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# **Vital and Health Statistics**

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## Advance Data From Vital and Health Statistics: Numbers 201–210

Series 16:  
Compilations of Advance Data  
From Vital and Health Statistics  
No. 21

Data in this report from health and demographic surveys present statistics by age and other variables on ambulatory medical care; AIDS knowledge and attitudes; health care coverage; and health practices among adults. Estimates are based on the civilian noninstitutionalized populations of the United States. These reports were originally published in 1991 and 1992.

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Public Health Service  
Centers for Disease Control and Prevention  
National Center for Health Statistics  
Hyattsville, Maryland  
July 1995  
DHHS Publication No. (PHS) 95-1880

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**Required citation**

National Center for Health Statistics. Advance data from vital and health statistics; numbers 201–210. National Center for Health Statistics. Vital Health Statistics (201) 199–

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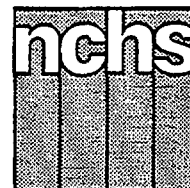
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# Advance Data



From Vital and Health Statistics of the National Center for Health Statistics

## Characteristics of Persons With and Without Health Care Coverage: United States, 1989

by Peter Ries, Division of Health Interview Statistics

### Persons with no health care coverage

In 1989 an estimated 33.9 million persons in the civilian noninstitutionalized population of the United States (13.9 percent) were reported to lack health care coverage. This point-prevalence estimate represents an average for 52 weeks of household interviews conducted by the U.S. Bureau of the Census for the National Health Interview Survey (NHIS). It is a measure of a person's coverage status at the time of interview, not at any time prior to the interview. Noncoverage was relatively higher for younger persons, males, persons who are not white, those with low incomes, persons 18 years of age and over who were unemployed or had less than 12 years of education, residents of the South and West Regions of the country, and residents of central cities in metropolitan statistical areas (MSA's).

Table 1 shows that more than 20 percent of persons in the following groups lacked coverage: Unemployed workers 18 years of age and over (38.3 percent), persons

living below the poverty level (32.5 percent), members of families with low annual incomes (27.7 percent for \$5,000–\$9,999, 27.1 percent for less than \$5,000, and 24.3 for \$10,000–\$19,999), young adults 18–24 years of age (27.4 percent), and black persons (20.2 percent). In contrast, the lowest proportions of those without health care coverage were among persons 65 years of age and over (1.2 percent) and members of families with an annual income of \$50,000 or more (3.6 percent).

Because of Medicare, most persons without any form of health care coverage are under 65 years of age (an estimated 33.6 million persons, or 15.7 percent of those in this age group). In terms of both age and sociodemographic characteristics, more than 40 percent of the persons in some of the resulting subgroups lacked coverage. These included persons 18–44 years of age who were unemployed or were members of families with an annual income of \$5,000–\$9,999; those 25–44 years of age who had family incomes of less

than \$5,000 per year or were below the poverty level; and young adults 18–24 years of age with less than 12 years of education.

Figure 1 shows the proportion of persons of all ages and of those under 65 years of age without health care coverage by family income. For all ages combined, the estimates of noncoverage range from 27.7 percent for those in families with an annual family income of \$5,000–\$9,999 to 3.6 percent for members of families with an annual income of \$50,000 or more. The estimates for persons under 65 years of age range from 36.9 to 3.7 percent for the corresponding income groups.

The estimate reported above of the number of persons without health care coverage is similar to the corresponding estimates of two recent large-scale U.S. Government surveys. The National Medical Expenditure Survey of 1987 reported point-prevalence estimates for different periods of the year of 34–36 million persons without health care coverage (1). The preliminary estimate from the March 1990 Current Population



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Table 1. Percent of persons without health care coverage, by age and sociodemographic characteristics: United States, 1989

Sociodemographic characteristic	All ages	Total	Under 65 years				65 years and over
			Under 18 years	18-24 years	25-44 years	45-64 years	
				Percent <sup>1</sup>			
All persons not covered <sup>2</sup> . . . . .	13.9	15.7	14.9	27.4	15.5	10.5	1.2
Sex							
Male . . . . .	15.1	16.7	15.1	31.3	17.6	9.6	1.3
Female . . . . .	12.7	14.6	14.7	23.7	13.6	11.2	1.2
Race							
White . . . . .	12.8	14.5	14.0	26.3	14.4	9.4	1.0
Black . . . . .	20.2	21.9	18.9	34.3	22.5	17.5	2.5
Other . . . . .	19.7	20.4	18.9	27.8	20.7	17.5	*8.4
Family income							
Less than \$5,000 . . . . .	27.1	31.3	25.5	27.3	42.4	35.5	*1.5
\$5,000-\$9,999 . . . . .	27.7	36.9	31.6	43.5	43.5	32.2	1.6
\$10,000-\$19,999 . . . . .	24.3	30.1	30.2	37.5	32.0	21.3	1.1
\$20,000-\$34,999 . . . . .	10.6	11.6	10.9	22.1	11.8	6.8	1.0
\$35,000-\$49,999 . . . . .	5.8	6.0	4.0	18.4	5.8	3.9	*0.8
\$50,000 or more . . . . .	3.6	3.7	2.3	12.9	3.7	1.9	*1.6
Poverty status							
In poverty . . . . .	32.5	36.0	32.5	35.9	42.2	35.9	2.3
Not in poverty . . . . .	10.3	11.5	9.6	23.5	11.7	7.6	1.1
Employment status <sup>3</sup>							
Currently employed . . . . .	13.9	14.3	...	26.6	13.6	9.0	1.5
Unemployed . . . . .	38.3	39.2	...	44.5	40.8	26.5	...
Not in labor force . . . . .	10.8	18.5	...	26.0	21.2	12.8	1.2
Education <sup>3</sup>							
Less than 12 years . . . . .	20.8	30.1	...	42.1	35.5	19.9	1.5
12 years . . . . .	14.4	16.6	...	29.8	16.8	8.5	0.7
More than 12 years . . . . .	8.4	9.2	...	16.0	9.0	5.8	1.3
Region							
Northeast . . . . .	9.6	11.0	9.9	22.0	10.9	6.6	1.7
Midwest . . . . .	9.6	10.8	8.8	22.3	10.6	7.6	0.8
South . . . . .	17.5	19.7	20.5	30.9	19.2	13.4	1.1
West . . . . .	17.1	18.9	16.7	32.7	19.7	13.1	1.6
Place of residence							
MSA . . . . .	13.7	15.3	14.4	27.4	15.2	9.8	1.3
Central city . . . . .	17.2	19.4	18.2	30.0	20.1	12.9	1.6
Not central city . . . . .	11.4	12.7	12.1	25.4	12.1	8.0	1.1
Not MSA . . . . .	14.7	17.1	16.5	27.6	17.0	12.6	1.1

<sup>1</sup>Percent calculated excluding the 9.7 million persons for whom coverage status was not determined.

