and prior visit status

Approximately 11.3 percent of OPD visits were made as the result of a referral from another physician (table 3). The majority of OPD visits (78.0 percent) were made by patients who had been seen in the clinic on a previous occasion, and more than half (63.0 percent) of all visits were made by persons returning to the clinic for care of a previously treated problem. Only 22.0 percent of visits were made by new patients, that is, patients who had not been seen in that clinic before.

Reason for visit

In Item 10 of the Patient Record form, the patient's (or patient surrogate's) "complaint(s), symptom(s), or other reason(s) for this visit in the

patient's own words" is recorded. Up to three reasons for visit are coded and classified according to *A Reason for Visit Classification for Ambulatory Care (RVC)* (4). The principal reason is the problem, complaint, or reason listed first in item 10a of the OPD Patient Record form.

The RVC is divided into eight modules or groups of reasons (table 4). Approximately 42.6 percent of all visits were made for reasons classified as symptoms, with the diagnostic/screening and preventive module and the treatment module accounting for 19.4 and 16.8 percent of visits, respectively. The 20 most frequently mentioned principal reasons for visit, representing 41.5 percent of all visits, are shown in table 5. It is important to note that the rank ordering presented in this and other tables may not always be reliable because near estimates may not differ from each other due to sampling variability. "Progress visit" was the most frequently mentioned visit overall (7.4 percent), reflecting the large number

of return visits for a previously treated problem. "Cough" was the most frequently mentioned reason for visit in the symptom module (2.1 percent).

Principal diagnosis

The principal diagnosis or problem associated with the patient's most important reason for visit and any other significant current diagnoses are recorded in Item 11. Up to three diagnoses are coded and classified according to the *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM)* (5). OPD visits by principal diagnosis using the major disease categories specified by the ICD-9-CM are shown in table 6. The supplementary classifications, which describe circumstances other than a disease or injury, are recorded as diagnoses. They accounted for 21.9 percent of all OPD visits.

The 20 most frequently reported principal diagnoses are shown in table 7. These are categorized at the three-digit coding level of the ICD-9-CM and account for 35.3 percent of all OPD visits. The most commonly recorded diagnosis was "normal pregnancy," occurring at 5.9 percent of all visits.

Ambulatory surgical procedures

Hospital staff were asked to record up to two ambulatory surgical procedures that were scheduled or performed at the visit. The procedures are categorized at the three-digit coding level of the ICD-9-CM, volume 3. Ambulatory surgical procedures were reported at 7.8 percent of all OPD visits, accounting for 4.4 million procedures scheduled or performed. Due to small sample sizes, only two of the ten most frequently reported surgical procedures had estimates considered to be reliable. "Diagnostic procedure on vagina and cul-de-sac" and "other local excision or destruction of lesion or tissue of skin and subcutaneous tissue" were recorded for 220,720 visits (0.4 percent) and 189,002 visits (0.3 percent), respectively.

Table 4. Number and percent distribution of outpatient department visits with corresponding standard errors by patient's principal reason for visit: United States, 1992

<i>Principal reason for visit and RVC code¹</i>	<i>Number of visits in thousands</i>	<i>Standard error in thousands</i>	<i>Percent distribution</i>	<i>Standard error of percent</i>
All visits	56,605	4,446	100.0	...
Symptom moduleS001-S999	24,107	2,212	42.6	1.6
General symptomsS001-S099	3,363	360	5.9	0.4
Symptoms referable to psychological/mental disorders . . .S100-S199	1,853	329	3.3	0.5
Symptoms referable to the nervous system (excluding sense organs)S200-S259	1,249	127	2.2	0.2
Symptoms referable to the cardiovascular/lymphatic systemS260-S299	202	36	0.4	0.1
Symptoms referable to the eyes and earsS300-S399	2,462	331	4.3	0.4
Symptoms referable to the respiratory systemS400-S499	3,996	715	7.1	0.9
Symptoms referable to the digestive systemS500-S639	2,394	245	4.2	0.3
Symptoms referable to the genitourinary systemS640-S829	2,061	210	3.6	0.3
Symptoms referable to the skin, hair, and nailsS830-S899	1,992	245	3.5	0.3
Symptoms referable to the musculoskeletal systemS900-S999	4,535	494	8.0	0.6
Disease moduleD001-D999	6,045	604	10.7	0.8
Diagnostic/screening and preventive moduleX100-X599	11,001	977	19.4	1.2
Treatment moduleT100-T899	9,531	1,150	16.8	1.4
Injuries and adverse effects moduleJ001-J999	2,466	366	4.4	0.5
Test results moduleR100-R700	840	99	1.5	0.2
Administrative moduleA100-A140	516	105	0.9	0.2
Other ²U990-U999	2,099	524	3.7	0.8

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.

Table 5. Number and percent distribution of outpatient department visits with corresponding standard errors by the 20 principal reasons for visit most frequently mentioned by patients: United States, 1992

<i>Reason for visit and RVC code¹</i>	<i>Number of visits in thousands</i>	<i>Standard error in thousands</i>	<i>Percent distribution</i>	<i>Standard error of percent</i>
All visits	56,605	4,446	100.0	...
Progress visitT800	4,216	696	7.4	1.0
General medical examinationX100	3,036	403	5.4	0.5
Routine prenatal examinationX205	2,981	408	5.3	0.7
Well baby examinationX105	1,497	230	2.6	0.4
CoughS440	1,169	332	2.1	0.5
Postoperative visitT205	1,037	153	1.8	0.2
Stomach and abdominal pain, cramps and spasmsS545	884	90	1.6	0.1
Earache or ear infectionS355	844	130	1.5	0.2
Symptoms referable to throatS455	836	161	1.5	0.2
Back symptomsS905	763	84	1.3	0.1
Medication, other and unspecifiedT115	*727	242	1.3	0.4
Skin rashS860	687	92	1.2	0.1
Diabetes mellitusD205	668	172	1.2	0.3
Chest pain and related symptomsS050	641	91	1.1	0.2
DepressionS110	639	158	1.1	0.3
FeverS010	638	153	1.1	0.2
Pain and related symptoms, generalized, site unspecified . . .S060	*632	190	1.1	0.3
HypertensionD510	556	109	1.0	0.2
Knee symptomsS925	535	108	0.9	0.2
Headache, pain in headS210	496	62	0.9	0.1
All other reasons	33,124	2,619	58.5	1.3

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

Diagnostic and screening services

Statistics on various diagnostic and screening services ordered or provided by hospital staff during an OPD visit are displayed in table 8. Approximately

70.6 percent of all OPD visits included one or more diagnostic or screening services. The most frequently mentioned diagnostic or screening service was a blood pressure check, recorded at 47.8 percent of visits. Other frequently

mentioned services included other lab test (20.2 percent) and urinalysis (11.4 percent).

Readers should note that for items 8, 14, 15, 17, and 18 on the OPD Patient Record form, hospital staff were

Table 6. Number and percent distribution of outpatient department visits with corresponding standard errors by principal diagnosis: United States, 1992

<i>Principal diagnosis and ICD-9-CM code¹</i>	<i>Number of visits in thousands</i>	<i>Standard error in thousands</i>	<i>Percent distribution</i>	<i>Standard error of percent</i>
All visits	56,605	4,446	100.0	...
Infectious and parasitic diseases 001-139	2,001	288	3.5	0.4
Neoplasms 140-239	3,127	559	5.5	0.9
Endocrine, nutritional and metabolic diseases and immunity disorders 240-279	2,184	292	3.9	0.4
Mental disorders 290-319	3,531	658	6.2	1.0
Diseases of the nervous system and sense organs 320-389	4,629	548	8.2	0.6
Diseases of the circulatory system 390-459	3,348	489	5.9	0.6
Diseases of the respiratory system 460-519	4,606	743	8.1	0.9
Diseases of the digestive system 520-579	1,891	221	3.3	0.3
Diseases of the genitourinary system 580-629	2,694	308	4.8	0.5
Diseases of the skin and subcutaneous tissue 680-709	1,898	228	3.4	0.3
Diseases of the musculoskeletal system and connective tissue 710-739	3,415	398	6.0	0.5
Symptoms, signs, and ill-defined conditions 780-799	3,132	314	5.5	0.4
Injury and poisoning 800-999	4,189	521	7.4	0.7
Supplementary classification V01-V82	12,392	1,026	21.9	1.3
All other diagnoses ²	2,786	432	4.9	0.6
Unknown ³	782	194	1.4	0.3

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.

Table 7. Number and percent distribution of outpatient department visits with corresponding standard errors by the 20 principal diagnoses most frequently rendered by hospital staff: United States, 1992

<i>Principal diagnosis and ICD-9-CM code¹</i>	<i>Number of visits in thousands</i>	<i>Standard error in thousands</i>	<i>Percent distribution</i>	<i>Standard error of percent</i>
All visits	56,605	4,446	100.0	...
Normal pregnancy V22	3,318	449	5.9	0.8
Essential hypertension 401	1,689	292	3.0	0.4
Health supervision of infant or child V20	1,678	254	3.0	0.4
General medical examination V70	1,617	216	2.9	0.3
Suppurative and unspecified otitis media 382	1,353	221	2.4	0.3
Diabetes mellitus 250	1,248	216	2.2	0.3
Other postsurgical states V45	1,097	159	1.9	0.3
Acute upper respiratory infections of multiple or unspecified sites 465	1,054	302	1.9	0.4
Special investigations and examinations V72	709	203	1.3	0.3
Other and unspecified disorders of back 724	679	121	1.2	0.2
General symptoms 780	646	106	1.1	0.2
Asthma 493	644	111	1.1	0.2
Chronic sinusitis 473	614	159	1.1	0.2
Neurotic disorders 300	608	134	1.1	0.2
Alcohol dependence syndrome 303	*602	309	*1.1	0.5
Symptoms involving respiratory system and other chest symptoms 786	534	102	0.9	0.2
Other disorders of urethra and urinary tract 599	465	74	0.8	0.1
Follow-up examination V67	460	83	0.8	0.1
Cataract 366	*453	154	*0.8	0.3
Malignant neoplasm of female breast 174	449	123	0.8	0.2
All other diagnoses	36,688	2,972	64.8	1.2

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

asked to check all of the applicable categories for that item, with the result that multiple responses could be coded for each visit.

Therapeutic services

About a third (37.2 percent) of all OPD visits included some form of

counseling, education, or other nonmedication therapy (table 9). Diet counseling, occurring at 9.5 percent of visits, was the most frequently recorded counseling/education service ordered or provided, while psychotherapy, occurring at 3.1 percent of visits, was the most frequently mentioned other therapeutic service.

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 and immunizations and desensitizing agents. Up to five medications, or drug

Table 8. Number and percent distribution of outpatient department visits with corresponding standard errors by selected diagnostic/screening services: United States, 1992

Diagnostic/screening services ordered or provided by hospital staff ¹	Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent
All visits	56,605	4,446	100.0	...
Blood pressure	27,075	2,713	47.8	2.4
Other lab test	11,459	1,107	20.2	1.2
Urinalysis	6,430	718	11.4	1.1
Other radiology	4,322	537	7.6	0.8
Visual acuity	2,131	489	3.8	0.8
Pap test	1,971	289	3.5	0.5
Chest x ray	1,945	284	3.4	0.5
EKG — resting ²	1,718	244	3.0	0.4
Mammogram	1,077	201	1.9	0.3
Cholesterol measure	905	166	1.6	0.3
Mental status exam	851	182	1.5	0.3
Hearing test	611	105	1.1	0.2
Strep throat test	565	151	1.0	0.2
HIV serology	245	54	0.4	0.1
EKG — exercise ²	156	46	*0.3	0.1
Spirometry	130	38	0.2	0.1
Allergy testing	*35	18	*0.1	0.0
Other	10,036	1,648	17.7	2.0
None	16,631	1,541	29.4	2.0

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

²EKG is electrocardiogram.

Table 9. Number and percent distribution of outpatient department visits with corresponding standard errors by selected therapeutic services: United States, 1992

Therapeutic services ordered or provided by hospital staff ¹	Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent
All visits	56,605	4,446	100.0	...
None	35,532	3,195	62.8	2.1
Counseling/education				
Diet	5,351	648	9.5	0.9
Exercise	2,484	339	4.4	0.6
Growth/development	1,838	252	3.2	0.4
Family/social	1,749	338	3.1	0.6
Alcohol abuse	*985	363	*1.7	0.6
Weight reduction	876	148	1.5	0.2
Family planning	835	134	1.5	0.2
Smoking cessation	823	113	1.5	0.2
Drug abuse	682	180	1.2	0.3
Cholesterol reduction	505	107	0.9	0.2
Other counseling	7,984	930	14.1	1.3
Other therapy				
Psychotherapy	1,754	392	3.1	0.6
Physiotherapy	1,418	383	2.5	0.6
Corrective lenses	214	59	0.4	0.1
Hearing aid	*19	7	*0.0	0.0
Other therapy	3,186	475	5.6	0.7

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

mentions, are coded for each 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

any medication. The NHAMCS drug data base permits classification by a wide range of variables, including specific drug entry name, trade name, generic class, therapeutic category, prescription or nonprescription status,

federally-controlled substance status, and composition status (that is, whether the drug is a single- or multiple-ingredient product). A report describing the method and instruments used to collect and process drug information has been published (6).

There was a total of 63.3 million drug mentions or an average of 1.1 drug mentions per OPD visit. The 20 medications most frequently prescribed at OPD visits are shown in table 10 by drug entry name and therapeutic classification. This classification is based on the therapeutic categories used in the *National Drug Code Directory*, 1985 edition (7). Tylenol was the medication most frequently prescribed, with 1.2 million mentions, or 2.2 percent of the total. It was followed by amoxicillin (1.7 percent), prenatal vitamins (1.5 percent), and prednisone (1.4 percent).

Expected source of payment

Expected sources of payment were most often Medicaid (31.2 percent), private/commercial insurance (23.8 percent), and Medicare (16.3 percent) (table 11). “Patient paid” and “HMO/Other prepaid” were indicated at 13.7 and 7.7 percent of OPD visits, respectively. The patient-paid category includes the patient’s contribution toward “copayments” and “deductibles.”

Providers seen this visit

A staff physician was seen at the majority of OPD visits (62.9 percent). Registered nurses were seen at 38.3 percent of visits and residents and/or interns were seen at 32.4 percent of visits (table 12).

Disposition of this visit

The majority of OPD visits (65.0 percent) resulted in another appointment to return to the clinic. This and the previously mentioned finding that most OPD patients had been seen in the clinic before are indications of the continuous nature of care provided in the OPD setting. For 17.2 percent of visits, the disposition was “return to clinic PRN” (table 13). Only 1.2 percent

Table 10. Number and percent distribution for the 20 drugs most frequently prescribed at outpatient department visits with corresponding standard errors, by entry name of drug: United States, 1992

Entry name of drug ¹	Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent	Therapeutic classification ²
All drug mentions	63,299	6,813	100.0	...	...
Tylenol	1,241	193	2.2	0.3	General analgesics
Amoxicillin	990	135	1.7	0.2	Penicillins
Prenatal vitamins	836	172	1.5	0.3	Vitamins, minerals
Prednisone	784	151	1.4	0.2	Adrenal corticosteroids
Motrin	780	97	1.4	0.2	Antiarthritics
Diphtheria & tetanus toxoids with pertussis vaccine	697	112	1.2	0.2	Vaccines and antiserums
Amoxil	*649	356	*1.1	0.6	Penicillins
Premarin	646	106	1.1	0.2	Estrogens and progestins
Poliovirus vaccine	637	111	1.1	0.2	Vaccines and antiserums
Ferrous sulfate	615	123	1.1	0.2	Agents used to treat deficiency anemias
Lasix	592	85	1.0	0.1	Diuretics
Zantac	564	77	1.0	0.1	Agents used in disorders of upper GI tract
Vasotec	514	94	0.9	0.1	Antihypertensive agents
Proventil	508	116	0.9	0.2	Bronchodilators, antiasthmatics
Insulin	501	113	0.9	0.2	Blood glucose regulators
Tylenol with codeine	496	75	0.9	0.1	General anesthetics
Naprosyn	489	73	0.9	0.1	Antiarthritics
Procardia	470	100	0.8	0.1	Antianginal agents
Haemophilus B conjugate vaccine	455	83	0.8	0.1	Vaccines and antiserums
Synthroid	*447	148	0.8	0.2	Agents used to treat thyroid disease

¹The entry made by the 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*, 1985 edition (7). In cases where a drug had more than one therapeutic classification, it was listed in the category for which it was most frequently prescribed.

Table 11. Number and percent distribution of outpatient department visits with corresponding standard errors by patient's expected source of payment: United States, 1992

Expected source of payment ¹	Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent
All visits	56,605	4,446	100.0	...
Expected payment source				
Medicaid	17,647	1,614	31.2	2.1
Private or commercial	13,478	2,230	23.8	2.7
Medicare	9,240	1,160	16.3	1.2
Patient-paid	7,747	1,027	13.7	1.3
HMO/other prepaid ²	4,364	671	7.7	1.1
Other government	3,684	522	6.5	0.8
No charge	1,640	450	2.9	0.8
Other	3,116	394	5.5	0.7
Unknown	*1,712	680	*3.0	1.1

¹Numbers may exceed total because more than one source of payment may be coded for each visit.

²HMO is health maintenance organization.

Table 12. Number and percent distribution of outpatient department visits with corresponding standard errors, by type of provider seen: United States, 1992

Type of provider ¹	Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent
All visits	56,605	4,446	100.0	...
Staff physician	35,614	3,582	62.9	2.4
Registered nurse	21,704	2,025	38.3	2.9
Resident/Intern	18,365	1,797	32.4	2.5
Nurse's aide	7,390	1,062	13.1	1.6
Licensed practical nurse	6,788	972	12.0	1.6
Nurse practitioner	2,975	452	5.3	0.7
Other physician	2,855	519	5.0	1.0
Physician assistant	*1,841	580	3.3	0.9

¹Numbers may exceed total because more than one provider may be reported per visit.

of OPD visits resulted in hospital admission.

Additional reports that utilize 1992 NHAMCS data will be published. In addition, survey data will be available on computer tape from the National Technical Information Service at a nominal cost in the summer of 1994. Questions regarding this report, future reports, or the NHAMCS may be directed to the Ambulatory Care Statistics Branch by calling (301) 436-7132.

References

1. Bryant E, Shimizu I. Sample design, sampling variance, and estimation procedures for the National Ambulatory Medical Care Survey. *Vital Health Stat* 2(108). 1988.
2. Loft JD, Sheatsley PB, Frankel MR. Comparison report on the hospital ambulatory medical care evaluation study. Contract No. 282-82-2111. Chicago, Illinois: National Opinion Research Center. 1985.
3. McCaig LF. National Hospital Ambulatory Medical Care Survey: 1992 Emergency Department Summary. Advance data from vital and health statistics; no. 245. Hyattsville, Maryland: National Center for Health Statistics. 1994.

Table 13. Number and percent distribution of outpatient department visits with corresponding standard errors by disposition of visit: United States, 1992

<i>Disposition¹</i>	<i>Number of visits in thousands</i>	<i>Standard error in thousands</i>	<i>Percent distribution</i>	<i>Standard error of percent</i>
All visits	56,605	4,446	100.0	...
Return to clinic - appointment	36,776	3,066	65.0	2.3
Return to clinic PRN ²	9,720	1,384	17.2	1.6
Return to other physician/clinic	3,899	458	6.9	0.7
Return to referring physician	3,417	962	6.0	1.7
No followup planned	2,287	381	4.0	0.6
Telephone followup planned	1,408	203	2.5	0.3
Admit to hospital	705	141	1.2	0.2
Other	2,736	462	4.8	0.7

¹Numbers may exceed total number of visits because more than one disposition may be reported per visit.
²PRN is as needed.

Symbols	
---	Data not available.
...	Category not applicable
-	Quantity zero
0.0	Quantity more than zero but less than 0.05
Z	Quantity more than zero but less than 500 where numbers are rounded to thousands
*	Figure does not meet standard of reliability or precision (more than 30-percent relative standard error in numerator of percent or rate)

4. Schneider D, Appleton L, McLemore T. A reason for visit classification for ambulatory care. National Center for Health Statistics. Vital Health Stat 2(78). 1979.
5. Public Health Service and Health Care Financing Administration. International classification of diseases, 9th revision, clinical modification. Washington: Public Health Service. 1991.
6. Koch H, Campbell W. The collection and processing of drug information. National Ambulatory Medical Care Survey, 1980. National Center for Health Statistics. Vital Health Stat 2(90). 1982.
7. Food and Drug Administration. National drug code directory, 1985 Edition. Washington: Public Health Service, 1985.
8. Shah BV, Barnwell BG, Hunt PN, La Vange LM. SUDAAN user's manual release 5.50. Research Triangle Park, North Carolina: Research Triangle Institute. 1991.

Technical notes

Source of data and sample design

The information presented in this report is based on data collected in the 1992 National Hospital Ambulatory Medical Care Survey (NHAMCS) from December 2, 1991, through December 27, 1992. The data were adjusted to produce annual estimates. The target universe of the NHAMCS includes visits made in the United States by patients to emergency departments (ED's) and outpatient departments (OPD's) of non-Federal, short-stay, or general hospitals. Telephone contacts are excluded.

A four-stage probability sample design is used in the NHAMCS, involving samples of primary sampling units (PSU's), hospitals with ED's and/or OPD's within PSU's, ED's within hospitals and/or clinics within OPD's, and patient visits within ED's and/or clinics. For 1992, a sample of 524 non-Federal, short-stay or general hospitals was selected from the SMG Hospital Market Database. Of this group, 474 hospitals were in scope, or eligible to participate in the survey. The hospital response rate for the NHAMCS during this period was 93 percent. Based on the induction interview, 314 of the sample hospitals had OPD's. 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 OPD's was 35,114.

Characteristics of the hospital, such as ownership and expected number of OPD visits, were obtained from the hospital administrator during an induction interview. 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 the National Center for Health Statistics, Health Care Surveys Section, Research Triangle Park, North Carolina.

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 this report were approximated 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 (8). Exact standard error estimates were used in tests of significance in this report. Standard errors for all estimates are presented in each table. Standard errors for rates can be calculated using the relative standard errors (RSE) for the number of visits (i.e., multiply the rate by the RSE for the estimate of interest).

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 nonresponse 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 and/or clinic nonresponse

Estimates from NHAMCS data were adjusted to account for ED's and sample clinics which 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 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.

Test of significance and rounding

The determination of statistical inference is based on the *t*-test. The Bonferroni inequality was used to establish the critical value for statistically significant differences (0.05 level of confidence). 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 OPD 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.

Definition of terms

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

Hospital—All 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. Federal hospitals and hospital units of institutions and hospitals with fewer than six beds staffed for patient use are excluded.

Emergency department—Hospital facility for the provision of unscheduled outpatient services to patients whose conditions require immediate care and which 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 open less than 24 hours are included if staffed by the hospital's emergency department.

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

Clinic—An administrative unit of the outpatient department where

ambulatory medical care is provided under the supervision of a physician. The following are examples of the types of clinics excluded from the NHAMCS: ambulatory surgical centers, chemotherapy, employee health service, renal dialysis, methadone maintenance, and radiology.

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.

Trade name disclaimer

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

Suggested citation

McCaig L.F. Outpatient Department Summary: National Hospital Ambulatory Medical Care Survey, 1992. Advance data from vital and health statistics; no 248. Hyattsville, Maryland: National Center for Health Statistics. 1994.

Copyright information

All material appearing in this report is in the public domain and may be reproduced or copied without permission; citation as to source, however, is appreciated.

National Center for Health Statistics

Director
Manning Feinleib, M.D., Dr. P.H.

Deputy Director
Jack R. Anderson

U.S. DEPARTMENT OF HEALTH AND
HUMAN SERVICES
Public Health Service
Centers for Disease Control and Prevention
National Center for Health Statistics
6525 Belcrest Road
Hyattsville, Maryland 20782

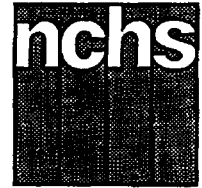
BULK RATE POSTAGE & FEES PAID PHS/NCHS PERMIT NO. G-281
--

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

To receive this publication regularly, contact
the National Center for Health Statistics by
calling 301-436-8500

DHHS Publication No. (PHS) 94-1250

Advance Data



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

1992 Summary: National Hospital Discharge Survey

by Edmund J. Graves, Division of Health Care Statistics

Introduction

During 1992, an estimated 31.0 million inpatients, excluding newborn infants, were discharged from short-stay non-Federal hospitals in the United States. These patients used 190.4 million days of inpatient hospital care. The discharge rate was 122.1 discharges per 1,000 civilian population and the average length of stay was 6.2 days.

These and other statistics presented in this report are based on data collected by means of the National Hospital Discharge Survey (NHDS), a continuous survey that has been conducted by the National Center for Health Statistics (NCHS) since 1965. In 1992, data were abstracted from the medical records of approximately 274,000 patients discharged from 494 short-stay non-Federal hospitals. Beginning in 1988, a new three-stage stratified sample design was put in operation. A brief

description of the new design, data collection procedures, and estimation process and definitions of terms used in this report can be found in the section entitled "Technical notes." A description of the development and design of the original NHDS, which was in operation from 1965 to 1987, has been published (1). Differences may exist between data for 1988-92 and earlier years because of the redesign of the survey.

Medical data for hospitalized patients are coded according to the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM) (2). Up to seven diagnoses and four procedures are coded for each discharge. Although diagnoses included in the ICD-9-CM section entitled "Supplementary classification of external causes of injury and poisoning" (codes E800-E999) are used in the NHDS, these diagnoses are excluded from this report. The conditions

diagnosed and procedures performed are presented here by chapter of ICD-9-CM. Within these chapters, a few diagnoses and procedures or groups thereof also are shown. These specific categories were selected primarily because of their large estimates or because they are of special interest. More detailed analyses of NHDS data are published in Series 13 of the NCHS *Vital and Health Statistics* reports.

Starting in 1985, some hospitals participating in the NHDS have submitted machine-readable data tapes. In 1992, approximately 34 percent of the hospitals used this method to submit data.

Beginning in 1991 and continuing in 1992, all ICD-9-CM procedure codes were used in the NHDS. In previous years, selected codes were excluded. These were primarily codes for certain miscellaneous diagnostic and therapeutic procedures.

Acknowledgments

This report was prepared in the Division of Health Care Statistics. Jean Kozak and Elaine Wood of the Hospital Care Statistics Branch provided technical assistance in developing the style and content of this report. Michael J. Monsour of the Technical Services Branch, provided assistance in producing estimates of reliability. Dorothy Graham of the Technical Services Branch verified the estimates in the report and Charles Adams and Malcolm Graham of the Technical Services Branch provided advice on the computer programming aspects of the report. This report was edited by Klaudia Cox and typeset by Annette F. Facemire of the Publications Branch, Division of Data Services.

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



Table 1. Number of inpatients discharged from short-stay hospitals by selected characteristics: United States, 1992

[Discharges from non-Federal hospitals. Excludes newborn infants]

<i>Selected characteristic</i>	<i>Both sexes</i>	<i>Male</i>	<i>Female</i>
Number of patients discharged in thousands			
Total	30,951	12,406	18,545
Age			
Under 15 years	2,531	1,416	1,115
15-44 years	11,227	3,162	8,064
45-64 years	6,329	3,135	3,194
65 years and over	10,864	4,692	6,172
Region			
Northeast	7,141	2,985	4,156
Midwest	7,121	2,924	4,197
South	11,256	4,472	6,784
West	5,433	2,026	3,407

Table 2. Rate of inpatients discharged from short-stay hospitals by selected characteristics: United States, 1992

[Discharges from non-Federal hospitals. Excludes newborn infants]

<i>Selected characteristic</i>	<i>Both sexes</i>	<i>Male</i>	<i>Female</i>
Rate of patients discharged per 1,000 population			
Total	122.1	100.8	142.2
Age			
Under 15 years	45.2	49.4	40.8
15-44 years	96.0	54.4	137.1
45-64 years	131.0	134.7	127.6
65 years and over	336.5	359.7	320.8
Region			
Northeast	139.9	121.7	156.9
Midwest	117.5	99.4	134.6
South	128.9	106.2	150.1
West	99.5	74.9	123.7

Table 3. Average length of stay for inpatients discharged from short-stay hospitals by selected characteristics: United States, 1992

[Discharges from non-Federal hospitals. Excludes newborn infants]

<i>Selected characteristic</i>	<i>Both sexes</i>	<i>Male</i>	<i>Female</i>
Average length of stay in days			
Total	6.2	6.7	5.8
Age			
Under 15 years	4.9	4.9	4.8
15-44 years	4.3	6.0	3.7
45-64 years	6.3	6.4	6.2
65 years and over	8.2	8.0	8.4
Region			
Northeast	7.2	7.5	6.9
Midwest	6.2	6.7	5.8
South	6.0	6.5	5.6
West	5.2	6.1	4.6

Data highlights

Utilization by patient and hospital characteristics

The number, rate, and average length of stay of patients discharged from short-stay non-Federal hospitals are shown by age, geographic region, and sex in tables 1-3. The 31.0 million patients discharged from short-stay hospitals during 1992 comprised an estimated 12.4 million males and 18.5 million females. The rate per 1,000 population for females was 142, which was 41 percent higher than the rate of 101 for males. The number and rate of discharges are higher for females than for males largely because of women 15-44 years of age who are hospitalized for deliveries and pregnancy-related conditions.

The average length of stay was 6.7 days for males and 5.8 days for females during 1992. The average length of stay of the 3.9 million women who were hospitalized for deliveries was 2.6 days. The average length of stay was 4.9 days for patients under 15 years of age, 4.3 days for patients 15-44 years of age, 6.3 days for patients 45-64 years of age, and 8.2 days for patients 65 years of age and over.

The number of discharges from short-stay hospitals by geographic region during 1992 ranged from 11.3 million in the South to 5.4 million in the West. Regional differences in the number of discharges are accounted for in part by variations in the population sizes. The rates per 1,000 population ranged from 140 in the Northeast region to 100 in the West. Average lengths of stay by geographic region were 5.2 days in the West, 6.0 days in the South, 6.2 days in the Midwest, and 7.2 days in the Northeast.

Utilization by diagnosis

Diseases of the circulatory system ranked first in 1992 of the ICD-9-CM diagnostic chapters as a principal or first-listed diagnosis for patients discharged from non-Federal short-stay hospitals. These conditions accounted for an estimated 5.6 million discharges. Other leading ICD-9-CM diagnostic chapters were supplementary

classifications (including females with deliveries) (4.4 million discharges), diseases of the digestive system (3.2 million discharges), and diseases of the respiratory system (2.9 million discharges). Approximately 52 percent of the patients discharged from non-Federal short-stay hospitals were included in these four ICD-9-CM diagnostic chapters.

The diagnostic categories presented in this report were selected either because they appear as principal or first-listed diagnoses with high frequency or because the conditions are of special interest. Many of these categories (such as malignant neoplasms, psychoses, and fractures) are groupings of more detailed diagnoses.

The number and rate of discharges and average length of stay for each ICD-9-CM diagnostic chapter and selected categories are shown by sex and age in tables 4-6. The most common diagnostic categories for all patients were deliveries and heart disease. Other leading diagnostic categories were malignant neoplasms, pneumonia, and fractures. Excluding deliveries, these last four diagnostic categories were the leading first-listed diagnoses for both males and females. Some of the more common diagnoses for patients under 15 years of age were acute respiratory infections, pneumonia, and asthma. For patients 15-44 years of age, frequent diagnoses were deliveries, psychoses, and fractures. For patients 45-64 years of age and 65 years of age and over, heart disease and malignant neoplasms were major causes of hospitalization. The average length of stay for all patients ranged from 1.3 days for chronic disease of tonsils and adenoids to 12.9 for psychosis.

Utilization by procedure

One or more surgical or nonsurgical procedures were performed for an estimated 20.4 million of the 31.0 million inpatients discharged from short-stay hospitals during 1992. A total of 42.6 million procedures, or an average of 2.1 per patient who underwent at least one procedure, were recorded in 1992.

Procedures are grouped in the tables of this report by the ICD-9-CM procedure chapters. Selected procedures within these chapters also are presented by specific categories. Some of these categories (such as cesarean section and hysterectomy) are presented as single categories even though they are divided into more precise subgroups in ICD-9-CM.

More than three-fourths of all the surgical and nonsurgical procedures performed during 1992 are listed in just 5 of the 16 procedure chapters. These were miscellaneous diagnostic and therapeutic procedures (13.9 million), obstetrical procedures (6.7 million), operations on the digestive system (5.4 million), operations on the cardiovascular system (4.4 million), and operations on the musculoskeletal system (3.3 million).

The number and rate of all-listed procedures in 1992 for each ICD-9-CM procedure chapter and selected procedure categories are shown by sex and age in tables 7 and 8. Of the 42.6 million procedures performed during 1992, 16.8 million were for males and 25.8 million were for females. The corresponding rates per 100,000 population were 16,815.7 for both sexes, 13,642.3 for males, and 19,810.6 for females. Frequent procedures for males were arteriography and angiocardiology, computerized axial tomography, and diagnostic ultrasound. Procedures commonly performed on females were episiotomy, fetal EKG and fetal monitoring, cesarean section, and diagnostic ultrasound.

The rate of procedures by age per 100,000 population ranged from 3,871.1 for patients under 15 years of age to 45,643.8 for patients 65 years of age and over. Commonly performed procedures for patients under 15 years of age were respiratory therapy, spinal tap, computerized axial tomography, and diagnostic ultrasound; for patients 15-44 years of age, episiotomy, fetal EKG and fetal monitoring, and cesarean section; for patients 45-64 years of age, arteriography and angiocardiology, cardiac catheterization, and diagnostic ultrasound; for patients 65 years of age and over, arteriography and

angiocardiology, diagnostic ultrasound, and computerized axial tomography.

References

1. Simmons WR. Development of the design of the NCHS Hospital Discharge Survey. National Center for Health Statistics. *Vital Health Stat* 2(39). 1970.
2. Public Health Service and Health Care Financing Administration. *International Classification of Diseases, 9th Revision, Clinical Modification*. Washington: Public Health Service. 3rd ed. 1980.
3. SMG Marketing Group, Inc. *Hospital Market Database*. Chicago: Healthcare Information Specialists. 1987.
4. SMG Marketing Group, Inc. *Hospital Market Database*. Chicago: Healthcare Information Specialists. April 1991.
5. Shah BV. SESUDAAN: Standard errors program for computing of standardized rates from sample survey data. Research Triangle Park, North Carolina: Research Triangle Institute. 1981.