<sup>2</sup>Includes persons with unknown sociodemographic characteristics.

<sup>3</sup>Excludes persons under 18 years of age.

NOTE: MSA is metropolitan statistical area.

Survey indicates that 33.4 million persons had no health care coverage in 1989 (2). The sociodemographic characteristics of persons without health care coverage in those surveys are similar to those shown in table 1 of this report.

Understanding the reasons for the similarities and differences in the results from these three surveys would require a detailed comparison of the procedures and definitions used in each and the possible effect of comparing estimates from different years. The procedures used in NHIS

are briefly summarized in the technical notes. Health care coverage as used in this report is defined on the basis of persons' coverage status under four types of plans: Private health insurance, Medicare, public assistance (overwhelmingly Medicaid), and military or Veterans' Administration (military-VA) health benefits. Persons covered by any one of these four plans were classified as having health care coverage. In addition, a relatively small number of persons who indicated an unspecified form of coverage were included in

this group. Persons classified as not being covered under any of the four plans were classified as not having health care coverage. All other persons were classified as being of unknown coverage status and were excluded in calculating the percents shown in this report. Numbers of persons in a category with or without coverage were calculated by multiplying the percents with or without coverage by the population estimates shown in table I of the technical notes. The following four sections highlight the characteristics

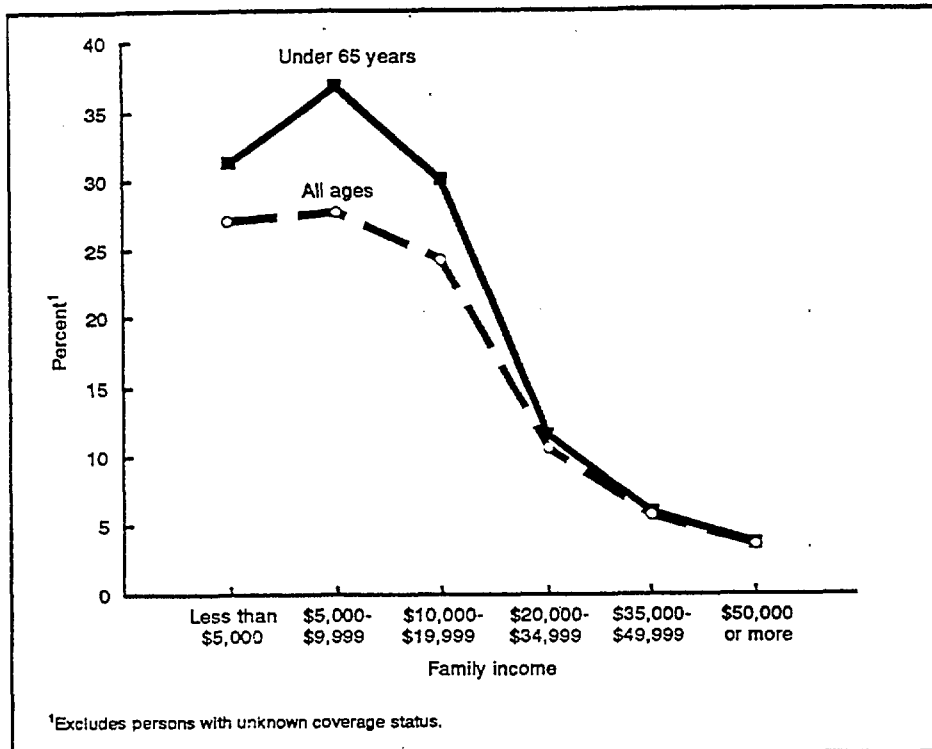


Figure 1. Percent of persons without health care coverage, by age and family income: United States, 1989

of persons covered by each of the types of plans.

### Persons with private health insurance coverage

About 76.1 percent (an estimated 185.3 million persons) of the civilian noninstitutionalized population were covered by private health insurance in 1989. Table 2 shows that the estimates do not greatly differ for persons under 65 years of age (75.9 percent) and those 65 years of age and over (77.2 percent). However, in general, these represent different types of plans: For the younger group private plans are the primary form of coverage, whereas for the older group most plans were purchased to supplement Medicare coverage.

Within sociodemographic categories, the proportion of persons covered was relatively high for white persons (79.3 percent), those not below the poverty line (84.3 percent), currently employed persons (83.6 percent), those with more than 12 years of education (88.2 percent), residents of the Northeast (81.3 percent) and Midwest

(81.7 percent) Regions, and persons living outside of central cities in MSA's (82.0 percent).

Figure 2 shows the proportion of persons covered by private health insurance by family income and age. Clearly the percent of persons covered was directly related to the amount of their family incomes, the range for all ages being from 30.5 percent for less than \$5,000 to 94.9 percent for \$50,000 or more. However, the relationship is not nearly so strong for persons 65 years of age and over (from 42.1 for the lowest to 86.7 percent for the highest income group) as it is for those under 65 years of age (28.7 to 95.2 percent being the corresponding estimates).

Private coverage is determined in the survey by first identifying all plans that pay all or part of hospital or doctor bills for any member of the family and then determining each person's status in relation to each of these plans. Persons are classified as covered if they are covered by one plan or more; they are classified as not covered if they are not covered by any of the plans. Persons not meeting either of these criteria are classified

as unknown. Plans covering only one type of condition (such as cancer or injuries) are not included in this definition of private coverage.

### Persons covered by Medicare

About 12.6 percent (an estimated 30.7 million persons) of the civilian noninstitutionalized population were covered by Medicare in 1989. Table 3 shows that coverage was 94.3 percent for persons 65 years of age and over and 1.4 percent for those under 65 years of age. Among the older persons, the proportion covered was less than 90 percent for only three of the groups shown in the table:

Persons other than white or black (78.1 percent), currently employed persons (87.7 percent), and members of families with an annual income of \$50,000 or more (88.3 percent). Among all of the other groups included in the table, coverage was greater than 90 percent, with the lowest percent of coverage among these groups being 90.7 percent for black persons.

Regarding persons under 65 years of age, only four groups had more than 4 percent covered by Medicare: Adults (18 years of age and over) who were not in the labor force (7.4 percent), adults who had less than 12 years of education (5.0 percent), persons 45-64 years of age (4.3 percent), and members of families with an annual income of \$5,000-\$9,999 (4.1 percent).

Coverage under Medicare was determined by asking the coverage status of all family members. Respondents were asked to show the Medicare card of persons covered to the interviewer, who determined whether they were covered by Part A, Part B, or both. Persons were classified as covered by Medicare if they were covered by either Part A or B or both.

### Persons with public assistance health care coverage

An estimated 15.1 million persons in the civilian noninstitutionalized

Table 2. Percent of persons with private health insurance coverage, by age and sociodemographic characteristics: United States, 1989

Sociodemographic characteristic	All ages	Total	Under 65 years				65 years and over
			Under 18 years	18-24 years	25-44 years	45-64 years	
				Percent <sup>1</sup>			
All persons covered <sup>2</sup>	76.1	75.9	71.8	64.4	79.0	82.6	77.2
Sex							
Male	76.3	76.1	71.9	65.1	78.9	83.5	78.1
Female	75.8	75.7	71.7	63.9	79.1	81.8	76.6
Race							
White	79.3	79.1	76.3	67.4	81.4	85.0	80.8
Black	56.6	57.8	51.6	48.8	64.4	64.8	43.7
Other	64.2	65.1	58.2	58.8	70.0	71.4	48.5
Family income							
Less than \$5,000	30.5	28.7	15.0	57.1	17.1	20.6	42.1
\$5,000-\$9,999	35.8	26.0	19.5	34.9	25.0	33.4	64.3
\$10,000-\$19,999	62.1	57.4	51.3	52.1	59.4	67.8	81.5
\$20,000-\$34,999	84.4	84.2	82.9	72.6	85.7	89.3	85.9
\$35,000-\$49,999	91.7	91.9	92.8	78.7	93.0	94.1	88.2
\$50,000 or more	94.9	95.2	96.5	85.6	95.7	96.8	86.7
Poverty status							
In poverty	28.3	26.3	21.4	43.4	23.9	24.0	46.2
Not in poverty	84.3	84.6	85.0	71.6	85.8	88.1	82.3
Employment status <sup>3</sup>							
Currently employed	83.6	83.5	...	70.0	84.6	89.0	86.0
Unemployed	48.4	47.6	...	42.1	44.7	64.4	81.5
Not in labor force	67.8	61.4	...	54.1	56.4	69.2	75.9
Education <sup>3</sup>							
Less than 12 years	58.4	54.3	...	42.2	48.8	64.8	67.0
12 years	78.5	77.5	...	61.9	77.6	86.7	84.3
More than 12 years	88.2	88.2	...	80.7	88.7	91.2	88.6
Region							
Northeast	81.3	81.9	78.9	71.7	84.1	87.2	77.5
Midwest	81.7	81.5	79.1	70.0	84.1	86.8	82.7
South	71.7	71.4	65.9	60.6	75.4	78.5	73.9
West	71.7	71.2	67.6	57.2	74.2	79.4	75.8
Place of residence							
MSA	76.7	76.5	72.1	64.8	79.6	83.7	78.0
Central city	68.4	67.8	60.1	59.7	71.9	76.7	72.8
Not central city	82.0	82.0	79.7	68.7	84.4	87.9	81.6
Not MSA	74.0	73.8	70.8	63.1	76.8	78.8	75.2

<sup>1</sup>Percent calculated excluding the 8.6 million persons for whom coverage status was not determined.

<sup>2</sup>Includes persons with unknown sociodemographic characteristics.

<sup>3</sup>Excludes persons under 18 years of age.

NOTE: MSA is metropolitan statistical area.

population of the United States (6.2 percent) were covered by public assistance health care programs in 1989. Table 4 shows that proportionately far more persons under 18 years of age (11.1 percent) than adults had this form of coverage. Among persons under 18 years, 60.9 percent of those in families with an annual income of less than \$5,000 and 50.3 percent in families in the \$5,000-\$9,999 income range had public assistance health care coverage. For those living below the poverty level, the corresponding

estimate is 46.3 percent. Among the other age groups shown in the table, persons 65 years of age and over had the highest proportion of persons eligible for this form of coverage (6.2 percent).

Disregarding age, the highest proportions of eligible persons were females, persons who are not white, persons with low family income or family income below the poverty level, persons not currently employed, those with less than 12 years of education, and persons living in the central cities of MSA's.

The 1989 NHIS questionnaire included several questions related to eligibility for public assistance health care. Among these were questions on the receipt of Aid to Families with Dependent Children (AFDC) and Supplemental Security Income (SSI), whether the person had a valid Medicaid card, and whether he or she was covered by any public assistance program that paid for medical care. Coverage by public assistance is ascribed to the person if a positive response was obtained to any of these questions. Persons are classified as