Table 4. Number of inpatients discharged from short-stay hospitals, by category of first-listed diagnosis, sex, and age: United States, 1992[Discharges from non-Federal hospitals. Excludes newborn infants. Diagnostic groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM)*]

Category of first-listed diagnosis and ICD-9-CM Code	Total	Sex		Age			
		Male	Female	Under 15 years	15-44 years	45-64 years	65 years and over
Number of patients discharged in thousands							
All conditions	30,951	12,406	18,545	2,531	11,227	6,329	10,864
Infectious and parasitic diseases001-139	808	403	404	203	224	121	259
Septicemia038	279	131	148	24	26	51	178
Neoplasms140-239	1,999	845	1,154	57	372	632	938
Malignant neoplasms140-208,230-234	1,577	765	812	41	185	500	852
Malignant neoplasm of large intestine and rectum153-154,197.5	161	78	83	*	*	44	111
Malignant neoplasm of trachea, bronchus, and lung162,197.0,197.3	215	124	91	*	*7	86	122
Malignant neoplasm of breast174-175,198.81	170	*	169	*	27	73	70
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature210-229,235-239	422	79	342	16	188	132	86
Endocrine, nutritional and metabolic diseases, and immunity disorders240-279	1,178	487	691	113	256	301	507
Diabetes mellitus250	476	207	269	19	134	148	174
Volume depletion276.5	308	122	186	65	42	48	153
Diseases of the blood and blood-forming organs280-289	322	137	185	53	87	59	124
Mental disorders290-319	1,711	868	843	73	1,029	352	257
Psychoses290-299	908	408	500	26	480	207	195
Alcohol dependence syndrome303	258	196	63	*	177	62	17
Diseases of the nervous system and sense organs320-389	708	330	378	138	197	138	235
Diseases of the central nervous system320-336,340-349	314	147	167	43	120	64	87
Diseases of the ear and mastoid process380-389	145	72	73	72	21	18	34
Diseases of the circulatory system390-459	5,597	2,866	2,730	33	401	1,631	3,532
Heart disease391-392.0,393-398,402,404,410-416,420-429	3,935	2,083	1,852	21	242	1,185	2,487
Acute myocardial infarction410	747	458	289	*	43	262	441
Coronary atherosclerosis414.0	416	285	130	*	21	177	217
Other ischemic heart disease411-413,414.1-414.9	971	505	467	*	62	350	559
Cardiac dysrhythmias427	542	256	286	*6	39	138	359
Congestive heart failure428.0	822	373	449	*7	19	144	651
Cerebrovascular disease430-438	829	375	454	*	29	173	623
Diseases of the respiratory system460-519	2,923	1,436	1,486	735	460	501	1,227
Acute respiratory infections460-466	376	187	189	215	54	35	71
Chronic disease of tonsils and adenoids474	73	32	41	51	20	*	*
Pneumonia480-486	1,059	535	524	208	135	161	556
Asthma493	463	201	263	193	117	78	76
Diseases of the digestive system520-579	3,187	1,392	1,795	249	895	819	1,224
Ulcers of the stomach and small intestine531-534	232	115	117	*	41	66	125
Appendicitis540-543	227	135	92	55	135	26	11
Inguinal hernia550	112	98	14	16	17	25	53
Noninfectious enteritis and colitis555-558	354	134	220	92	110	60	91
Cholelithiasis574	512	154	358	*	170	160	181
Diseases of the genitourinary system580-629	2,018	730	1,289	75	772	480	691
Calculus of kidney and ureter592	218	143	75	*	102	76	37
Hyperplasia of prostate600	221	221	...	-	*	49	173
Complications of pregnancy, childbirth, and the puerperium ¹630-676	662	...	662	*	659	*	...
Abortions and ectopic and molar pregnancies630-639	179	...	179	*	177	*	...
Diseases of the skin and subcutaneous tissue680-709	462	230	232	44	141	113	165
Cellulitis and abscess681-682	307	158	148	25	94	82	106
Diseases of the musculoskeletal system and connective tissue710-739	1,610	714	896	38	508	466	598
Arthropathies and related disorders710-719	554	212	342	13	122	132	288
Intervertebral disc disorders722	407	222	185	*	198	147	62
Congenital anomalies740-759	191	102	89	137	34	14	*6
Certain conditions originating in the perinatal period760-779	141	81	60	137	*	-	*
Symptoms, signs, and ill-defined conditions780-799	350	173	177	66	141	90	53
Injury and poisoning800-999	2,701	1,405	1,296	298	1,033	496	874
Fractures, all sites800-829	1,016	465	552	98	316	149	453
Fracture of neck of femur820	278	73	205	*	10	21	244
Intracranial injuries (excluding those with skull fracture)850-854	152	97	56	27	69	19	37
Lacerations and open wounds870-904	180	130	50	25	117	21	16
Supplementary classificationsV01-V82	4,383	207	4,176	80	4,017	116	170
Females with deliveriesV27	3,910	...	3,910	10	3,895	*	...

¹First-listed diagnosis for females with deliveries is coded V27, shown under "supplementary classifications."

Table 5. Rate of inpatients discharged from short-stay hospitals, by category of first-listed diagnosis, sex, and age: United States, 1992[Discharges from non-Federal hospitals. Excludes newborn infants. Diagnostic groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM)*]

Category of first-listed diagnosis and ICD-9-CM Code	Total	Sex		Age			
		Male	Female	Under 15 years	15-44 years	45-64 years	65 years and over
Rate of inpatients discharged per 10,000 population							
All conditions	1,221.0	1,008.0	1,422.0	452.4	960.0	1,310.2	3,365.0
Infectious and parasitic diseases001-139	31.9	32.8	31.0	36.3	19.2	25.0	80.3
Septicemia038	11.0	10.6	11.4	4.4	2.2	10.5	55.0
Neoplasms140-239	78.9	68.6	88.5	10.2	31.8	130.8	290.5
Malignant neoplasms140-208,230-234	62.2	62.2	62.3	7.3	15.8	103.5	263.8
Malignant neoplasm of large intestine and rectum153-154,197.5	6.3	6.3	6.4	*	*	9.2	34.5
Malignant neoplasm of trachea, bronchus, and lung162,197.0,197.3	8.5	10.1	7.0	*	*0.6	17.8	37.8
Malignant neoplasm of breast174-175,198.81	6.7	*	13.0	*	2.3	15.1	21.7
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature210-229,235-239	16.6	6.4	26.3	2.9	16.0	27.3	26.7
Endocrine, nutritional and metabolic diseases, and immunity disorders240-279	46.5	39.5	53.0	20.2	21.9	62.4	157.1
Diabetes mellitus250	18.8	16.8	20.6	3.4	11.5	30.7	53.9
Volume depletion276.5	12.2	9.9	14.2	11.6	3.6	9.9	47.4
Diseases of the blood and blood-forming organs280-289	12.7	11.2	14.2	9.4	7.4	12.2	38.4
Mental disorders290-319	67.5	70.5	64.7	13.1	88.0	72.8	79.7
Psychoses290-299	35.8	33.2	38.3	4.6	41.0	42.9	60.4
Alcohol dependence syndrome303	10.2	15.9	4.8	*	15.2	12.8	5.2
Diseases of the nervous system and sense organs320-389	27.9	26.8	29.0	24.7	16.8	28.5	72.8
Diseases of the central nervous system320-336,340-349	12.4	11.9	12.8	7.7	10.2	13.2	26.8
Diseases of the ear and mastoid process380-389	5.7	5.8	5.6	12.9	1.8	3.7	10.6
Diseases of the circulatory system390-459	220.8	232.9	209.4	5.9	34.3	337.6	1,083.9
Heart disease391-392.0,393-398,402,404,410-416,420-429	155.2	169.3	142.0	3.8	20.7	245.3	770.4
Acute myocardial infarction410	29.5	37.2	22.1	*	3.7	54.2	136.6
Coronary atherosclerosis414.0	16.4	23.2	10.0	*	1.8	36.7	67.2
Other ischemic heart disease411-413,414.1-414.9	38.3	41.0	35.8	*	5.3	72.4	173.3
Cardiac dysrhythmias427	21.4	20.8	21.9	*1.1	3.4	28.5	111.1
Congestive heart failure428.0	32.4	30.3	34.4	*1.3	1.6	29.9	201.6
Cerebrovascular disease430-438	32.7	30.5	34.8	*	2.5	35.7	193.0
Diseases of the respiratory system460-519	115.3	116.7	114.0	131.3	39.3	103.7	380.0
Acute respiratory infections460-466	14.8	15.2	14.5	38.5	4.6	7.3	22.1
Chronic disease of tonsils and adenoids474	2.9	2.6	3.2	9.1	1.7	*	*
Pneumonia480-486	41.8	43.5	40.1	37.2	11.5	33.2	172.1
Asthma493	18.3	16.3	20.1	34.4	10.0	16.1	23.6
Diseases of the digestive system520-579	125.7	113.1	137.7	44.5	76.6	169.6	379.2
Ulcers of the stomach and small intestine531-534	9.1	9.3	8.9	*	3.5	13.6	38.7
Appendicitis540-543	9.0	11.0	7.1	9.8	11.6	5.5	3.3
Inguinal hernia550	4.4	7.9	1.1	2.9	1.5	5.1	16.4
Noninfectious enteritis and colitis555-558	13.9	10.9	16.8	16.5	9.4	12.4	28.2
Cholelithiasis574	20.2	12.5	27.5	*	14.5	33.1	56.1
Diseases of the genitourinary system580-629	79.6	59.3	98.8	13.4	66.0	99.0	214.1
Calculus of kidney and ureter592	8.6	11.6	5.8	*	8.8	15.8	11.5
Hyperplasia of prostate600	8.7	18.0	...	-	*	10.0	53.5
Complications of pregnancy, childbirth, and the puerperium ¹630-676	26.1	...	50.8	*	58.3	*	...
Abortions and ectopic and molar pregnancies630-639	7.0	...	13.7	*	15.2	*	...
Diseases of the skin and subcutaneous tissue680-709	18.2	18.7	17.8	7.9	12.0	23.3	51.1
Cellulitis and abscess681-682	12.1	12.9	11.4	4.5	8.0	16.9	32.8
Diseases of the musculoskeletal system and connective tissue710-739	63.5	58.0	68.7	6.8	43.5	96.5	185.1
Arthropathies and related disorders710-719	21.9	17.2	26.3	2.3	10.4	27.3	89.1
Intervertebral disc disorders722	16.0	18.0	14.2	*	16.9	30.4	19.1
Congenital anomalies740-759	7.6	8.3	6.8	24.5	2.9	2.9	*2.0
Certain conditions originating in the perinatal period760-779	5.6	6.6	4.6	24.6	*	-	*
Symptoms, signs, and ill-defined conditions780-799	13.8	14.0	13.6	11.7	12.0	18.6	16.6
Injury and poisoning800-899	106.6	114.1	99.4	53.3	88.3	102.7	270.7
Fractures, all sites800-829	40.1	37.8	42.3	17.5	27.1	30.8	140.4
Fracture of neck of femur820	11.0	5.9	15.7	*	0.9	4.2	75.7
Intracranial injuries (excluding those with skull fracture)850-854	6.0	7.9	4.3	4.9	5.9	3.9	11.4
Lacerations and open wounds870-904	7.1	10.5	3.8	4.5	10.0	4.4	4.9
Supplementary classificationsV01-V82	172.9	16.8	320.2	14.4	343.5	24.0	52.7
Females with deliveriesV27	154.2	...	299.8	1.8	333.1	*	...

¹First-listed diagnosis for females with deliveries is coded V27, shown under "supplementary classifications."

Table 6. Average length of stay for inpatients discharged from short-stay hospitals, by category of first-listed diagnosis, sex, and age: United States, 1992[Discharges from non-Federal hospitals. Excludes newborn infants. Diagnostic groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM)*]

Category of first-listed diagnosis and ICD-9-CM Code	Total	Sex		Age			
		Male	Female	Under 15 years	15-44 years	45-64 years	65 years and over
Average length of stay in days							
All conditions	6.2	6.7	5.8	4.9	4.3	6.3	8.2
Infectious and parasitic diseases001-139	7.9	8.0	7.9	4.0	8.1	8.6	10.6
Septicemia038	10.8	10.7	10.9	7.0	10.9	10.6	11.4
Neoplasms140-239	7.7	8.6	7.0	7.0	5.5	7.4	8.8
Malignant neoplasms140-208,230-234	8.5	8.9	8.2	7.8	7.0	8.3	9.0
Malignant neoplasm of large intestine and rectum153-154,197.5	11.5	11.0	11.9	*	*	10.3	12.0
Malignant neoplasm of trachea, bronchus, and lung162,197.0,197.3	8.3	8.1	8.6	*	11.2	8.1	8.3
Malignant neoplasm of breast174-175,198.81	4.1	*	4.1	*	4.2	4.0	4.1
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature210-229,235-239	4.6	6.4	4.2	5.2	4.0	4.2	6.6
Endocrine, nutritional and metabolic diseases, and immunity disorders240-279	6.4	6.3	6.4	4.0	4.8	6.0	7.9
Diabetes mellitus250	6.9	7.0	6.8	4.1	5.1	6.8	8.6
Volume depletion276.5	6.4	6.1	6.6	3.0	4.0	5.8	8.8
Diseases of the blood and blood-forming organs280-289	6.0	5.9	6.2	3.8	5.7	5.7	7.4
Mental disorders290-319	10.9	10.2	11.5	16.4	10.2	10.6	12.4
Psychoses290-299	12.9	12.0	13.7	18.4	12.2	13.1	13.8
Alcohol dependence syndrome303	9.4	9.0	10.7	*	9.9	7.9	9.3
Diseases of the nervous system and sense organs320-389	5.5	5.7	5.3	3.7	5.2	6.1	6.5
Diseases of the central nervous system320-336,340-349	8.8	9.3	8.4	6.8	6.8	9.3	12.3
Diseases of the ear and mastoid process380-389	2.6	2.5	2.8	2.3	2.0	2.5	3.8
Diseases of the circulatory system390-459	7.0	6.9	7.2	7.4	5.4	6.2	7.6
Heart disease391-392.0,393-398,402,404,410-416,420-429	6.7	6.4	7.0	7.9	5.3	5.7	7.2
Acute myocardial infarction410	8.1	7.7	8.8	*	5.7	7.4	8.8
Coronary atherosclerosis414.0	5.6	5.5	6.0	*	3.9	4.9	6.4
Other ischemic heart disease411-413,414.1-414.9	5.0	4.9	5.1	*	3.6	4.3	5.5
Cardiac dysrhythmias427	5.2	4.9	5.5	*6.1	3.0	4.5	5.7
Congestive heart failure428.0	7.9	7.8	8.0	*9.7	6.6	6.9	8.2
Cerebrovascular disease430-438	8.8	8.9	8.8	*	9.1	8.9	8.8
Diseases of the respiratory system460-519	6.8	6.7	6.8	3.5	5.0	7.1	9.2
Acute respiratory infections460-466	4.0	3.7	4.2	3.4	3.2	4.8	6.1
Chronic disease of tonsils and adenoids474	1.3	1.4	1.2	1.2	1.4	*	*
Pneumonia480-486	8.3	8.5	8.1	4.5	7.2	8.0	10.1
Asthma493	4.3	3.6	4.9	2.9	4.0	6.1	6.6
Diseases of the digestive system520-579	5.8	5.6	5.9	3.7	4.4	5.5	7.4
Ulcers of the stomach and small intestine531-534	6.9	6.2	7.7	*	5.0	6.7	7.7
Appendicitis540-543	4.4	4.4	4.5	4.1	4.0	5.8	8.5
Inguinal hernia550	2.5	2.5	2.7	1.4	1.5	2.9	3.0
Noninfectious enteritis and colitis555-558	4.9	4.9	4.9	2.7	4.9	4.7	7.3
Cholelithiasis574	4.4	5.2	4.0	*	2.9	4.0	6.1
Diseases of the genitourinary system580-629	4.7	5.0	4.5	4.0	3.6	4.2	6.3
Calculus of kidney and ureter592	3.1	2.9	3.5	*	2.8	2.6	4.4
Hyperplasia of prostate600	4.4	4.4	...	-	*	3.8	4.6
Complications of pregnancy, childbirth, and the puerperium ¹630-676	2.6	...	2.6	*	2.6	*	...
Abortions and ectopic and molar pregnancies630-639	2.0	...	2.0	*	2.0	*	...
Diseases of the skin and subcutaneous tissue680-709	7.8	7.1	8.4	3.9	5.5	7.9	10.6
Cellulitis and abscess681-682	6.7	6.2	7.3	4.0	5.1	7.3	8.5
Diseases of the musculoskeletal system and connective tissue710-739	6.2	5.5	6.8	5.5	3.9	5.2	9.1
Arthropathies and related disorders710-719	7.3	5.9	8.1	7.0	3.3	6.4	9.3
Intervertebral disc disorders722	4.4	4.0	4.9	*	3.7	4.2	7.1
Congenital anomalies740-759	6.3	6.8	5.8	6.9	4.7	5.5	*5.2
Certain conditions originating in the perinatal period760-779	12.4	13.5	10.7	12.3	*	-	*
Symptoms, signs, and ill-defined conditions780-799	3.0	3.0	2.9	2.6	2.6	2.7	4.7
Injury and poisoning800-999	6.2	5.8	6.7	3.7	4.8	6.2	8.9
Fractures, all sites800-829	7.7	7.0	8.4	4.3	5.7	6.8	10.2
Fracture of neck of femur820	11.7	11.9	11.6	*	8.4	11.1	11.9
Intracranial injuries (excluding those with skull fracture)850-854	5.5	5.1	6.3	2.3	4.9	6.9	8.3
Lacerations and open wounds870-904	3.8	3.6	4.5	2.2	3.5	4.8	7.0
Supplementary classificationsV01-V82	3.1	7.8	2.9	4.1	2.6	6.1	11.9
Females with deliveriesV27	2.6	...	2.6	3.3	2.6	*	...