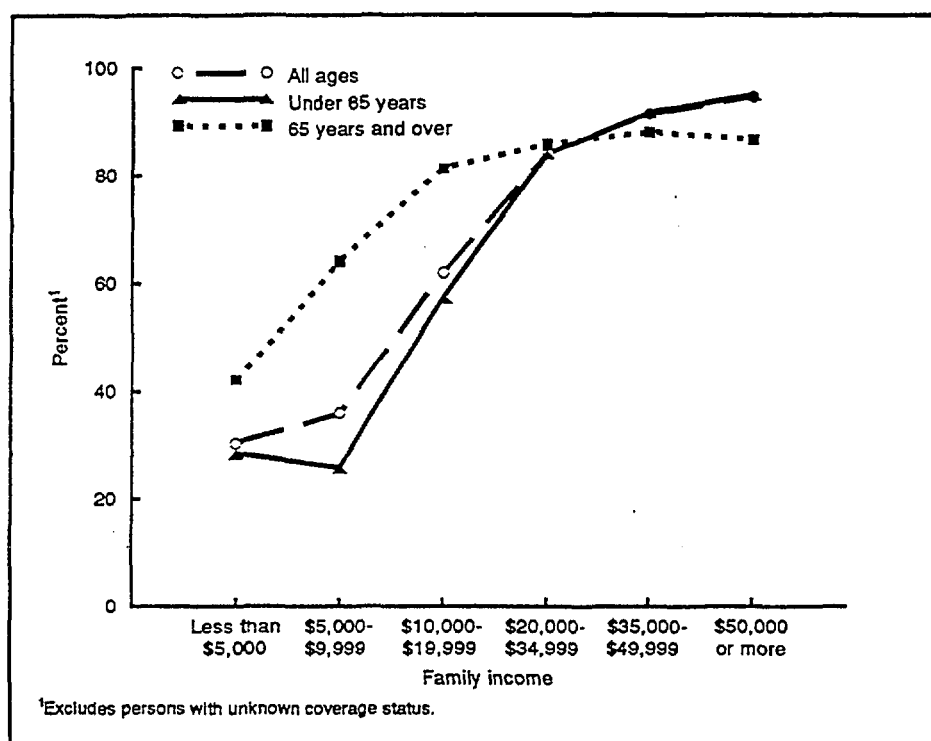


Figure 2. Percent of persons with private health insurance coverage, by age and family income: United States, 1989

not covered if a negative response or no response was obtained for all four questions.

Because the eligibility criteria for Medicaid coverage are defined by each of the States and because many people are not aware of the criteria used in their State, it is difficult to obtain point-prevalence estimates of this population based on a household survey using a national rather than a State sampling frame. Thus, extreme caution should be used in comparing the results described in this section with estimates from other sources of the number and characteristics of the Medicaid or public assistance population. Any such comparison should be focused on the criteria used to define this type of coverage and the procedure used to collect the data that serve as the basis of the estimates.

### Persons with military-Veterans' Administration health care coverage

An estimated 6.3 million persons in the civilian noninstitutionalized population (2.6 percent) were

covered by military and/or Veterans' Administration health care programs in 1989. Among the sociodemographic categories included in table 5, the proportion of persons covered was more than 3 percent for the following groups: Persons 45-64 years of age (4.5 percent) and 65 years and over (4.0 percent); males (3.3 percent); persons of other races—that is, not black or white (3.1 percent); members of families with an annual income of \$20,000-\$34,999 (3.1 percent); persons 18 years of age and over not currently employed (3.1 and 3.9 percent for the unemployed and for those not in the labor force, respectively); and persons living in the South (3.6 percent) and West (3.3 percent) Regions of the country.

As was the case with public assistance health care plans, coverage for civilians under military or VA health benefits is much more difficult to define than coverage under private health insurance or Medicare. This is especially so in the case of VA health benefits, which operate for most veterans and their eligible dependents under a system of priority eligibility.

In this report persons are classified as covered by military-VA health benefits if it was determined that (a) they received a military or VA pension; (b) they were covered by CHAMPUS (Civilian Health and Medical Program of the Uniformed Services), CHAMPVA (Civilian Health and Medical Program of the Veterans' Administration), or any other program that provides health care for military dependents or survivors of military persons; or (c) they received compensation for a disability from the VA. Other circumstantial criteria by which a person might qualify for military-VA health care benefits (such as advanced age or low income) were not used.

### Trends

Although data on health care coverage have been collected by means of NHIS since the 1960's, the questions related to public assistance and military-VA coverage were periodically changed until 1984. Because these types of coverage are included in the more general category of health care coverage it is not possible to show trends in coverage for the earlier periods. However, since 1984 the questions used to determine coverage have undergone only minimal changes. Thus, comparisons between the levels of coverage and noncoverage from 1984 to 1989 are possible.

The percent of persons with no health care coverage increased from 13.0 percent in 1984 to 13.9 percent in 1989 (table 6). For persons under 65 years of age the increase was from 14.6 to 15.7 percent. Of all of the sociodemographic characteristics shown in table 1, the largest differential change occurred for family income groups. Figure 3 shows the ratio of the 1989 to the 1984 estimates of noncoverage by income category. The largest increases were in the income range \$10,000-\$49,999, the ratio of increase being 1.7 for persons in families with an annual income of \$35,000-\$49,999. Some of this increase is only apparent, though,

Table 3. Percent of persons with Medicare coverage, by age and sociodemographic characteristics: United States, 1989

Sociodemographic characteristic	All ages	Total	Under 65 years				65 years and over
			Under 18 years	18-24 years	25-44 years	45-64 years	
All persons covered <sup>2</sup>	12.6	1.4	0.2	0.4	0.9	4.3	94.3
Sex							
Male	11.0	1.5	0.2	0.5	1.0	4.9	93.4
Female	14.0	1.2	0.2	0.4	0.8	3.8	95.0
Race							
White	13.3	1.3	0.1	0.4	0.8	4.0	94.9
Black	9.4	2.1	0.5	*0.5	1.7	7.5	90.7
Other	5.0	0.7	*0.8	—	*0.1	*2.3	78.1
Family income							
Less than \$5,000	15.7	2.9	*1.0	*0.3	3.1	13.3	95.0
\$5,000-\$9,999	27.5	4.1	*0.2	*0.9	4.1	15.1	95.4
\$10,000-\$19,999	20.7	2.3	*0.2	*0.7	1.6	8.3	96.2
\$20,000-\$34,999	9.7	1.1	*0.2	*0.5	0.6	3.7	94.4
\$35,000-\$49,999	4.6	0.4	*0.1	*0.1	0.3	1.3	91.4
\$50,000 or more	4.0	0.4	*0.2	*0.1	0.3	0.9	88.3
Poverty status							
In poverty	11.5	2.4	*0.4	*0.5	2.6	13.1	94.1
Not in poverty	11.5	1.1	0.2	0.4	0.7	3.4	94.5
Employment status <sup>3</sup>							
Currently employed	3.3	0.3	...	*0.2	0.3	0.6	87.7
Unemployed	2.8	*0.6	...	*0.6	*0.4	*1.2	93.5
Not in labor force	46.1	7.4	...	1.1	4.4	13.0	95.4
Education <sup>3</sup>							
Less than 12 years	34.1	5.0	...	0.9	2.7	9.0	95.1
12 years	14.4	1.5	...	*0.3	0.8	3.3	94.9
More than 12 years	9.5	0.8	...	*0.3	0.5	2.0	92.5
Region							
Northeast	14.3	1.3	*0.3	*0.3	0.9	3.7	93.5
Midwest	12.3	1.2	*0.1	*0.4	0.8	3.9	96.0
South	12.7	1.6	0.2	0.5	1.1	5.3	94.5
West	10.9	1.2	*0.3	*0.5	0.7	3.8	92.9
Place of residence							
MSA	11.7	1.3	0.2	0.5	0.8	4.1	93.7
Central city	12.5	1.6	0.3	*0.4	1.1	5.0	93.0
Not central city	11.3	1.1	0.2	0.5	0.7	3.5	94.2
Not MSA	15.5	1.7	*0.2	*0.4	1.2	5.1	96.0

<sup>1</sup>Percent calculated excluding the 6.9 million persons for whom coverage status was not determined.