¹First-listed diagnosis for females with deliveries is coded V27, shown under "supplementary classifications."

Table 7. Number of all-listed procedures for inpatients discharged from short-stay hospitals, by procedure category, sex, and age: United States, 1992

[Discharges from non-Federal hospitals. Excludes newborn infants. Procedure groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM)*]

Procedure category and ICD-9-CM Code	Total	Sex		Age			
		Male	Female	Under 15 years	15-44 years	45-64 years	65 years and over
Number of all-listed procedures in thousands							
All procedures	42,627	16,791	25,836	2,166	16,264	9,461	14,736
Operations on the nervous system01-05	921	442	479	194	307	206	213
Spinal tap03.31	339	184	155	146	83	55	54
Operations on the endocrine system06-07	102	29	72	*	39	38	21
Operations on the eye08-16	332	162	169	27	62	70	173
Operations on the ear18-20	121	68	53	64	31	10	15
Operations on the nose, mouth, and pharynx21-29	533	280	252	119	227	101	85
Tonsillectomy with or without adenoidectomy28.2-28.3	80	33	46	51	25	*	*
Operations on the respiratory system30-34	1,031	575	456	86	196	292	457
Bronchoscopy with or without biopsy33.21-33.24,33.27	315	178	138	28	56	92	139
Operations on the cardiovascular system35-39	4,424	2,630	1,794	152	501	1,544	2,226
Removal of coronary artery obstruction36.0	399	262	136	*	30	177	192
Coronary artery bypass graft ¹36.1	468	347	122	*	16	200	252
Cardiac catheterization37.21-37.23	1,028	636	392	15	95	432	486
Insertion, replacement, removal, and revision of pacemaker leads or device37.7-37.8	274	140	134	*	*8	51	214
Shunt or vascular bypass39.0-39.2	178	99	79	*	20	62	92
Hemodialysis39.95	322	156	167	*	81	103	138
Operations on the hemic and lymphatic system40-41	398	202	195	20	71	114	192
Operations on the digestive system42-54	5,358	2,258	3,100	218	1,430	1,332	2,378
Endoscopy of small intestine with or without biopsy45.11-45.14,45.16	864	405	459	15	151	212	486
Endoscopy of large intestine with or without biopsy45.21-45.25	573	238	335	*	79	142	348
Partial excision of large intestine45.7	217	91	126	*	23	56	133
Appendectomy, excluding incidental47.0	261	143	118	57	159	29	16
Cholecystectomy51.2	525	165	360	*	177	162	185
Repair of inguinal hernia53.0-53.1	139	121	18	20	20	31	69
Lysis of peritoneal adhesions54.5	344	67	277	*5	165	78	95
Operations on the urinary system55-59	1,413	776	637	48	331	352	682
Cystoscopy with or without biopsy57.31-57.33	414	291	123	9	62	98	245
Operations on the male genital organs60-64	539	539	...	40	32	109	357
Prostatectomy60.2-60.6	353	353	...	...	*	74	278
Operations on the female genital organs65-71	2,302	...	2,302	*7	1,562	511	222
Oophorectomy and salpingo-oophorectomy65.3-65.6	464	...	464	*	239	169	55
Bilateral destruction or occlusion of fallopian tubes66.2-66.3	380	...	380	*	378	*	...
Hysterectomy68.3-68.7	580	...	580	*	335	185	60
Dilation and curettage of uterus69.0	173	...	173	*	138	26	9
Repair of cystocele and rectocele70.5	141	...	141	*	36	58	47
Obstetrical procedures72-75	6,664	...	6,664	16	6,642	*6	...
Episiotomy with or without forceps or vacuum extraction72.1,72.21,72.31,72.71,73.6	1,611	...	1,611	*5	1,604	*	...
Artificial rupture of membranes73.0	729	...	729	*	727	*	...
Cesarean section74.0-74.2,74.4,74.99	921	...	921	*	918	*	...
Fetal EKG (scalp) and fetal monitoring, not otherwise specified75.32,75.34	1,241	...	1,241	*	1,238	*	...
Repair of current obstetric laceration75.5-75.6	790	...	790	*	787	*	...
Operations on the musculoskeletal system76-84	3,266	1,652	1,614	171	1,252	841	1,002
Partial excision of bone76.2-76.3,77.6-77.8	222	115	107	9	95	73	45
Open reduction of fracture with internal fixation79.3	417	187	230	21	151	74	171
Excision or destruction of intervertebral disc80.5	319	175	144	*	157	118	44
Total hip replacement81.51	127	49	79	-	10	33	84
Total knee replacement81.54	167	53	115	*	*	38	126
Operations on the integumentary system85-86	1,371	563	808	91	453	382	445
Mastectomy85.4	117	*	116	-	19	44	54
Debridement of wound, infection, or burn86.22,86.28	308	178	129	20	92	82	113
Skin graft86.6-86.7	108	59	48	11	35	30	32
Miscellaneous diagnostic and therapeutic procedures87-99	13,854	6,615	7,239	908	3,128	3,550	6,268
Computerized axial tomography87.03,87.41,87.71,88.01,88.38	1,266	608	658	68	286	290	621
Pyelogram87.73-87.75	203	105	98	*	69	62	68
Arteriography and angiocardiology using contrast material88.4-88.5	1,771	1,060	711	20	194	714	844
Diagnostic ultrasound88.7	1,458	587	871	63	366	339	689
Circulatory monitoring89.6	596	287	309	35	101	130	329
Radioisotope scan92.0-92.1	464	203	261	12	82	133	237
Respiratory therapy93.9	819	381	438	168	128	159	365

¹The number of discharged patients with a coronary artery bypass graft was 309,000.

Table 8. Rate of all-listed procedures for inpatients discharged from short-stay hospitals, by procedure category, sex, and age: United States, 1992[Discharges from non-Federal hospitals. Excludes newborn infants. Procedure groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM)*]

Procedure category and ICD-9-CM Code	Total	Sex		Age				
		Male	Female	Under 15 years	15-44 years	45-64 years	65 years and over	
		Rate of all-listed procedures per 100,000 population						
All procedures	16,815.7	13,642.3	19,810.6	3,871.1	13,907.5	19,585.5	45,643.8	
Operations on the nervous system01-05	363.2	359.1	367.1	347.6	262.6	427.4	659.3	
Spinal tap03.31	133.7	149.4	118.8	260.7	71.3	114.7	167.6	
Operations on the endocrine system06-07	40.0	23.6	55.6	*	33.4	78.4	65.4	
Operations on the eye08-16	130.9	131.9	129.9	47.8	53.4	144.8	535.0	
Operations on the ear18-20	47.7	54.9	41.0	115.2	26.2	21.7	47.9	
Operations on the nose, mouth, and pharynx21-29	210.1	227.7	193.6	212.9	194.3	209.8	263.2	
Tonsillectomy with or without adenoidectomy28.2-28.3	31.4	26.9	35.6	90.8	21.5	*	*	
Operations on the respiratory system30-34	406.7	467.0	349.8	153.0	168.0	604.2	1,415.6	
Bronchoscopy with or without biopsy33.21-33.24,33.27	124.4	144.4	105.5	50.3	47.6	190.9	431.5	
Operations on the cardiovascular system35-39	1,745.1	2,136.9	1,375.4	272.3	428.8	3,197.0	6,894.1	
Removal of coronary artery obstruction36.0	157.2	213.3	104.3	*	25.3	366.2	594.4	
Coronary artery bypass graft ¹36.1	184.8	281.8	93.2	*	13.6	413.7	781.7	
Cardiac catheterization37.21-37.23	405.6	517.1	300.4	27.0	81.3	893.8	1,506.3	
Insertion, replacement, removal, and revision of pacemaker leads or device37.7-37.8	108.1	113.5	102.9	*	*6.9	104.6	661.7	
Shunt or vascular bypass39.0-39.2	70.3	80.8	60.4	*	17.3	129.0	284.8	
Hemodialysis39.95	127.2	126.5	127.8	*	69.2	213.0	426.3	
Operations on the hemic and lymphatic system40-41	156.8	164.4	149.7	35.7	60.6	236.6	596.1	
Operations on the digestive system42-54	2,113.6	1,834.4	2,377.0	389.8	1,222.5	2,757.4	7,365.8	
Endoscopy of small intestine with or without biopsy45.11-45.14,45.16	341.0	329.1	352.1	26.7	129.2	439.9	1,504.6	
Endoscopy of large intestine with or without biopsy45.21-45.25	226.0	193.5	256.7	*	67.3	293.1	1,078.7	
Partial excision of large intestine45.7	85.6	74.0	96.6	*	20.0	116.3	411.6	
Appendectomy, excluding incidental47.0	102.9	116.1	90.4	102.5	136.0	59.5	48.4	
Cholecystectomy51.2	207.1	133.9	276.1	*	151.5	335.6	571.8	
Repair of inguinal hernia53.0-53.1	54.9	98.2	14.1	35.4	17.2	63.3	212.9	
Lysis of peritoneal adhesions54.5	135.5	54.4	212.1	*9.7	141.1	162.3	293.7	
Operations on the urinary system55-59	557.4	630.5	488.5	86.0	283.0	728.8	2,112.2	
Cystoscopy with or without biopsy57.31-57.33	163.5	236.5	94.6	16.9	53.0	202.3	759.9	
Operations on the male genital organs60-64	212.5	437.8	...	72.3	27.4	226.6	1,105.3	
Prostatectomy60.2-60.6	139.1	286.6	...	...	*	153.4	861.2
Operations on the female genital organs65-71	908.2	...	1,765.4	*12.4	1,335.9	1,058.7	686.8	
Oophorectomy and salpingo-oophorectomy65.3-65.6	183.1	...	355.9	*	204.5	350.0	169.1	
Bilateral destruction or occlusion of fallopian tubes66.2-66.3	149.8	...	291.1	*	323.4	*	...	
Hysterectomy68.3-68.7	228.8	...	444.7	*	286.3	382.8	186.6	
Dilation and curettage of uterus69.0	68.3	...	132.8	*	117.9	53.5	28.1	
Repair of cystocele and rectocele70.5	55.7	...	108.2	*	30.4	120.9	145.5	
Obstetrical procedures72-75	2,628.9	...	5,109.9	28.4	5,679.4	*13.2	...	
Episiotomy with or without forceps or vacuum extraction72.1,72.21,72.31,72.71,73.6	635.4	...	1,235.1	*9.6	1,371.5	*	...	
Artificial rupture of membranes73.0	287.5	...	558.9	*	621.3	*	...	
Cesarean section74.0-74.2,74.4,74.99	363.3	...	706.1	*	784.9	*	...	
Fetal EKG (scalp) and fetal monitoring, not otherwise specified75.32,75.34	489.6	...	951.6	*	1,058.7	*	...	
Repair of current obstetrical laceration75.5-75.6	311.8	...	606.1	*	673.4	*	...	
Operations on the musculoskeletal system76-84	1,288.3	1,342.3	1,237.4	306.1	1,070.2	1,740.5	3,104.4	
Partial excision of bone76.2-76.3,77.6-77.8	87.6	93.7	81.7	16.9	81.1	150.8	139.0	
Open reduction of fracture with internal fixation79.3	164.4	151.9	176.3	37.5	129.1	153.4	529.2	
Excision or destruction of intervertebral disc80.5	125.9	142.4	110.4	*	134.6	244.1	135.4	
Total hip replacement81.51	50.1	39.4	60.2	-	8.7	68.1	260.2	
Total knee replacement81.54	66.1	42.9	87.9	*	*	79.5	391.1	
Operations on the integumentary system85-86	540.9	457.7	619.4	162.8	387.4	791.2	1,378.1	
Mastectomy85.4	46.0	*	88.8	-	16.4	90.5	166.5	
Debridement of wound, infection, or burn86.22,86.28	121.4	145.0	99.1	36.1	78.9	169.3	351.4	
Skin graft86.6-86.7	42.5	48.1	37.1	19.3	29.7	61.7	99.9	
Miscellaneous diagnostic and therapeutic procedures87-99	5,465.1	5,374.2	5,551.0	1,622.5	2,674.7	7,349.2	19,414.7	
Computerized axial tomography87.03,87.41,87.71,88.01,88.38	499.4	493.9	504.7	121.8	244.7	600.9	1,925.0	
Pleurogram87.73-87.75	79.9	85.0	75.1	*	58.8	128.9	209.5	
Arteriography and angiocardiology using contrast material88.4-88.5	698.7	861.3	545.2	35.3	165.5	1,477.7	2,614.1	
Diagnostic ultrasound88.7	575.2	477.2	667.6	113.1	313.2	702.4	2,134.7	
Circulatory monitoring89.6	234.9	232.9	236.9	62.1	86.4	269.9	1,020.4	
Radioisotope scan92.0-92.1	183.1	165.3	199.9	21.4	69.9	276.1	734.2	
Respiratory therapy93.9	323.2	309.6	335.9	300.0	109.0	328.8	1,130.6	

¹The rate per 1,000,000 population of discharged patients with a coronary bypass graft was 121.9.

Technical notes

Survey methodology

Source of data

The National Hospital Discharge Survey covers discharges from noninstitutional hospitals, exclusive of Federal, military, and Department of Veterans Affairs hospitals, located in the 50 States and the District of Columbia. Only short-stay hospitals (hospitals with an average length of stay for all patients of fewer than 30 days) or those whose specialty is general (medical or surgical) or children's general are included in the survey. These hospitals must also have six beds or more staffed for patient use.

From 1988 through 1990, the NHDS sampling frame consisted of hospitals that were listed in the April 1987 SMG Hospital Market Database (3), met the above criteria, and began accepting patients by August 1987. In 1991 the sampling frame was updated to include hospitals from the 1991 SMG Hospital Database (4). For 1992, the sample consisted of 528 hospitals. Of the 528 hospitals, 14 were found to be out of scope (ineligible) because they went out of business or otherwise failed to meet the criteria for the NHDS universe. Of the 514 in-scope (eligible) hospitals, 494 responded to the survey.

Sample design and data collection

The NCHS has conducted the NHDS continuously since 1965. The original sample was selected in 1964 from a frame of short-stay hospitals listed in the National Master Facility Inventory. That sample was updated periodically with samples of hospitals that opened later. Sample hospitals were selected with probabilities ranging from certainty for the largest hospitals to 1 in 40 for the smallest hospitals. Within each sample hospital, a systematic random sample of discharges was selected. A report on the design and development of the original NHDS has been published (1).

Beginning in 1988, the NHDS sample includes with certainty all hospitals with 1,000 beds or more or 40,000 discharges or more annually. The remaining sample of hospitals is based

on a stratified three-stage design. The first stage consists of a selection of 112 primary sampling units (PSU's) that comprise a probability subsample of PSU's to be used in the 1985-94 National Health Interview Survey. The second stage consists of a selection of noncertainty hospitals from the sample PSU's. At the third stage, a sample of discharges was selected by a systematic random sampling technique.

Two data collection procedures were used for the survey. The first was a manual system of sample selection and data abstraction. The second was an automated method, used for approximately 34 percent of the respondent hospitals in 1992, that involved the purchase of data tapes from abstracting service organizations, State data systems, or hospitals.

In the manual system, the sample selection and the transcription of information from the hospital records to abstract forms were performed at the hospitals. The completed forms, along with sample selection control sheets, were forwarded to NCHS for coding, editing, and weighting. Of the hospitals using the manual system in 1992, about 58 percent had the work performed by their own medical records staff. In the remaining hospitals using the manual system, personnel of the U.S. Bureau of the Census did the work on behalf of NCHS.

For the automated system, NCHS purchased tapes containing machine-readable medical record data that were systematically sampled by NCHS.

The medical abstract form and the automated data tapes contain items relating to the personal characteristics of the patient, including birth date, sex, race, and marital status but not name and address; administrative information, including admission and discharge dates, discharge status, and medical record number; and medical information, including diagnoses and surgical and nonsurgical operations or procedures. Since 1977, patient ZIP Code, expected source of payment, and dates of surgery have also been collected. (The medical record number and patient ZIP Code are

confidential information and are not available to the public.)

Presentation of estimates

The relative standard error of the estimate and the number of sample records on which the estimate is based (referred to as the sample size) are used to identify estimates with relatively low reliability.

Because of the complex sample design of the NHDS, estimates of less than 5,000 are not presented; only an asterisk (*) appears in the tables. These estimates generally have a relative standard error of more than 30 percent or are based on a sample of fewer than 30 cases. Estimates of 5,000 to 9,000 are preceded by an asterisk (*) to indicate that they should not be assumed to be reliable. These estimates are generally based on fewer than 60 cases.

Sampling errors and rounding of numbers

The standard error is primarily a measure of sampling variability that occurs by chance because only a sample rather than the entire universe is surveyed. The relative standard error of the estimate is obtained by dividing the standard error by the estimate itself and is expressed as a percent of the estimate. The resulting value is multiplied by 100, so the relative standard error is expressed as a percent of the estimate.

Estimates of sampling variability were calculated with SESUDAAN software, which 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 (5).

The constants for relative standard error curves for the 1992 National Hospital Discharge Survey are presented in table I. The relative standard error [RSE(*X*)] of an estimate *X* may be estimated from the formula:

$$RSE(X) = 100 \sqrt{a + b/X}$$

where *X*, *a*, and *b* are as defined in table I.

Estimates have been rounded to the nearest thousandth. For this reason, figures within tables do not always add to the

totals. Rates and average lengths of stay were calculated from original, unrounded figures and will not necessarily agree precisely with rates or average lengths of stay calculated from rounded data.

Tests of significance

In this report, statistical inference is based on the two-sided test with a critical value of 1.96 (0.05 level of significance). Terms such as “higher” and “less” indicate that differences are statistically significant. Terms such as “similar” or “no difference” mean that no statistically significant difference exists between the estimates being compared. A lack of comment on the difference between any two estimates does not mean that the difference was tested and found not to be significant.

Terms relating to hospitalization

Hospitals—All hospitals with an average length of stay for all patients of fewer than 30 days or hospitals whose specialty is general (medical or surgical) or children’s general are eligible for inclusion in the National Hospital Discharge Survey, except Federal hospitals, hospital units of institutions, and hospitals with fewer than six beds staffed for patients’ use.

Patient—A person who is formally admitted to the inpatient service of a short-stay hospital for observation, care, diagnosis, or treatment. The terms “patient” and “inpatient” are used synonymously.

Newborn infant—A patient admitted by birth to a hospital.

Discharge—The formal release of a patient by a hospital; that is, the termination of a period of hospitalization by death or by disposition to place of residence, nursing home, or another hospital. The terms “discharges” and “patients discharged” are used synonymously.

Discharge rate—The ratio of the number of hospital discharges during a year to the number of persons in the civilian population on July 1 of that year.

Days of care—The number of patient days accumulated by a patient at time of discharge. A stay of less than 1 day (patient admission and discharge on the same day) is counted as 1 day in the summation of total days of care. For patients admitted and discharged on different days, the number of days of care is computed by counting all days from (and including) the date of admission to (but not including) the date of discharge.

Average length of stay—The number of days of care accumulated by patients

discharged during the year divided by the number of these patients.

Terms relating to diagnoses

Diagnosis—A disease or injury (or factor that influences health status and contact with health services that is not itself a current illness or injury) on the medical record of a patient.

Principal diagnosis—The condition established after study to be chiefly responsible for occasioning the admission of the patient to the hospital for care.

First-listed diagnosis—The coded diagnosis identified as the principal diagnosis or listed first on the face sheet or discharge summary of the medical record if the principal diagnosis cannot be identified. The number of first-listed diagnoses is equivalent to the number of discharges.

Terms relating to procedures

Procedure—A surgical or nonsurgical operation, diagnostic procedure, or special treatment reported on the medical record of a patient. Beginning with the 1991 data, all ICD-9-CM procedure codes are used in the NHDS. Previously selected codes, primarily codes for miscellaneous diagnostic and therapeutic procedures, were not used.

All-listed procedures—The number of procedures on the face sheet of the medical record. In the NHDS a maximum of four procedures are coded.

Rate of procedures—The ratio of the number of procedures during a year to the number of persons in the civilian population on July 1 of that year determines the rate of procedures.

Demographic terms

Population—The U.S. resident population excluding members of the Armed Forces.

Age—Patient’s age at birthday prior to admission to the hospital.

Geographic region—Hospitals are classified by location in one of the four geographic regions of the United States

Table I. Estimated parameters for relative standard error equations for National Hospital Discharge Survey statistics, by sex, age, and geographic region: United States, 1992

Characteristic	Number of discharges or first-listed diagnoses		Number of procedures	
	a	b	a	b
Total	0.00097	449.059	0.00143	377.158
Sex				
Male	0.00377	355.244	0.00465	336.276
Female	0.00089	404.530	0.00124	416.841
Age				
Under 15 years	0.06075	81.775	0.10248	74.715
15-44 years	0.01291	44.505	0.00903	153.675
45-64 years	0.00656	147.706	0.00494	295.564
65 years and over	0.00175	464.831	0.00986	288.155
Region				
Northeast	0.00275	277.031	0.00556	166.484
Midwest	0.00358	296.767	0.00587	240.949
South	0.00375	464.132	0.00298	430.632
West	0.00006	1,168.044	0.00831	735.033

that correspond to those used by the U.S. Bureau of the Census.

<i>Region</i>	<i>States included</i>
Northeast. . . .	Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania
Midwest. . . .	Michigan, Ohio, Illinois, Indiana, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas
South.	Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas
West.	Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Hawaii, and Alaska

Symbols

---	Data not available
. . .	Category not applicable
—	Quantity zero
0.0	Quantity more than zero but less than 0.05
Z	Quantity more than zero but less than 500 where numbers are rounded to thousands
*	Figure does not meet standard of reliability or precision (see Technical notes)
#	Figure suppressed to comply with confidentiality requirements

Suggested citation

Graves E.J. 1992 Summary: National Hospital Discharge Survey. Advance data from vital and health statistics; no 249. Hyattsville, Maryland: National Center for Health Statistics. 1994.

Copyright information

All material appearing in this report is in the public domain and may be reproduced or copied without permission; citation as to source, however, is appreciated.

National Center for Health Statistics

Director
Manning Feinleib, M.D., Dr. P.H.
Deputy Director
Jack R. Anderson

U.S. DEPARTMENT OF HEALTH AND
HUMAN SERVICES
Public Health Service
Centers for Disease Control and Prevention
National Center for Health Statistics
6525 Belcrest Road
Hyattsville, Maryland 20782

BULK RATE POSTAGE & FEES PAID PHS/NCHS PERMIT NO. G-281
--

Advance Data

nchs

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

Injury Prevention Measures in Households With Children in the United States, 1990

by Michelle Mayer, R.N., M.P.H., School of Public Health, The University of North Carolina at Chapel Hill, and Felicia B. LeClere, Ph.D., Division of Health Interview Statistics, National Center for Health Statistics

Introduction

As the leading cause of death among children, injuries claim more children's lives annually than the next six causes of childhood death combined (1,2). Motor vehicle accidents are the major cause of deaths due to injury in childhood. In 1991, the motor vehicle fatality rate for children ages 5–14 was 5.6 per 100,000 persons. In the same year, the death rate for the same age group from other accidents and adverse effects—which includes deaths from fires, drownings, poisonings, suffocation, firearms, and falls—was 4.6 persons per 100,000 persons (2). Injuries lead not only to excess mortality but also to permanent and temporary disability and substantial economic costs. Each year, the consequences of childhood injuries include 30,000 permanent disabilities, 600,000 hospitalizations, and 16 million emergency room visits (3).

Healthy People 2000, the health-related goals set by the U.S. Department of Health and Human Services, acknowledges and addresses the need for childhood injury prevention in the United States (4). *Healthy People 2000* targets reductions in injury-related

death rates and increases in individual use of preventive devices, such as car restraints and smoke detectors, and expansions of injury prevention education in schools and primary care sites. In addition, *Healthy People 2000* highlights the importance of targeting interventions for achieving these goals at high-risk populations. Children are among the high-risk populations identified for injury-related deaths due to motor vehicle crashes, drownings, poisonings, and residential fires.

Subgroups within each target population at greatest risk for suffering injuries must be identified. By doing so, interventions specifically designed to increase the awareness and utilization of injury prevention techniques within these subgroups may be developed and implemented. This process allows resources to be devoted to decreasing risk among those individuals, families, and communities most vulnerable and enhances the potential of these programs to meet the *Healthy People 2000* goals.

To target high-risk populations, the sociodemographic correlates of injury prevention behaviors must be identified. Past efforts to describe the

sociodemographic characteristics associated with increased childhood injury risk have highlighted related factors; however, findings vary across studies, are not consistently significant, and are not often generalizable to the nation as a whole. Factors such as family income; mother's marital and employment status; educational attainment; age, race, number of children in the household; and child's personality characteristics have been found to be associated with childhood injury experience (5–10).

The literature on parental knowledge and utilization of injury prevention techniques suggests that parents underestimate the threat posed by childhood injuries (11–12). While the majority of parents claim to use prevention control measures, the usefulness of the measures employed, such as "being careful," remains questionable at best. Of those precautions mentioned, only the parental assessment of child safety restraints was consistent with the true efficacy of the approach. Evidence suggests that parents of higher socioeconomic status were more likely to use effective injury



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service
Centers for Disease Control and Prevention
National Center for Health Statistics



prevention measures than their low income counterparts (12).

The current literature offers limited information on the correlates of parental knowledge and utilization of injury prevention measures. This analysis uses data from the National Health Interview Survey (NHIS) on Injury Control and Child Health to describe the knowledge and use of injury prevention techniques in households with children by selected sociodemographic and geographic characteristics. With these estimates, the progress toward the *Healthy People 2000* goals can be tracked as well as aided by the identification of population groups at high risk of injury.

Methods

This report uses data from the 1990 NHIS. The survey, performed each year since 1957, collects demographic and health data on the noninstitutionalized, civilian population of the United States from which national estimates of household and individual characteristics, disease incidence and prevalence, general health status measures, and health services utilization can be estimated. The interview contains two portions each year: the basic questionnaire, which collects similar information each year, and topic-specific annual questionnaires. In 1990, the Injury Control and Child Safety and Health questionnaire collected data on the household characteristics of all children from the household. Data on 33,243 children were collected from the respondent adult in the household.

Using SUDAAN, a SAS-based statistical package, the injury prevention knowledge and behavior patterns of the household in which the sample child resides are presented by various sociodemographic characteristics. The SUDAAN package estimates standard errors, which account for the effect of a complex, multistage sampling design such as the one used for the NHIS (13). The prevention measures of interest include the utilization of restraint devices in motor vehicles, possession of a functional smoke detector, awareness of poisoning-related interventions, and use of appropriate scald prevention techniques. Child characteristics

explored include age, gender, race, and Hispanic origin. Children are also classified by the attributes of their household—including family structure, the educational attainment of the responsible adult in the household, household income, and number of household members—as well as by geographic characteristics of their household—including region of the country, residential setting, and housing type.

The Injury Control and Child Health Supplement questionnaire contains data regarding the knowledge and use of measures aimed at the prevention of injuries due to residential fires, scalds, unintentional poisonings, and motor vehicle accidents. For a number of measures, data collection targeted only children in those age groups for which the information was appropriate. Poisoning prevention data were collected for children under the age of 10. Safety restraint includes the use of car safety seats for those children under 5 and seat belt use for those children ages 5–17. All other estimates refer to all children 17 years of age and under.

The Technical notes portion of this report details information regarding the survey design, sampling procedure, and the NHIS questionnaire document. It also describes the weighting procedures, the establishment of the reliability of estimates, and the adjustment of the standard errors required by the sampling design. The means of determining statistical significance are also included. All comparisons reported in the text are statistically significant at the 0.05 level unless otherwise noted.

Tables 1–5 contain national estimates of the number and percentage of children living in households in which various injury prevention techniques are known and employed. In addition to the overall estimates, the percentage of children in these households are shown by selected demographic characteristics. These percentages allow for the comparison of injury prevention behaviors across various groups and identify those groups less likely to know about and use preventive measures. Interventions targeted for and tailored to these groups

may enhance progress toward the year 2000 objectives.

Results

Use of the household injury prevention measures varies considerably across measures and among various sociodemographic groups. In general, the use of smoke detectors and car safety restraints exceeds the use of scald and poison prevention measures. The use of prevention measures varies consistently across race and ethnic groups, educational level of the responsible adult, and household income and poverty status. For certain measures, differences in use also exist by family types, housing types, residential area, and region.

Fire prevention

As shown in table 1, approximately 66.6 percent of respondents in households with a child under the age of 17 claimed to have at least one functional smoke detector in the residence. Respondents were also asked to identify appropriate means for testing the smoke detector. Accurate means include testing, going off due to smoke and/or cooking, changing batteries, checking the light indicator, or listening for the low battery warning beep. Among children under 17 years of age, 64.7 percent lived in households where the smoke detector had been tested appropriately. Respondents were also asked the proximity of the detector to the sleeping quarters. Smoke detectors located near sleeping areas are more likely to wake household members during a fire. Smoke detectors were located near sleeping areas in households of 62.7 percent of children.

White and non-Hispanic persons were more likely than their black and Hispanic counterparts to have a functional smoke detector, test it appropriately, and have one located near to a sleeping area. Children living in households where the educational level of the responsible adult was below 12 years were less likely to indicate use of these measures than those residing in households in which the responsible adult had 12 or more years of education. Likewise, household use of these

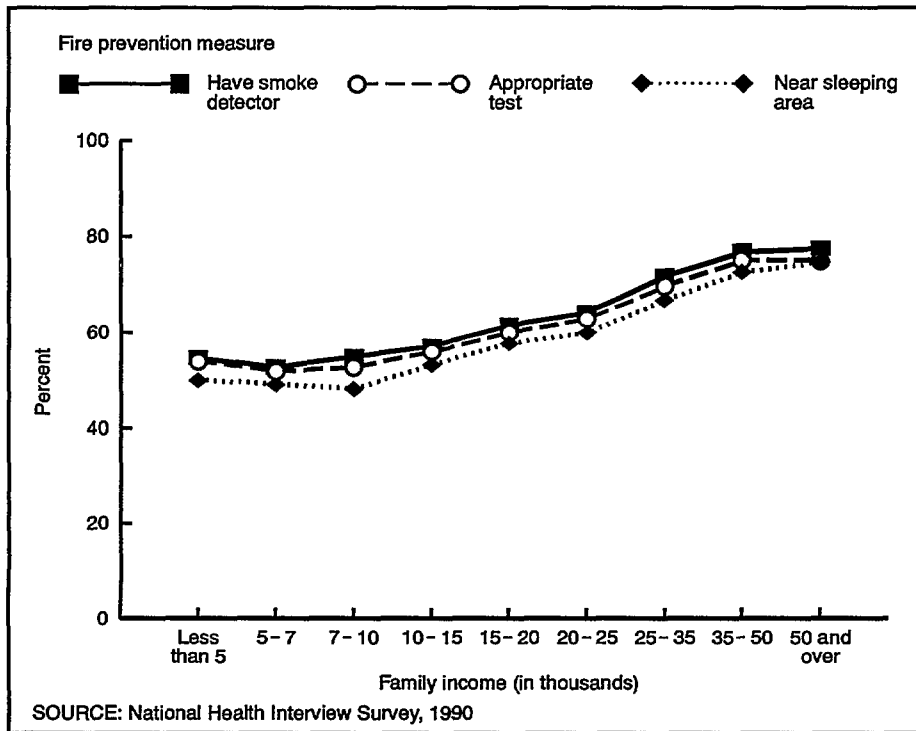


Figure 1. Percent of children in households using fire prevention measures: United States, 1990

measures increased with the income level of the household (see figure 1). Compared with children living with both biological parents, children living with their biological mother only or in some other type of family household were less likely to reside in households participating in the fire prevention measures previously described. Children residing in households with six or more members were less likely than those in households with three to five members or two or fewer members to be protected by household use of fire prevention measures.

The geographic variables examined include housing type, residential area, and region of the country. Housing type was not significantly related to use of smoke detectors. However, children living in metropolitan statistical areas (MSA), non-central city, were more likely than those living in central cities or non-metropolitan areas to live in households taking fire prevention measures. Likewise, those living in the Midwest were more likely to use these measures than those living in the Northeastern, Southern, and Western regions of the United States.

Scald prevention

Table 2 shows the prevalence of scald prevention measures usage to be much lower than that of fire prevention measures. The scald prevention measures examined are household hot water temperature known, household hot water temperature set below 125 degrees Fahrenheit, hot water temperature tested appropriately, thermometer used to test the water temperature in the last 12 months, and safe water temperature known. Overall, 23.1 percent of children under 17 live in households where the water temperature is known. Only 9.2 percent of children live in households where the water temperature is known to be below 125 degrees; yet, 21.5 percent of respondents cited the scalding temperature of water to be at or above 125 degrees. There is a discrepancy between knowledge and action in the adoption of scald prevention measures. Appropriate means of testing water temperature include using a thermometer and checking the hot water tank setting. Only members of the households of 17.3 percent of U.S. children know and use these means to

test their water temperature. Only 3.2 percent of children reside in households where the water temperature has been tested by a thermometer in the last 12 months.

White persons were more likely than non-white persons to use all scald prevention measures examined, except knowing safe water temperature. Non-Hispanic persons were more likely to participate in these practices than Hispanic persons. As with fire prevention measures, the use of scald prevention measures increases with level of education and income. Those with 12 or more years of education were significantly more likely to employ these techniques than those with less than 12 years of education. Children living in households below the Federal poverty level are less likely than those living at or above this level to participate in these preventive measures. Figure 2 depicts the relationship between income level and use of scald prevention measures. Children living with their biological parents were more likely than those living with their biological mother only or in other family types to be in a household where the water temperature is known, below 125 degrees, and tested appropriately. Those households with two or fewer members were less likely than those with three to five members to use these methods.

As with fire prevention measures, use of scald prevention measures does not seem to vary by housing type. Those children living in mobile homes or other residence types were equally likely as those in houses, apartments, or flats to be in a household utilizing these measures. Only those living in MSA-central cities were less likely than those living in MSA-non-central cities to be in households where the water temperature was known, below 125 degrees, and tested appropriately. Those living in the Midwest are more likely than those living in the Northeast, South, and West to reside in households where the water temperature is known. Children living in the West were less likely than those in the Midwest to be in households where the water temperature was known to be below 125 and tested appropriately.