<sup>2</sup>Includes persons with unknown sociodemographic characteristics.

<sup>3</sup>Excludes persons under 18 years of age.

NOTE: MSA is metropolitan statistical area.

because inflation tends to move families to higher income categories over time without necessarily improving their health care coverage. Thus, higher income groups appear to be losing coverage. However, inflation is taken into account in the definition of poverty status, and the increase in noncoverage during this period was greater for those above the poverty level (10.8 percent) than it was for those below the poverty level (5.2 percent). This indicates that the increases noted above are not solely a function of inflation.

The NHIS questions related to private health insurance coverage have changed little since 1974. Table 7 shows the proportions of persons covered by private health insurance for each of the survey years from 1974 to 1989. There has been a slow decline in this type of coverage from 79.9 percent in 1974 to 75.9 percent in 1989.

Two previously published reports (3,4) include more extensive information on NHIS estimates of health care coverage prior to 1989.

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Table 4. Percent of persons with public assistance coverage, by age and sociodemographic characteristics: United States, 1989

Sociodemographic characteristic	All ages	Total	Under 65 years				65 years and over
			Under 18 years	18-24 years	25-44 years	45-64 years	
				Percent <sup>1</sup>			
All persons covered <sup>2</sup>	6.2	6.2	11.1	5.6	3.9	3.7	6.2
Sex							
Male	4.8	4.9	10.8	2.2	2.0	2.7	4.4
Female	7.5	7.5	11.3	8.8	5.8	4.6	7.6
Race							
White	4.4	4.4	7.6	4.2	2.9	2.7	4.8
Black	16.8	16.6	26.9	12.5	10.1	10.8	18.4
Other	12.7	12.1	19.9	10.7	7.3	9.5	22.8
Family income							
Less than \$5,000	37.8	38.4	60.9	13.0	39.7	37.7	34.2
\$5,000-\$9,999	28.5	34.3	50.3	18.7	29.4	22.8	12.0
\$10,000-\$19,999	7.9	8.9	15.1	6.6	6.0	5.6	3.6
\$20,000-\$34,999	2.2	2.2	3.6	3.3	1.2	1.3	2.8
\$35,000-\$49,999	1.0	0.9	1.7	*1.0	0.5	0.8	*2.1
\$50,000 or more	0.5	0.4	0.6	*0.8	0.3	*0.2	*1.5
Poverty status							
In poverty	35.1	35.8	46.3	17.6	32.3	32.0	28.3
Not in poverty	2.3	2.1	3.3	2.7	1.3	1.8	3.5
Employment status <sup>3</sup>							
Currently employed	1.1	1.0	...	1.5	1.1	0.7	2.3
Unemployed	9.7	9.8	...	11.1	10.8	5.1	*1.8
Not in labor force	11.1	14.4	...	15.9	17.9	10.6	6.9
Education <sup>3</sup>							
Less than 12 years	11.5	12.0	...	13.0	13.7	10.0	10.4
12 years	3.6	3.6	...	5.5	3.9	2.1	3.2
More than 12 years	1.3	1.2	...	1.3	1.2	1.1	2.4
Region							
Northeast	5.1	5.2	9.2	4.2	3.8	3.6	4.4
Midwest	6.4	6.8	12.2	6.6	4.4	3.3	3.2
South	6.0	5.7	10.1	4.8	3.4	3.8	8.5
West	7.3	7.2	12.9	6.9	4.3	4.1	8.3
Place of residence							
MSA	6.0	6.0	11.2	5.2	3.7	3.5	5.6
Central city	9.6	9.9	18.7	7.2	6.0	6.2	7.6
Not central city	3.6	3.6	6.4	3.7	2.3	1.8	4.2
Not MSA	7.0	6.8	10.8	7.1	4.7	4.5	7.9

<sup>1</sup>Persons not administered the supplement were classified as not covered. About 2.0 million persons for whom unknown responses were obtained were excluded in calculating the percents.

<sup>2</sup>Includes persons with unknown sociodemographic characteristics.

<sup>3</sup>Excludes persons under 18 years of age.

NOTE: MSA is metropolitan statistical area.

4. Ries PW. Health care coverage by age, sex, race, and family income: United States, 1986. Advance data from vital and health statistics; no 139. Hyattsville, Maryland: National Center for Health Statistics. 1987.
5. Adams PF, Benson V. Current estimates from the National Health Interview Survey, 1989. National Center for Health Statistics. Vital Health Stat 10(176). 1990.

Table 5. Percent of persons with military-Veterans' Administration coverage, by age and sociodemographic characteristics: United States, 1989