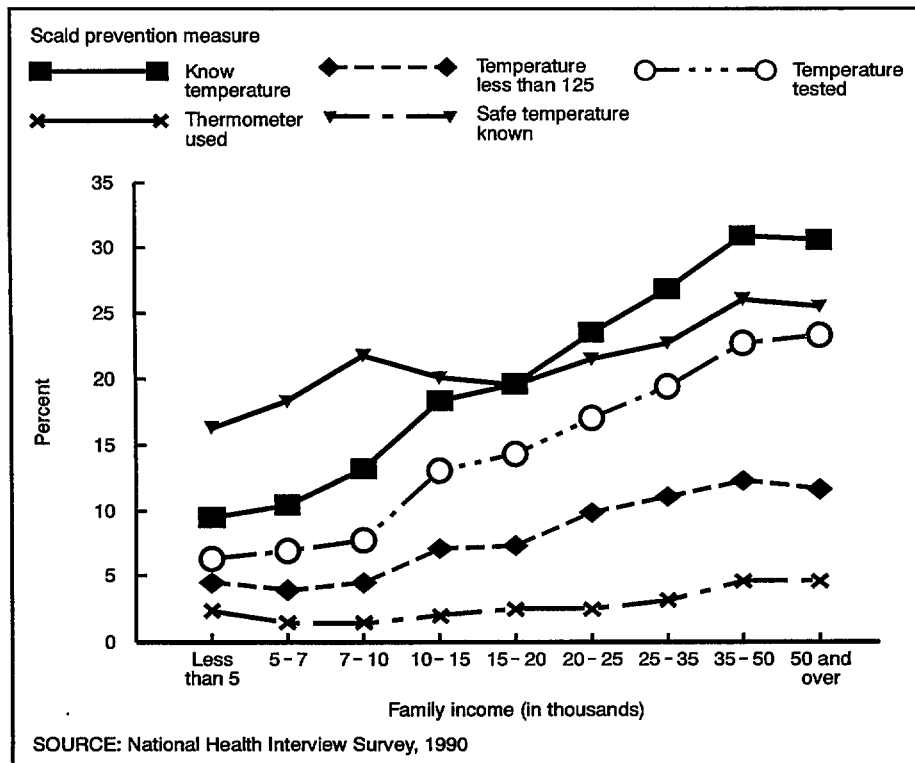


Figure 2. Percent of children in households using scald prevention methods: United States, 1990

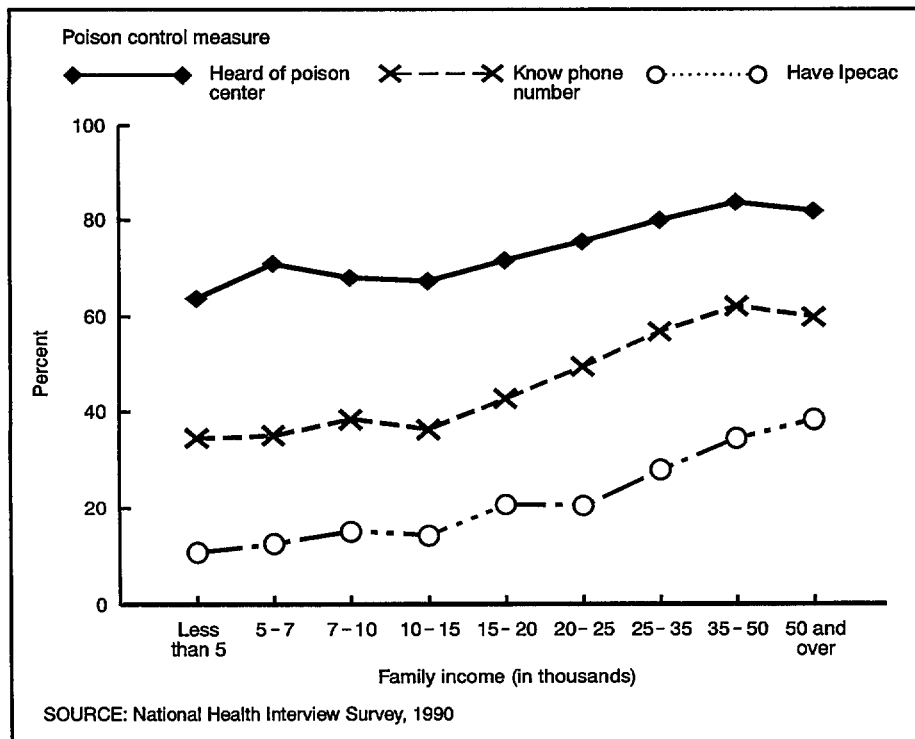


Figure 3. Percent of children in households using poison control measures: United States, 1990

Poison control

As previously stated, the poison control questions were asked of

respondents only in households where the sample child was below the age of 10. The poison control measures examined include familiarity with the

Poison Control Center, having the telephone number of the local Poison Control Center, and availability of ipecac syrup in the household. These findings are presented in table 3. While the majority of children (74.4 percent) lived in households in which the respondent had heard of the Poison Control Center, only 49.7 and 25.6 percent of children lived in households where the number of the Poison Control Center was known or had ipecac on hand, respectively.

The differential use of poison control measures among various sociodemographic groups follows trends similar to those identified in the analysis of fire and scald prevention measures. White persons and non-Hispanic persons are more likely to use these means than their non-white and Hispanic counterparts, respectively. Only the use of ipecac syrup was higher among those families with a sample child between the ages of 1-4 as compared with the other age groups. This is an especially important finding given that toddlers are at greatest risk for poison-related deaths. As with other preventive measures, poison control measures increase with education and income. As shown in figure 3, those children with family incomes of \$50,000 per year and above were more likely than those in income categories below \$25,000 per year to use these measures. Similarly, those living at or above the Federal poverty level were more likely to use these means. Children living in households with their biological parents and those in households with three to five members were more likely to be in households where the number to the Poison Control Center was known and ipecac was on hand than those children in households of other family types and sizes.

Children living in mobile homes were less likely to have ipecac on hand in the household than those living in houses, apartments, or flats. Likewise, those living in central cities were less likely than those in MSA, non-central cities to participate in any of the poison control measures examined. Those living in non-metropolitan, non-farm households were less likely than their MSA-non-central city counterparts to have ipecac on hand. With the exception of the use of ipecac syrup in the

Northeast, residents of the Midwest were more likely to use poison control measures than those residing in other regions of the country.

Car safety

The analysis, shown in table 4, demonstrates that use of car safety seats among those children under the age of 5 is fairly prevalent. Of those children under the age of 5, 76 percent had been brought home from the hospital in a car safety seat. At the time of the interview, nearly 65 percent of the sample children currently had a car safety seat. The majority (59.4 percent) of the sample children were reported to "always" use their car safety seat, while only a fraction (0.7 percent) never used one. The use of safety seats decreased with age as older children substitute seat belts for car seats. Infants under 1 year were significantly more likely than those children between the ages of 1–4 to have a car seat and "always" use it. Moreover, those children under the age of 1 year were slightly more likely to have been brought home from the hospital in a car seat than their older counterparts. Some of these differences may be due to a cohort effect with later cohorts of children more likely to be placed in car seats. This may be due to increased awareness of the effectiveness of car safety seats in reducing motor vehicle related injuries as well as changes in State laws as they relate to car seat use. Those children in households where the respondent's seat belt use frequency was reported as "always" were more likely than those children in households in which the respondent's use was reported as "often," "sometimes," or "never" to have been brought home from the hospital in a car safety seat, to presently have a safety seat and "always" use the safety seat.

Consistent with the other preventive measures examined, the associations between race, ethnicity, household education, income, and car safety seat use mirror the relationships previously described between these variables and other preventive measures. Figure 4 shows the relationship between income level and use of car safety seats and seat

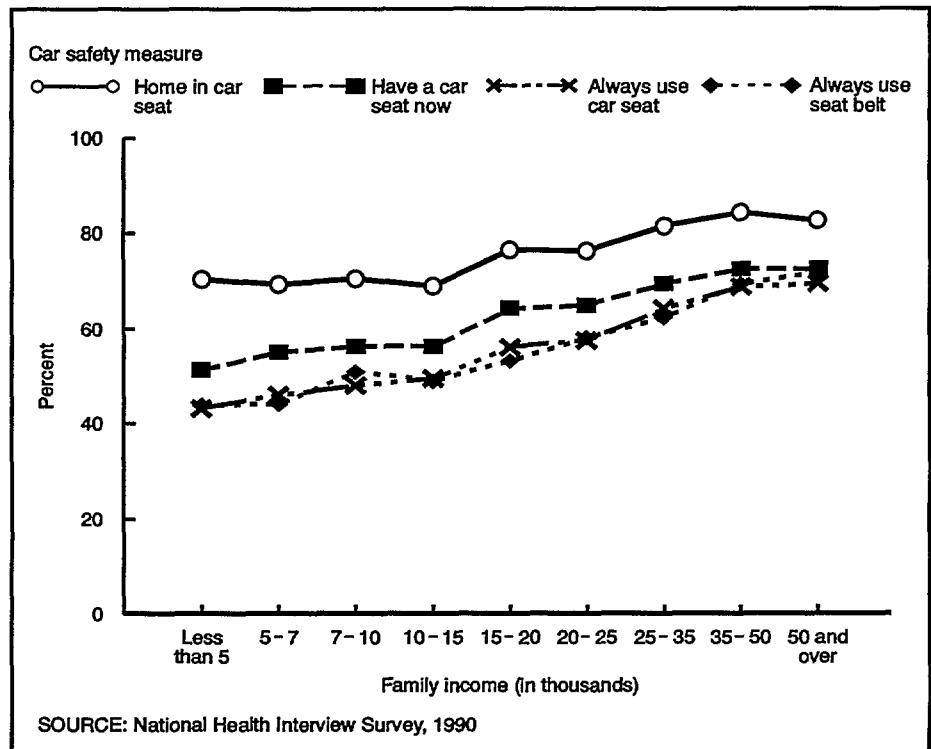


Figure 4. Percent of children using car safety seats and seat belts: United States, 1990

belts. Children living with their biological parents were more likely than those living with their biological mother only or in other family types to have a car seat and "always" use it. Children from households with two or fewer members or six or more members were less likely than those in households with three to five members to have a car safety seat and "always" use it.

The relationships between the three geographic variables and car restraint use is less consistent than the relationships between these variables and other preventive measures. Children from families residing in MSA, non-central city households were more likely to have a car safety seat and "always" use it than those living in MSA, central city areas. However, children from MSA, non-central cities were less likely than those from non-MSA farm households to have been brought home from the hospital in a safety seat, to presently have a safety seat, and to "always" use the safety seat.

The frequency of seat belt use by sample children between the ages of 5–17 is presented in table 5. Among these children, 60.2 percent "always"

use their seat belts. However, children above the age of 9 are less likely to "always" use their seat belts than their 5–9-year-old counterparts. Lower rates of seat belt use among children may explain the nearly tenfold difference in motor vehicle fatality risk between children 15–19 years of age and those under the age of 10 (14). The practice of "always" using one's seat belt is lower among those children who are non-white, as it is among Hispanic children. The percent of children always using their seat belt increases with the educational level of the responsible adult in the household, the income level of the family, and the frequency with which the respondent adult uses his/her seat belt. Children living in households where both biological parents are present are more likely than those in all other family types to "always" use their seat belt. Children living in MSA, non-central city areas and those residing in the Midwest are more likely than those living in other residential areas and regions to "always" wear their seat belt.

Discussion

The results presented here indicate that certain sociodemographic

characteristics are associated with the knowledge and use of household preventive measures. Specifically, these variables include race, ethnicity, educational attainment of responsible adult, family income level, and poverty status. In addition, family structure and size seems to be associated with most preventive measures, with those children from intact families and those with families of three to five members being more likely to be in households adopting preventive practices than children from other family types and sizes. Of the geographic variables examined, only region and residential area have an association with any of the preventive measures examined. Housing type failed to be associated with most measures. This is especially interesting in light of the finding in a previous study that mobile home residents were at increased risk for fire-related mortality; yet, they experienced less of a protective effect from smoke detectors than those living in other housing types (15). In that study, the presence of a smoke detector in a mobile home had less influence on the likelihood of a death resulting from a fire in the residence than in other housing types. This report corroborates this finding and suggests that this increased risk may be due to some other factor than smoke detector utilization.

Data from the NHIS questionnaire on Injury Control and Child Health and Safety provide timely national estimates of the prevalence of household adoption of injury prevention measures. While the majority of households utilize the fire prevention and car safety measures examined, increased adoption of these behaviors remains necessary to reach the year 2000 objectives. Only a small percent of children live in households that use scald prevention and poison control techniques. This report provides useful insight into the association between the knowledge and use of household injury prevention measures and sociodemographic characteristics for those households with children. The findings identify populations at risk and serve as a useful guide for the classification of populations with limited knowledge and use of injury prevention measures. Future injury reduction

interventions should incorporate this information into the design and implementation of their programs.

A public use data file based on the 1990 NHIS Injury Control and Child Health questionnaire is available. Information regarding this data file may be obtained by writing to the Systems and Programming Branch, Division of Health Interview Statistics, 6525 Belcrest Road, Hyattsville, MD 20782.

References

- Dershewitz RA, Williamson JW. Prevention of childhood household injuries: A controlled clinical trial. *Am J Pub Health* 67:1148-53. 1977.
- National Center for Health Statistics. Advance report of final mortality statistics, 1991. Monthly vital statistics report; vol 42 no 2, suppl. Hyattsville, Maryland: Public Health Service. 1993.
- Rodriguez JG. Childhood injuries in the United States: A priority issue. *Am J Dis Child* 144:625-6. 1990.
- Public Health Service. Healthy People 2000: National Health Promotion and Disease Prevention Objectives. Washington, DC: U.S. Department of Health and Human Services. 1990.
- McCormick MC, Shapiro S, Starfield BH. Injury and its correlates among 1-year-old children. *Am J Dis Child* 135:159-63. 1981.
- Larson CP, Pless B. Risk factors for injury in a 3-year-old birth cohort. *Am J Dis Child* 142:1052-7. 1988.
- Wicklund K, Moss S, Floyd F. Effects of maternal education, age, and parity on fatal infant accidents. *Am J Pub Health* 74:1150-52. 1984.
- Horwitz SM, Morgenstern H, DiPietro L, Morrison CL. Determinants of pediatric injuries. *Am J Dis Child* 142:605-11. 1988.
- Wadsworth J, Burnell J, Taylor B, Butler N. Family type and accidents in preschool children. *J Epid Community Health* 36:31-4. 1983.
- Nersesian WS, Petit MR, Shaper R, Lemieux D, Naor E. Childhood death and poverty: A study of all childhood deaths in Maine, 1976-80. *Pediatrics* 75:41-50. 1985.
- Halperin SF, Bass JL, Mehta KA. Knowledge of accident prevention among parents of young children in nine Massachusetts towns. *Public Health Rep* 98:548-53. 1987.
- Eichelberger MR, Gotshall CS, Feely HB, Harstad P, Bowman LM. Parental attitudes and knowledge of child safety. *Am J Dis Child* 144:714-20. 1990.
- Shah BV, Barnwell BG, Hunt PN, LaVange LM. SUDAAN users' manual, Release 6.0. Research Triangle Park, NC: Research Triangle Park Institute. 1992.
- Rosenberg ML, Rodriguez JG, Chorba TL. Childhood injuries: Where we are. *Pediatrics Suppl*:1084-91. 1990.
- Runyan CW, Bangdiwala SI, Linzer MA, Sacks JJ, Butts J. Risk factors for fatal residential fires. *NEJM* 327:859-63. 1992.
- Adams PF, Benson V. Current estimates for the National Health Interview Survey. National Center for Health Statistics. *Vital Health Stat* 10(181). 1991.