Sociodemographic characteristic	All ages	Under 65 years					65 years and over
		Total	Under 18 years	18-24 years	25-44 years	45-64 years	
				Percent <sup>1</sup>			
All persons covered <sup>2</sup> . . . . .	2.6	2.4	2.1	1.9	1.5	4.5	4.0
Sex							
Male . . . . .	3.3	2.6	2.2	1.0	1.5	6.3	8.7
Female . . . . .	1.9	2.1	2.0	2.8	1.5	2.9	0.7
Race							
White . . . . .	2.5	2.3	2.0	1.8	1.4	4.5	4.1
Black . . . . .	2.5	2.4	2.2	2.1	2.0	4.0	3.5
Other . . . . .	3.1	3.2	2.7	*3.8	2.2	5.7	*2.0
Family income							
Less than \$5,000 . . . . .	1.5	1.4	*0.6	2.1	*1.0	*3.2	*1.6
\$5,000-\$9,999 . . . . .	1.6	1.4	*0.8	*0.9	*1.0	3.9	2.2
\$10,000-\$19,999 . . . . .	2.7	2.6	3.0	2.6	1.7	3.5	3.4
\$20,000-\$34,999 . . . . .	3.1	2.9	2.7	2.2	1.9	5.6	5.8
\$35,000-\$49,999 . . . . .	3.0	2.7	2.5	1.9	1.7	5.5	8.4
\$50,000 or more . . . . .	2.3	2.1	1.2	1.5	1.1	4.8	5.5
Poverty status							
In poverty . . . . .	1.2	1.2	0.9	1.5	0.9	2.5	*1.3
Not in poverty . . . . .	2.8	2.6	2.4	2.1	1.6	4.8	4.5
Employment status <sup>3</sup>							
Currently employed . . . . .	2.1	2.0	...	1.6	1.3	3.8	5.5
Unemployed . . . . .	3.1	3.0	...	*1.5	2.6	6.3	*6.2
Not in labor force . . . . .	3.9	4.0	...	2.8	2.5	5.8	3.8
Education <sup>3</sup>							
Less than 12 years . . . . .	2.3	2.0	...	1.3	1.0	3.2	3.1
12 years . . . . .	2.8	2.7	...	2.2	1.6	4.7	4.0
More than 12 years . . . . .	2.9	2.6	...	2.0	1.6	5.2	5.9
Region							
Northeast . . . . .	1.4	1.1	0.5	*0.7	0.7	2.9	2.9
Midwest . . . . .	1.4	1.2	0.9	*0.6	1.0	2.2	2.6
South . . . . .	3.6	3.5	3.4	3.2	2.1	6.2	4.6
West . . . . .	3.3	3.0	2.7	2.6	1.9	5.9	5.9
Place of residence							
MSA . . . . .	2.5	2.3	2.1	1.9	1.5	4.4	4.1
Central city . . . . .	2.5	2.4	2.3	1.7	1.6	4.4	3.8
Not central city . . . . .	2.5	2.3	2.0	2.0	1.4	4.5	4.2
Not MSA . . . . .	2.6	2.4	2.0	2.0	1.6	4.6	3.8

<sup>1</sup>Persons not administered the supplement were classified as not covered. About 2.0 million persons for whom unknown responses were obtained were excluded in calculating the percents.

<sup>2</sup>Includes persons with unknown sociodemographic characteristics.

<sup>3</sup>Excludes persons under 18 years of age.

NOTE: MSA is metropolitan statistical area.

**Table 6. Percent of persons without health care coverage, by family income: United States, 1984 and 1989**

Family income	1984	1989
	Percent <sup>1</sup>	
All incomes <sup>2</sup> . . . . .	13.0	13.9
Less than \$5,000 . . . . .	25.8	27.1
\$5,000-\$9,999 . . . . .	28.0	27.7
\$10,000-\$19,999 . . . . .	17.4	24.3
\$20,000-\$34,999 . . . . .	6.7	10.6
\$35,000-\$49,999 . . . . .	3.5	5.8
\$50,000 or more . . . . .	3.1	3.6

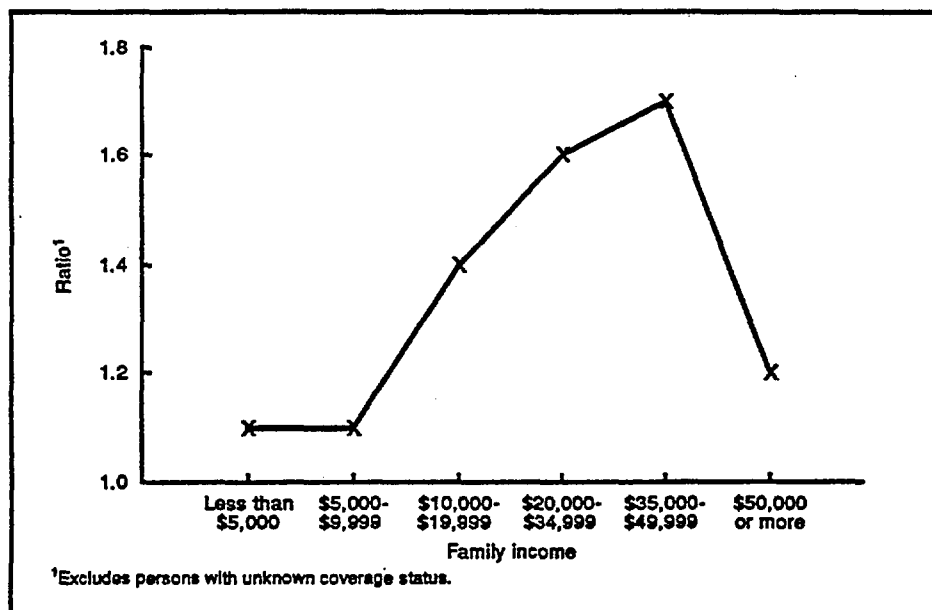
<sup>1</sup>Excludes persons with unknown coverage status.

<sup>2</sup>Includes unknown income.

**Table 7. Percent of persons with private health care coverage: United States, 1974-89**

Year	Percent <sup>1</sup>
1974 . . . . .	79.9
1976 . . . . .	78.9
1978 . . . . .	79.3
1980 . . . . .	79.4
1982 . . . . .	78.1
1984 . . . . .	76.7
1986 . . . . .	76.6
1989 . . . . .	75.9

<sup>1</sup>Excludes persons with unknown coverage status.



**Figure 3. Ratio of 1989 to 1984 percents of persons without health care coverage, by family income: United States**

**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 (estimate has relative standard error of more than 30 percent)
- # Figure suppressed to comply with confidentiality requirements

## Technical notes

The estimates shown in this report are based on data obtained in household interviews in a continuing nationwide survey. Each week a probability sample of households is interviewed by personnel of the U.S. Bureau of the Census to obtain information about the health and other characteristics of the civilian noninstitutionalized population of the United States.

During 1989, interviews were conducted in approximately 45,711 households containing about 116,929

family members and unrelated individuals. The total noninterview rate was about 5.1 percent. The weights of interviewed persons in the segments containing sample households for which data were not obtained were inflated to compensate for household nonresponse.

All persons 17 years of age and over were asked to participate in the interview. When this was not possible, proxy responses were accepted from family members meeting the NHIS respondent rules. All information on persons under 17 years of age was

obtained from adult family members or guardians.

The appendixes of Vital and Health Statistics, Series 10, No. 176 should be consulted for a more detailed discussion of the sample design and weighting procedures (appendix I) and for a copy of the questionnaire used during 1989 (5).

Because the estimates shown in this report are based on a sample, they are subject to sampling error. The standard error is a measure of the sampling error. Approximate

Table I. Number of persons, by age and sociodemographic characteristics: United States, 1989

Sociodemographic characteristic	All ages	Total	Under 65 years				65 years and over
			Under 18 years	18-24 years	25-44 years	45-64 years	
			Number in thousands				
All persons <sup>1</sup>	243,532	214,313	64,003	25,401	78,795	46,114	29,219
Sex							
Male	118,009	105,866	32,752	12,396	38,648	22,070	12,143
Female	125,523	108,447	31,251	13,005	40,147	24,044	17,076
Race							
White	205,312	179,000	51,549	20,886	66,543	40,022	26,312
Black	29,891	27,437	9,959	3,562	9,204	4,712	2,453
Other	8,329	7,875	2,495	952	3,048	1,380	454
Family income							
Less than \$5,000	9,367	8,067	2,702	2,404	1,899	1,063	1,300
\$5,000-\$9,999	16,819	12,506	4,745	2,009	3,452	2,300	4,312
\$10,000-\$19,999	41,040	33,038	10,640	4,699	11,216	6,483	8,002
\$20,000-\$34,999	56,718	51,476	15,776	5,239	20,617	9,843	5,242
\$35,000-\$49,999	39,450	37,635	11,159	3,435	15,319	7,722	1,816
\$50,000 or more	40,752	39,085	10,329	3,596	14,960	10,199	1,668
Poverty status							
In poverty	26,053	23,465	10,589	4,293	5,963	2,619	2,588
Not in poverty	195,674	174,027	48,595	18,704	67,414	39,313	21,647
Employment status <sup>2</sup>							
Currently employed	117,227	113,372	...	17,654	64,307	31,411	3,855
Unemployed	4,714	4,601	...	1,370	2,378	853	113
Not in labor force	57,588	32,337	...	6,377	12,111	13,850	25,251
Education <sup>2</sup>							
Less than 12 years	39,809	26,963	...	5,307	10,218	11,438	12,846
12 years	68,563	59,142	...	10,829	30,052	18,261	9,420
More than 12 years	69,369	62,862	...	9,042	37,870	15,949	6,507
Region							
Northeast	48,930	42,013	11,332	5,048	15,838	9,796	6,918
Midwest	59,540	52,623	15,784	6,274	19,142	11,422	6,917
South	83,148	73,225	22,415	8,688	26,516	15,606	9,923
West	51,913	46,452	14,472	5,391	17,299	9,290	5,461
Place of residence							
MSA	189,860	168,473	49,588	20,177	63,021	35,687	21,388
Central city	74,410	65,563	19,209	8,646	24,339	13,368	8,848
Not central city	115,450	102,910	30,379	11,531	38,682	22,318	12,540
Not MSA	53,672	45,840	14,415	5,224	15,775	10,427	7,831

<sup>1</sup>Includes persons with unknown sociodemographic characteristics.

<sup>2</sup>Excludes persons under 18 years of age.

NOTE: MSA is metropolitan statistical area.

standard errors for estimated percents in this report are determined using the formula

$$SE = \sqrt{\frac{3,640 (p) (1-p)}{y}}$$

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 are shown in table I.

The approximate standard error of a 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.

For economy of space only the percents of persons with no health care coverage or of persons covered by one of the four plans discussed are shown in this report. The percents for the complementary group (that is, persons with health care coverage, persons not covered by private health insurance, and so on) may be obtained by subtracting the reported estimate from 100.0 percent. It should be noted that the percents were obtained by excluding the unknown cases. The number of excluded unknown cases is shown in a footnote to tables 1-5. The percents of unknown coverage are 3.5 percent for private health insurance, 2.9 percent for Medicare, 1.0 percent for public assistance, 1.0 percent for military-Veterans' Administration health benefits, and 4.0 percent for any health care coverage. These percents do not include the 5.1 percent survey nonresponse noted above. Respondents representing about 6 million persons not administered the questions on public assistance and military-Veterans' Administration benefits were classified as not covered by these two plans. The estimated frequencies mentioned in the text are the product of the percents shown times the population shown in table I.

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**Suggested citation**

Ries P. Characteristics of persons with and without health care coverage: United States, 1989. Advance data from vital and health statistics; no 201. Hyattsville, Maryland: National Center for Health Statistics. 1991.

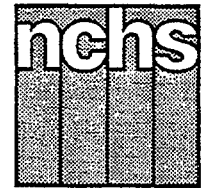
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# Advance Data



From Vital and Health Statistics of the National Center for Health Statistics

## Children's Exposure to Environmental Cigarette Smoke Before and After Birth

Health of Our Nation's Children, United States, 1988

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### Introduction

The effects of environmental exposure to cigarette smoke for the preschool child are primarily the result of two phenomena: The mother's prenatal smoking practices and the child's subsequent family environment (1). Because strong evidence exists that exposed infants and children are at higher risk for specific health and developmental problems (2,3), the vulnerability of some children may be increased according to differences in exposure to cigarette smoke among various demographic and socioeconomic groups.

The pattern of cigarette smoking in the United States has shifted over the years among sex, race, educational, and socioeconomic groups (2,4-6). Although overall prevalence rates of smoking have declined among men and women over the past decade, smoking has decreased at a slower rate among

women. Until recently, smoking initiation was increasing for the least educated young females. Also, the onset of smoking for females is occurring at younger ages. In 1987, 26 percent of women 18-24 years of age and 31 percent of those 25-44 years of age smoked (7). About twice as many women these ages with less than a high school education smoked as did college graduates (31 compared with 15 percent). Forty-one percent of those smoking during these childbearing years smoked about a pack a day; an additional 11 percent of women 18-24 years and 21 percent of women 25-44 years smoked more than this amount.

As a result, differential risk of exposure for children may have changed because of smoking patterns among persons with higher than average birth rates and those who spend more time with the developing child (8,9). This report describes

differences in exposure, both prenatally and postnatally, by demographic and socioeconomic characteristics for U.S. children 5 years of age and under. Their respondent-assessed health status according to exposure and selected characteristics is also shown.