Table 1. Percent (and standard error) of children living in households using specified fire prevention measures, by selected sociodemographic characteristics: United States, 1990

Characteristic	All children ages 0-17 Number (in thousands)	Functional smoke detector in the household		Smoke detector tested appropriately		Smoke detector located near sleeping area	
		Percent	(standard error)	Percent	(standard error)	Percent	(standard error)
Total ¹	64,651	66.6	(0.55)	64.8	(0.55)	62.7	(0.56)
Children's characteristics							
Race:							
White	52,062	68.2	(0.60)	66.2	(0.60)	64.7	(0.60)
Non-white	12,590	60.1	(1.17)	58.7	(1.18)	54.5	(1.20)
Hispanic origin:							
Non-Hispanic	56,012	68.4	(0.57)	66.6	(0.57)	64.8	(0.58)
Hispanic	8,640	54.7	(1.40)	52.8	(1.42)	49.2	(1.41)
Age:							
Less than 1 year	4,075	67.8	(1.17)	65.7	(1.20)	63.2	(1.21)
1-4 years	15,010	67.7	(0.73)	66.0	(0.74)	63.8	(0.75)
5-9 years	18,366	67.6	(0.73)	65.7	(0.74)	63.8	(0.73)
10 years or older	27,201	65.1	(0.64)	63.3	(0.65)	61.4	(0.67)
Sex:							
Male	33,086	66.6	(0.61)	64.8	(0.62)	62.8	(0.62)
Female	31,565	66.6	(0.62)	64.8	(0.62)	62.7	(0.62)
Household characteristics							
Responsible adult's education:							
Less than 12 years	8,886	50.3	(1.39)	48.5	(1.41)	45.6	(1.39)
12 years	23,640	63.9	(0.84)	62.3	(0.85)	59.9	(0.84)
More than 12 years	31,738	73.9	(0.61)	71.9	(0.62)	70.3	(0.63)
Family structure:							
Biological mother and father	45,279	69.3	(0.59)	67.5	(0.60)	65.7	(0.61)
Biological mother only	10,318	66.1	(1.10)	64.1	(1.12)	61.6	(1.14)
Other	8,848	54.0	(1.21)	52.3	(1.23)	49.5	(1.20)
Family size:							
2 or fewer persons	2,893	66.7	(1.52)	64.2	(1.55)	62.2	(1.57)
3-5 persons	50,439	69.0	(0.52)	67.1	(0.53)	65.3	(0.54)
6 or more persons	11,319	55.7	(1.44)	54.4	(1.46)	51.6	(1.45)
Income:							
Less than \$5,000	2,697	54.6	(2.44)	53.7	(2.45)	49.9	(2.49)
\$5,000-\$6,999	1,530	52.6	(3.24)	51.8	(3.22)	49.1	(3.17)
\$7,000-\$9,999	2,487	54.8	(2.36)	52.6	(2.39)	48.0	(2.44)
\$10,000-\$14,999	4,965	57.1	(1.61)	55.9	(1.63)	53.1	(1.63)
\$15,000-\$19,999	5,567	61.8	(1.63)	60.1	(1.67)	57.8	(1.61)
\$20,000-\$24,999	4,697	64.4	(1.49)	63.1	(1.47)	60.1	(1.52)
\$25,000-\$34,999	9,872	71.9	(1.11)	69.9	(1.13)	67.1	(1.15)
\$35,000-\$49,999	11,372	76.9	(0.90)	75.1	(0.93)	72.8	(0.95)
Greater than \$50,000	12,687	77.5	(0.90)	74.9	(0.93)	74.7	(0.93)
Poverty status:							
At or above the poverty level	49,550	71.8	(0.55)	69.9	(0.55)	68.0	(0.56)
Below the poverty level	10,458	52.5	(1.39)	51.5	(1.40)	48.0	(1.41)
Geographic characteristics							
Housing type:							
House, apartment, flat	60,240	66.7	(0.54)	64.8	(0.54)	62.8	(0.55)
Mobile home	3,617	66.3	(2.56)	65.5	(2.52)	63.5	(2.54)
Other	794	58.1	(4.51)	58.0	(4.51)	53.7	(4.51)
Residential area:							
MSA, central city	19,211	64.5	(0.91)	62.7	(0.91)	59.4	(0.94)
MSA, non-central city	31,178	69.6	(0.70)	67.6	(0.71)	66.2	(0.71)
Non-MSA, non-farm	13,606	63.8	(1.53)	61.6	(1.55)	59.8	(1.51)
Non-MSA, farm	656	59.3	(3.57)	57.3	(3.70)	55.8	(4.00)
Region:							
Northeast	11,802	70.2	(1.02)	68.3	(1.02)	64.6	(1.12)
Midwest	15,833	73.6	(1.12)	71.9	(1.15)	69.7	(1.13)
South	22,725	62.2	(0.95)	60.8	(0.94)	59.0	(0.95)
West	14,291	62.9	(1.18)	60.3	(1.20)	59.3	(1.18)

¹Includes children with unknown family income and other missing data.

Table 2. Percent (and standard error) of children in households taking scald prevention measures, by selected sociodemographic characteristics: United States, 1990—Con.

Characteristics	All children ages 0-17 Number (in thousands)	Known hot water temperature		Hot water temperature set below 125 degrees		Water temperature tested appropriately		Thermometer used to test water temperature in the last 12 months		Temperature at which water scalds known by respondent	
		Percent	(standard error)	Percent	(standard error)	Percent	(standard error)	Percent	(standard error)	Percent	(standard error)
Total ¹	64,651	23.1	(0.46)	9.2	(0.29)	17.3	(0.44)	3.2	(0.15)	21.5	(0.44)
Child characteristics											
Race:											
White	52,061	26.0	(0.54)	10.2	(0.34)	19.7	(0.51)	3.6	(0.17)	21.7	(0.48)
Non-White	12,590	11.0	(0.66)	5.3	(0.46)	7.1	(0.53)	1.8	(0.26)	20.9	(0.93)
Hispanic origin:											
Non-Hispanic	56,012	24.9	(0.50)	9.8	(0.32)	18.8	(0.48)	3.4	(0.16)	22.0	(0.47)
Hispanic	8,640	11.0	(0.77)	5.2	(0.57)	7.2	(0.68)	2.0	(0.36)	18.4	(1.07)
Age:											
Less than 1 year	4,075	20.8	(1.04)	9.9	(0.76)	15.1	(0.90)	3.5	(0.51)	24.1	(1.03)
1-4 years	15,010	21.7	(0.62)	10.0	(0.47)	16.4	(0.58)	3.6	(0.25)	23.2	(0.63)
5-9 years	18,366	24.1	(0.66)	9.8	(0.43)	18.2	(0.64)	3.3	(0.23)	22.2	(0.67)
More than 10 years	27,201	23.5	(0.55)	8.3	(0.34)	17.5	(0.51)	2.9	(0.19)	19.8	(0.51)
Sex:											
Male	33,086	23.2	(0.52)	9.2	(0.33)	17.5	(0.49)	3.2	(0.17)	20.9	(0.48)
Female	31,565	22.9	(0.53)	9.3	(0.34)	17.0	(0.50)	3.2	(0.17)	22.1	(0.52)
Household characteristics											
Responsible adult's education:											
Less than 12 years	8,886	12.2	(0.91)	5.2	(0.60)	7.9	(0.71)	1.4	(0.27)	15.5	(1.01)
12 years	23,640	20.7	(0.65)	7.7	(0.38)	15.5	(0.62)	3.0	(0.26)	19.2	(0.65)
More than 12 years	31,738	28.1	(0.64)	11.6	(0.44)	21.4	(0.61)	3.9	(0.23)	25.1	(0.59)
Family structure:											
Biological mother and father	45,279	27.2	(0.56)	10.9	(0.37)	20.7	(0.54)	3.7	(0.19)	22.3	(0.52)
Biological mother only	10,318	11.5	(0.69)	5.2	(0.43)	7.6	(0.55)	1.3	(0.23)	21.1	(0.92)
Other	8,866	15.2	(0.80)	5.5	(0.50)	11.0	(0.69)	3.2	(0.39)	18.4	(0.93)
Family size:											
2 or fewer persons	2,893	14.0	(0.96)	6.5	(0.67)	9.4	(0.83)	1.7	(0.37)	20.4	(1.12)
3-5 persons	50,439	24.3	(0.47)	9.6	(0.29)	18.1	(0.43)	3.3	(0.16)	21.9	(0.44)
6 or more persons	11,319	20.0	(1.36)	8.4	(0.82)	15.7	(1.29)	3.1	(0.46)	20.1	(1.27)
Income:											
Less than \$5,000	2,697	9.5	(1.24)	4.5	(0.87)	6.3	(1.08)	2.4	*(0.73)	16.4	(1.59)
\$5,000-\$6,999	1,530	10.5	(1.60)	4.0	(1.04)	7.0	(1.40)	1.5	*(0.63)	18.4	(2.22)
\$7,000-\$9,999	2,487	13.3	(1.85)	4.5	(0.95)	7.8	(1.31)	1.5	*(0.49)	21.9	(2.05)
\$10,000-\$14,999	4,965	18.4	(1.27)	7.1	(0.83)	13.2	(1.13)	2.0	(0.45)	20.2	(1.26)
\$15,000-\$19,999	5,567	19.0	(1.25)	7.4	(0.83)	14.4	(1.18)	2.5	(0.52)	19.6	(1.22)
\$20,000-\$24,999	4,697	23.6	(1.40)	9.9	(0.89)	17.1	(1.21)	2.5	(0.49)	21.6	(1.35)
\$25,000-\$34,999	9,872	26.0	(1.09)	11.1	(0.75)	19.5	(1.03)	3.2	(0.39)	22.8	(1.03)
\$34,999-\$49,999	11,372	30.0	(0.99)	12.4	(0.75)	22.8	(0.94)	4.6	(0.42)	26.1	(0.95)
Greater than \$50,000	12,687	30.6	(0.92)	11.8	(0.65)	23.4	(0.85)	4.6	(0.42)	25.6	(0.95)
Poverty status:											
At or above the poverty level	49,550	26.4	(0.52)	10.6	(0.34)	20.0	(0.50)	3.7	(0.18)	23.1	(0.49)
Below the poverty level	10,458	13.6	(0.91)	5.2	(0.54)	9.0	(0.79)	2.0	(0.32)	18.8	(1.02)
Geographic characteristics											
Housing type:											
House, apartment, flat	60,240	22.9	(0.47)	9.2	(0.29)	17.1	(0.44)	3.2	(0.15)	21.8	(0.46)
Mobile home	3,617	26.6	(1.90)	10.6	(1.28)	22.2	(1.87)	3.8	(0.75)	15.9	(1.39)
Other	794	17.4	(3.21)	8.2	(2.32)	10.1	(2.50)	2.9	*(1.31)	24.4	(3.92)
Residential area:											
MSA, central city	19,211	16.3	(0.61)	6.4	(0.36)	11.1	(0.52)	2.8	(0.26)	21.8	(0.75)
MSA, non-central city	31,178	25.0	(0.61)	10.1	(0.42)	19.2	(0.57)	3.4	(0.23)	22.4	(0.59)
Non-MSA, non-farm	13,606	27.6	(1.30)	11.1	(0.76)	21.2	(1.30)	3.2	(0.29)	19.0	(1.06)
Non-MSA, farm	656	32.7	(4.55)	10.8	(2.31)	26.8	(4.23)	5.5	*(1.64)	23.1	(4.98)
Region:											
Northeast	11,802	23.2	(0.96)	9.1	(0.64)	17.8	(0.93)	3.9	(0.37)	21.6	(0.88)
Midwest	15,833	26.6	(0.99)	10.6	(0.65)	19.2	(0.95)	3.9	(0.35)	22.1	(0.95)
South	22,725	22.2	(0.76)	9.0	(0.48)	17.1	(0.71)	2.8	(0.23)	19.6	(0.70)
West	14,291	20.4	(1.03)	8.2	(0.56)	15.0	(1.01)	2.6	(0.26)	23.9	(1.05)

¹Includes children with unknown income and other missing data.

Table 3. Percent (and standard error) of children in households knowledgeable about poison prevention measures, by selected sociodemographic characteristics: United States, 1990

Characteristics	All children under age 10	Aware of the Poison Control Center		Poison Control Center number available		Ipecac kept in the household	
	Number (in thousands)	Percent (standard error)					
Total ¹	37,450	74.4	(0.55)	49.7	(0.71)	25.6	(0.58)
Child characteristics							
Race:							
White	30,277	76.8	(0.60)	53.3	(0.79)	28.7	(0.66)
Non-white	7,173	64.3	(1.35)	34.1	(1.34)	12.4	(0.87)
Hispanic origin:							
Non-Hispanic	32,307	78.1	(0.55)	53.0	(0.76)	27.9	(0.64)
Hispanic	5,143	51.3	(1.57)	29.0	(1.39)	10.9	(0.91)
Age:							
Less than 1 year	4,075	73.8	(1.06)	47.7	(1.28)	22.8	(1.11)
1-4 years	15,010	74.0	(0.71)	49.6	(0.86)	27.6	(0.74)
5-9 years	18,366	74.9	(0.64)	50.2	(0.80)	24.5	(0.63)
Sex:							
Male	19,167	74.6	(0.64)	49.6	(0.79)	25.6	(0.66)
Female	18,283	74.2	(0.67)	49.7	(0.84)	25.5	(0.69)
Household characteristics							
Responsible adult's education:							
Less than 12 years	4,925	52.9	(1.68)	26.6	(1.64)	8.1	(0.90)
12 years	13,683	74.0	(0.89)	45.7	(1.06)	19.8	(0.77)
More than 12 years	18,649	81.1	(0.61)	59.1	(0.83)	34.7	(0.81)
Family structure:							
Biological mother and father	27,179	77.3	(0.59)	53.9	(0.79)	26.6	(0.70)
Biological mother only	5,541	73.8	(1.29)	44.2	(1.50)	18.1	(1.04)
Other	4,692	58.7	(1.47)	31.7	(1.34)	11.4	(0.97)
Family size:							
2 or fewer persons	1,417	76.0	(1.68)	44.6	(2.05)	18.1	(1.54)
3-5 persons	29,689	76.7	(0.54)	51.8	(0.72)	27.4	(0.64)
6 or more persons	6,344	63.5	(1.69)	40.7	(1.81)	18.7	(1.26)
Income:							
Less than \$5,000	1,765	63.8	(2.80)	34.8	(2.57)	10.8	(1.58)
\$5,000-\$6,999	960	71.1	(2.76)	35.3	(3.23)	12.6	(2.56)
\$7,000-\$9,999	1,501	68.1	(2.65)	38.4	(2.69)	15.1	(2.05)
\$10,000-\$14,999	3,021	67.5	(1.87)	36.4	(1.83)	14.3	(1.26)
\$15,000-\$19,999	3,412	71.7	(1.81)	42.8	(1.87)	20.9	(1.57)
\$20,000-\$24,999	2,719	75.6	(1.62)	49.5	(1.87)	20.6	(1.52)
\$25,000-\$34,999	5,897	80.1	(1.20)	56.9	(1.42)	28.0	(1.26)
\$34,999-\$49,999	6,485	83.8	(0.99)	62.2	(1.34)	34.7	(1.33)
Greater than \$50,000	6,873	82.0	(0.97)	59.9	(1.29)	38.5	(1.31)
Poverty status:							
At or above the poverty level	28,342	79.2	(0.54)	55.3	(0.75)	29.9	(0.66)
Below the poverty level	6,518	64.4	(1.50)	34.9	(1.47)	12.9	(0.96)
Geographic characteristics							
Housing type:							
House, apartment, flat	34,712	74.4	(0.58)	49.9	(0.71)	26.0	(0.59)
Mobile home	2,342	76.7	(1.87)	48.0	(2.63)	19.2	(2.16)
Other	397	67.8	(4.47)	40.2	(5.26)	24.6	(4.55)
Residential area:							
MSA, central city	11,350	68.6	(1.02)	43.1	(1.01)	20.2	(0.85)
MSA, non-central city	18,051	76.4	(0.72)	53.9	(0.89)	29.7	(0.79)
Non-MSA, non-farm	7,697	78.0	(1.42)	49.3	(1.95)	23.3	(1.54)
Non-MSA, farm	352	86.3	(3.69)	54.4	(5.27)	36.7	(4.56)
Region:							
Northeast	6,901	73.2	(1.24)	53.0	(1.35)	29.2	(1.21)
Midwest	8,908	82.7	(0.96)	59.7	(1.38)	29.5	(1.27)
South	13,034	73.3	(0.96)	42.8	(1.27)	21.4	(0.93)
West	8,607	68.6	(1.24)	47.0	(1.41)	24.8	(1.25)

¹Includes children with unknown income and other missing data.

Table 4. Percent of children under age 5 using selected care safety precautions, by selected sociodemographic characteristics: United States, 1990

Characteristic	All children under age 5	Brought home from hospital in car safety seat		Possessing a car seat at time of survey		Never		Safety seat use frequency ¹ sometimes/often		Always	
		Number (in thousands)	Percent (standard error)	Percent (standard error)	Percent (standard error)	Percent (standard error)	Percent (standard error)	Percent (standard error)	Percent (standard error)		
Total ²	19,084	76.0	(0.59)	64.6	(0.62)	0.7	(0.09)	4.4	(0.23)	59.4	(0.65)
Child characteristics											
Race:											
White	15,387	78.3	(0.65)	66.6	(0.70)	0.7	(0.10)	3.9	(0.24)	61.9	(0.73)
Non-white	3,697	66.3	(1.40)	56.5	(1.32)	0.9	(0.25)	6.5	(0.59)	48.9	(1.38)
Hispanic origin:											
Non-Hispanic	16,355	78.3	(0.60)	66.3	(0.67)	0.6	(0.08)	4.0	(0.24)	61.7	(0.70)
Hispanic	2,729	61.9	(1.85)	54.4	(1.71)	1.5	(0.40)	6.9	(0.75)	45.8	(1.66)
Age:											
Less than 1 year	4,075	79.1	(1.02)	81.5	(0.94)	0.4	*(0.18)	2.2	(0.34)	78.6	(0.99)
1-4 years	15,010	75.1	(0.65)	60.0	(0.70)	0.8	(0.11)	5.0	(0.27)	54.2	(0.71)
Sex:											
Male	9,768	76.1	(0.72)	63.9	(0.80)	0.6	(0.11)	4.3	(0.29)	58.8	(0.83)
Female	9,317	75.7	(0.77)	65.4	(0.83)	0.8	(0.15)	4.4	(0.34)	60.0	(0.85)
Household characteristics											
Responsible adult's education:											
Less than 12 years	2,550	61.5	(1.81)	49.7	(1.81)	1.3	(0.35)	7.9	(0.79)	40.4	(1.79)
12 years	6,949	74.0	(0.95)	61.7	(1.00)	0.7	(0.14)	4.6	(0.37)	56.3	(1.04)
More than 12 years	9,483	81.9	(0.71)	71.4	(0.80)	0.6	(0.12)	3.3	(0.29)	67.4	(0.83)
Family structure:											
Biological mother and father	13,775	78.8	(0.65)	67.9	(0.70)	0.7	(0.11)	3.8	(0.25)	63.3	(0.73)
Biological mother only	2,596	72.7	(1.62)	53.1	(1.55)	1.0	(0.29)	5.2	(0.65)	46.9	(1.56)
Other	2,711	64.7	(1.49)	59.0	(1.58)	0.4	*(0.17)	6.5	(0.71)	51.7	(1.53)
Family size:											
2 or fewer persons	788	70.7	(2.34)	55.7	(2.43)	1.4	*(0.62)	3.9	(1.00)	50.3	(2.45)
3-5 persons	15,319	77.8	(0.62)	66.7	(0.67)	0.7	(0.10)	4.1	(0.24)	61.9	(0.69)
6 or more persons	2,978	67.9	(1.65)	56.2	(1.68)	0.7	(0.23)	6.0	(0.66)	49.2	(1.69)
Income:											
Less than \$5,000	1,032	70.5	(2.48)	51.0	(2.70)	1.1	*(0.45)	6.4	(1.02)	43.3	(2.60)
\$5,000-\$6,999	518	69.4	(3.56)	55.1	(3.92)	1.4	*(0.86)	7.2	(1.57)	46.1	(3.83)
\$7,000-\$9,999	788	70.7	(2.93)	56.3	(2.97)	1.0	*(0.48)	7.3	(1.52)	48.1	(2.93)
\$10,000-\$14,999	1,592	69.1	(1.90)	56.3	(2.17)	1.1	*(0.43)	5.6	(0.87)	49.6	(2.12)
\$15,000-\$19,999	1,788	76.6	(1.80)	64.3	(1.84)	1.2	*(0.39)	7.0	(0.97)	56.2	(0.97)
\$20,000-\$24,999	1,380	76.5	(1.96)	65.0	(2.09)	0.9	*(0.39)	6.4	(0.95)	57.7	(2.13)
\$25,000-\$34,999	3,047	81.6	(1.30)	69.5	(1.40)	0.5	*(0.18)	4.5	(0.52)	64.3	(1.46)
\$34,999-\$49,999	3,163	84.3	(1.14)	72.6	(1.28)	0.6	*(0.21)	3.0	(0.50)	68.9	(1.32)
Greater than \$50,000	3,298	82.7	(1.18)	72.7	(1.24)	0.5	*(0.19)	2.4	(0.39)	69.6	(1.27)

Poverty status:											
At or above the poverty level	14,231	80.1	(0.61)	69.0	(0.68)	0.6	(0.10)	4.0	(0.25)	64.3	(0.71)
Below the poverty level	3,473	68.7	(1.45)	53.3	(1.49)	1.1	(0.27)	6.5	(0.61)	46.6	(1.45)
Household respondent's seat belt use frequency:											
Never	1,380	77.0	(2.03)	62.9	(2.08)	3.1	(0.68)	8.6	(1.06)	51.0	(2.09)
Sometimes/Often	4,346	78.9	(1.08)	66.0	(1.18)	0.7	(0.21)	10.0	(0.70)	55.2	(1.26)
Always	10,825	89.9	(0.52)	77.1	(0.70)	0.5	(0.10)	2.4	(0.23)	74.0	(0.73)
Geographic characteristics											
Housing type:											
House, apartment, flat	17,694	75.9	(0.61)	64.4	(0.63)	0.6	(0.09)	4.4	(0.24)	59.3	(0.65)
Mobile home	1,195	77.4	(2.29)	67.9	(2.17)	1.3	*(0.47)	4.8	(1.00)	61.7	(2.40)
Other	196	74.9	(5.00)	63.8	(5.59)	2.8	*(2.76)	1.9	*(1.32)	59.1	(5.85)
Residential area:											
MSA, central city	6,121	71.0	(1.15)	60.1	(1.10)	1.0	(0.20)	4.9	(0.41)	54.1	(1.11)
MSA, non-central city	9,071	78.5	(0.86)	66.3	(0.87)	0.5	(0.11)	3.5	(0.31)	62.1	(0.90)
Non-MSA, non-farm	3,741	77.8	(1.37)	67.1	(1.52)	0.7	(0.18)	5.5	(0.65)	60.9	(1.71)
Non-MSA, farm	151	79.4	(4.15)	81.3	(2.95)	0.0	(0.00)	6.8	*(2.17)	74.5	(2.98)
Region:											
Northeast	3,548	70.2	(1.44)	64.6	(1.48)	0.7	*(0.23)	3.7	(0.49)	60.2	(1.47)
Midwest	4,556	82.3	(1.05)	66.3	(1.23)	0.7	(0.17)	4.4	(0.39)	61.2	(1.25)
South	6,570	75.7	(1.02)	63.6	(1.08)	0.9	(0.19)	4.7	(0.40)	58.0	(1.08)
West	4,412	74.4	(1.32)	64.5	(1.29)	0.4	*(0.12)	4.6	(0.60)	59.2	(1.45)

¹Excludes children in households without cars or where child does not ride in a car.

²Includes children with unknown income and other missing data.

Table 5. Percent (and standard error) of children ages 5 and over using safety belts, by selected sociodemographic characteristics: United States, 1990

Total ²	All children ages 5-17 Number (in thousands)	Seat belt use frequency ¹					
		Never	Sometimes/often		Always		
		Percent (standard error)					
Total ²	45,567	4.5	(0.24)	20.7	(0.46)	60.2	(0.58)
Child Characteristics							
Race:							
White	36,674	4.3	(0.25)	19.3	(0.50)	62.5	(0.64)
Non-White	8,892	5.2	(0.54)	26.3	(0.97)	50.4	(1.31)
Hispanic origin:							
Non-Hispanic	39,657	4.1	(0.25)	20.0	(0.47)	61.1	(0.61)
Hispanic	5,910	6.9	(0.77)	25.1	(1.34)	53.4	(1.57)
Age:							
5-9 years	18,366	3.3	(0.26)	17.5	(0.51)	66.3	(0.66)
10 years or older	23,573	5.4	(0.32)	22.9	(0.57)	55.4	(0.73)
Sex:							
Male	23,319	4.7	(0.28)	21.3	(0.54)	59.4	(0.67)
Female	22,248	4.3	(0.29)	20.1	(0.52)	60.9	(0.67)
Household characteristics							
Responsible adult's education:							
Less than 12 years	2,550	8.6	(0.89)	33.0	(1.36)	41.3	(1.37)
12 years	6,949	5.9	(0.42)	24.0	(0.69)	55.6	(0.82)
More than 12 years	9,483	2.3	(0.21)	14.9	(0.52)	69.6	(0.70)
Family structure:							
Biological mother and father	31,504	4.0	(0.27)	18.8	(0.55)	62.8	(0.68)
Biological mother only	7,722	5.1	(0.47)	26.4	(1.02)	57.4	(1.16)
Other	6,175	5.7	(0.62)	23.0	(1.10)	50.6	(1.26)
Family size:							
2 or fewer persons	2,105	4.2	(0.63)	20.6	(1.31)	59.0	(1.80)
3-5 persons	35,121	3.9	(0.22)	19.2	(0.45)	62.9	(0.59)
6 or more persons	8,341	6.9	(0.74)	26.9	(1.28)	48.9	(1.45)
Income:							
Less than \$5,000	1,665	8.8	(1.26)	34.2	(2.45)	44.0	(2.75)
\$5,000-\$6,999	1,012	12.4	(2.11)	29.9	(2.66)	44.2	(2.95)
\$7,000-\$9,999	1,699	7.4	(1.40)	29.5	(2.01)	51.0	(2.74)
\$10,000-\$14,999	3,373	7.4	(0.87)	29.9	(1.64)	49.0	(1.75)
\$15,000-\$19,999	3,779	6.3	(0.91)	27.7	(1.50)	53.6	(1.69)
\$20,000-\$24,999	3,317	5.6	(0.88)	23.8	(1.41)	58.2	(1.80)
\$25,000-\$34,999	6,825	4.9	(0.60)	20.5	(0.95)	62.5	(1.25)
\$34,999-\$49,999	8,209	3.2	(0.39)	17.5	(0.90)	69.4	(1.07)
Greater than \$50,000	9,390	1.7	(0.28)	13.1	(0.71)	72.0	(1.00)
Poverty status:							
At or above the poverty level	14,231	3.6	(0.22)	18.5	(0.50)	64.8	(0.61)
Below the poverty level	3,473	9.1	(0.76)	31.3	(1.21)	46.0	(1.39)
Household respondent's seat belt use frequency:							
Never	3,529	57.1	(2.22)	24.4	(1.81)	15.6	(1.57)
Sometimes/Often	9,810	14.0	(0.72)	55.6	(1.12)	28.3	(0.97)
Always	25,695	3.2	(0.24)	14.0	(0.44)	80.6	(0.55)
Geographic characteristics							
Housing type:							
House, apartment, flat	42,546	4.3	(0.22)	20.5	(0.46)	60.6	(0.57)
Mobile home	2,422	8.3	(1.41)	24.1	(1.83)	54.2	(2.55)
Other	599	3.0	*(1.49)	15.9	(3.02)	51.7	(5.02)
Residential area							
MSA, central city	13,090	5.8	(0.44)	22.8	(0.79)	56.3	(1.04)
MSA, non-central city	22,106	2.9	(0.24)	17.2	(0.62)	64.4	(0.77)
Non-MSA, non-farm	9,865	6.2	(0.72)	25.4	(1.15)	56.1	(1.47)
Non-MSA, farm	505	4.9	*(1.67)	24.5	(4.42)	53.2	(5.48)
Region:							
Northeast	8,255	5.1	(0.50)	19.8	(0.93)	57.9	(1.15)
Midwest	11,277	4.8	(0.45)	23.6	(0.92)	60.9	(1.04)
South	16,155	5.1	(0.51)	21.3	(0.77)	57.5	(1.04)
West	9,879	2.6	(0.32)	16.9	(1.08)	65.5	(1.38)

¹Excludes children in households without cars and where child does not ride in a car.²Includes children with unknown family income and other missing data.

Technical notes

Source and description of data

The estimates presented in this report are based on the 1990 National Health Interview Survey (NHIS) on Injury Control and Child Health. Performed by the National Center for Health Statistics, the NHIS is an ongoing survey of the civilian, noninstitutionalized population of the United States. The interviews are performed in households weekly by personnel of the United States Bureau of the Census.

The NHIS consists of two sections: the basic questionnaire, which remains the same each year, and special topic questionnaires, which vary from year to year. The survey collects individual and household data on health status and behaviors, medical care utilization, and individual and household characteristics. The special topic questionnaires explore specific areas in greater detail. In 1990, the special topics questionnaires included Assistive Devices, Hearing, Podiatry, Family Resources, Health Promotion and Disease Prevention—which included the Injury Control and Child Health questionnaire—and AIDS Knowledge and Attitudes. Further information on the survey design and data collection methods can be found in *Current Estimates From the National Health Interview Survey, 1991* (16).

The interviewed sample for the 1990 questionnaire was composed of 46,476 households containing 119,631 persons. Of these persons, 33,243 were children under the age of 17. These children comprise the sample for this report. The response rates for the core questionnaire and the injury control questionnaire were 95.5 and 86.6 percent, respectively, resulting in a true response rate of 82.7 percent for the Injury Control and Child Health questionnaire.

Sampling errors

Since the estimates shown in this report are based on a sample population, they are subject to sampling error. In the case of small estimates, sampling errors may be relatively high. Further,

estimates based on complex, multistage sampling designs such as the NHIS lead to larger sampling errors than those based on simple random samples. The standard errors shown in tables 1–5 of this report were calculated using SUDAAN (SURvey DATA ANalysis) developed by Research Triangle Institute for analysis of complex sample surveys. The procedure used was CROSSTAB and the design was UNEQWOR (without replacement sampling with unequal probabilities of selection at the first stage).

Tests of statistical significance were performed using the difference of means tests (t-test). The standard error used for performing this procedure was derived from the pooled variances of the populations being compared. Differences between means that were at least twice as large as the pooled standard error were considered to be significant at the 5 percent level. In the case of multiple comparisons, such as one income group against all others, a Bonferroni adjustment was used to determine the appropriate level of significance. In this procedure, the significant alpha level is divided by the number of tests being performed to determine the adjusted significance level. Lack of comment regarding the difference between any two estimates does not mean that the difference was tested and found not to be statistically significant. Estimates that do not meet the reliability criteria of 30 percent relative standard error are marked on the table.

Symbols

- - - Data not available.
 - . . . Category not applicable
 - Quantity zero
 - 0.0 Quantity more than zero but less than 0.05
 - Z Quantity more than zero but less than 500 where numbers are rounded to thousands
 - * Figure does not meet standard of reliability or precision
 - # Figure suppressed to comply with confidentiality requirements
-

Vital and Health Statistics series descriptions

- SERIES 1. Programs and Collection Procedures**—These reports describe the data collection programs of the National Center for Health Statistics. They include descriptions of the methods used to collect and process the data, definitions, and other material necessary for understanding the data.
- SERIES 2. Data Evaluation and Methods Research**—These reports are studies of new statistical methods and include analytical techniques, objective evaluations of reliability of collected data, and contributions to statistical theory. These studies also include experimental tests of new survey methods and comparisons of U.S. methodology with those of other countries.
- SERIES 3. Analytical and Epidemiological Studies**—These reports present analytical or interpretive studies based on vital and health statistics. These reports carry the analyses further than the expository types of reports in the other series.
- SERIES 4. Documents and Committee Reports**—These are final reports of major committees concerned with vital and health statistics and documents such as recommended model vital registration laws and revised birth and death certificates.
- SERIES 5. International Vital and Health Statistics Reports**—These reports are analytical or descriptive reports that compare U.S. vital and health statistics with those of other countries or present other international data of relevance to the health statistics system of the United States.
- SERIES 6. Cognition and Survey Measurement**—These reports are from the National Laboratory for Collaborative Research in Cognition and Survey Measurement. They use methods of cognitive science to design, evaluate, and test survey instruments.
- SERIES 10. Data From the National Health Interview Survey**—These reports contain statistics on illness; unintentional injuries; disability; use of hospital, medical, and other health services; and a wide range of special current health topics covering many aspects of health behaviors, health status, and health care utilization. They are based on data collected in a continuing national household interview survey.
- SERIES 11. Data From the National Health Examination Survey, the National Health and Nutrition Examination Surveys, and the Hispanic Health and Nutrition Examination Survey**—Data from direct examination, testing, and measurement on representative samples of the civilian noninstitutionalized population provide the basis for (1) medically defined total prevalence of specific diseases or conditions in the United States and the distributions of the population with respect to physical, physiological, and psychological characteristics, and (2) analyses of trends and relationships among various measurements and between survey periods.
- SERIES 12. Data From the Institutionalized Population Surveys**—Discontinued in 1975. Reports from these surveys are included in Series 13.
- SERIES 13. Data From the National Health Care Survey**—These reports contain statistics on health resources and the public's use of health care resources including ambulatory, hospital, and long-term care services based on data collected directly from health care providers and provider records.
- SERIES 14. Data on Health Resources: Manpower and Facilities**—Discontinued in 1990. Reports on the numbers, geographic distribution, and characteristics of health resources are now included in Series 13.
- SERIES 15. Data From Special Surveys**—These reports contain statistics on health and health-related topics collected in special surveys that are not part of the continuing data systems of the National Center for Health Statistics.
- SERIES 16. Compilations of Advance Data From Vital and Health Statistics**—Advance Data Reports provide early release of information from the National Center for Health Statistics' health and demographic surveys. They are compiled in the order in which they are published. Some of these releases may be followed by detailed reports in Series 10–13.
- SERIES 20. Data on Mortality**—These reports contain statistics on mortality that are not included in regular, annual, or monthly reports. Special analyses by cause of death, age, other demographic variables, and geographic and trend analyses are included.
- SERIES 21. Data on Natality, Marriage, and Divorce**—These reports contain statistics on natality, marriage, and divorce that are not included in regular, annual, or monthly reports. Special analyses by health and demographic variables and geographic and trend analyses are included.
- SERIES 22. Data From the National Mortality and Natality Surveys**—Discontinued in 1975. Reports from these sample surveys, based on vital records, are now published in Series 20 or 21.
- SERIES 23. Data From the National Survey of Family Growth**—These reports contain statistics on factors that affect birth rates, including contraception, infertility, cohabitation, marriage, divorce, and remarriage; adoption; use of medical care for family planning and infertility; and related maternal and infant health topics. These statistics are based on national surveys of childbearing age.
- SERIES 24. Compilations of Data on Natality, Mortality, Marriage, Divorce, and Induced Terminations of Pregnancy**—These include advance reports of births, deaths, marriages, and divorces based on final data from the National Vital Statistics System that were published as supplements to the *Monthly Vital Statistics Report (MVSR)*. These reports provide highlights and summaries of detailed data subsequently published in *Vital Statistics of the United States*. Other supplements to the MVSR published here provide selected findings based on final data from the National Vital Statistics System and may be followed by detailed reports in Series 20 or 21.

For answers to questions about this report or for a list of reports published in these series, contact:

Data Dissemination Branch
National Center for Health Statistics
Centers for Disease Control and Prevention
Public Health Service
6525 Belcrest Road, Room 1064
Hyattsville, MD 20782
(301) 436-8500
E-mail: nchsquery@nch10a.em.cdc.gov
Internet: <http://www.cdc.gov/nchswww/nchshome.htm>

**DEPARTMENT OF
HEALTH & HUMAN SERVICES**

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

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

PRESORTED SPECIAL
FOURTH CLASS RATE
POSTAGE & FEES PAID
PHS/NCHS
PERMIT NO. G-281