### Background

Maternal smoking during pregnancy and its adverse effects on infant health have been the subject of numerous research studies over the last three decades (2). Considerable evidence has been amassed to indicate that cigarette smoking during pregnancy increases the risk of various adverse prenatal consequences and postnatal health conditions in infants. Prenatal exposure from a mother who smokes may cause intrauterine growth retardation, low birth weight, preterm delivery, and other complications of



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Public Health Service  
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pregnancy and delivery. Recent estimates suggest that elimination of smoking during pregnancy could reduce about 5 percent of perinatal deaths (10–12). In a prospective study, it was demonstrated that nonsmoking mothers exposed to environmental tobacco smoke for at least 2 hours a day had an increased relative risk of 2.17 for delivering a baby of low birth weight (less than 2,500 grams) (13).

Morbidity in older children, at least through the preschool years, also has been found to be higher for children whose mothers smoked during pregnancy than for those whose mothers did not smoke during this period (3). A number of studies have found increases in lower respiratory tract infections (bronchitis and pneumonia) in smokers' children under 2 years of age, with the strongest associations shown for maternal smoking (14–16). Other studies have found increased respiratory-related hospitalizations, wheezing, asthma, middle ear infections, febrile seizures, and reduction in physical growth (17–24). Behavioral and cognitive abnormalities affecting mental development also have been associated with maternal smoking during pregnancy (25,26). The associations with prenatal maternal smoking have held in all of these studies when controlled or stratified by socioeconomic and demographic factors related to poor health. With some of these findings, however, the effects of prenatal maternal smoking may be confounded with children's exposure to environmental smoke after birth.

In 1981, the National Health Interview Survey (NHIS) Child Health Supplement (CHS) included one question on prenatal maternal smoking. Competing priorities established for that survey dictated that the focus of the question be limited to obtaining data on the effects of low birth weight and intrauterine growth retardation.

Subsequent analysis of data from this cross-sectional representative survey of U.S. children, however,

revealed multiple adverse health outcomes among children up to 3 years of age whose mothers smoked while pregnant (27). Prenatal maternal smoking was associated with subsequent poorer health and with higher levels of restricted-activity days, bed days, hospitalizations, and number of chronic conditions. A large part of what was being measured, however, may have been potential adverse effects from sidestream smoke in the household after the children were born. Unfortunately, questions about the presence of household smoke following birth were not included in the 1981 CHS.

To sort out the different stages of exposure to smoke for the young child, the 1988 NHIS on Child Health (NHIS-CH) contained an expanded set of cigarette smoking questions about children's potential exposure both before and after birth. In particular, questions were included about the cigarette smoking practices of the sample child's mother during her pregnancy as well as the presence of cigarette smokers in the household following the child's birth.

This report compares the rates of exposure to smoke at various stages from the prenatal period to the time of the survey. Exposure estimates are shown according to the following demographic, socioeconomic, and health status indicators: Race, Hispanic origin, family income, poverty status, maternal education, place of residence, and respondent-assessed health status.

Table 1 shows the number and percent of children 5 years of age and under in the United States by whether they were ever exposed to cigarette smoke and the period(s) of exposure. Estimates of children's exposure to smoke during the prenatal period and the sources of that exposure are shown in table 2. In table 3, the estimates shown are by exposure to household smoke since birth. Table 4 shows the percent of children assessed in fair or poor health, according to selected exposure periods. Table 5 contains population denominators needed to derive various estimated frequencies for the

percentage estimates presented in tables 1–4.

## Data and methods

In 1988 the National Center for Health Statistics, in collaboration with the National Institute of Child Health and Human Development and the Health Resources and Services Administration and as part of its ongoing NHIS, collected detailed information about the health of children. The National Health Interview Survey is a continuous, cross-sectional survey representing the household population of the United States. Each year, basic health and demographic information is collected in NHIS by means of face-to-face interviews with a sample of about 122,000 family members in about 47,000 families. In addition to the basic questionnaire, questions on one or more special topics are also included. Interviews are conducted by interviewers employed by the U.S. Bureau of the Census. Topics covered in the 1988 NHIS-CH include child care, marital history of the child's parents, geographic mobility, circumstances of the pregnancy and birth, injuries, impairments, acute conditions, chronic conditions, passive smoking, sleep habits, school problems, developmental problems, and use of health care services.

For each family interviewed in NHIS during 1988, one child 17 years of age and under was selected to receive the child health questionnaire according to a probability determined by birth order. About 20,000 children from birth through 17 years of age were represented. The overall response rate for NHIS-CH was about 91 percent.

The questions about children's potential exposure to cigarette smoke were asked only for sample children 5 years of age and under. This age limit was selected to limit recall problems and confounding from multiple exposures. Because some of the information being obtained referred to the mother's smoking practices during pregnancy, the accuracy of reporting was expected to

Table 1. Number of children 5 years of age and under and percent distribution by exposure to smoke before and after birth, according to selected characteristics: United States, 1988

Characteristic	Number of children in thousands <sup>1</sup>	Total	Never exposed to smoke	All exposures to smoke				
				Total ever exposed <sup>2</sup>	Both prenatal and postnatal	Prenatal only	Postnatal only	Continuous exposure
Percent distribution								
All children <sup>3</sup>	19,008	100.0	49.9 (0.9)	50.1 (0.9)	27.6 (0.9)	1.2 (0.2)	21.2 (0.7)	16.4 (0.8)
Race								
White	15,564	100.0	50.7 (1.0)	49.3 (1.0)	28.1 (1.0)	1.2 (0.2)	19.8 (0.7)	16.7 (0.8)
Black	2,759	100.0	40.3 (2.4)	59.7 (2.4)	28.8 (1.9)	1.2 (0.5)	29.7 (2.3)	17.8 (1.6)
Hispanic origin								
Non-Hispanic	16,912	100.0	49.2 (1.0)	50.8 (1.0)	28.5 (0.9)	1.2 (0.2)	20.9 (0.8)	17.2 (0.8)
Hispanic	2,096	100.0	55.7 (2.4)	44.3 (2.4)	19.9 (1.9)	0.7 (0.3)	23.5 (2.1)	10.1 (1.4)
Mexican-American	1,006	100.0	60.2 (4.1)	39.8 (4.1)	15.1 (2.7)	0.4 (0.3)	24.3 (3.3)	7.7 (1.8)
Family income								
Less than \$10,000	2,683	100.0	32.3 (2.1)	67.7 (2.1)	42.2 (2.1)	1.1 (0.4)	24.2 (2.0)	27.0 (1.9)
\$10,000-\$24,999	5,434	100.0	43.4 (1.5)	56.6 (1.5)	30.9 (1.4)	0.9 (0.3)	24.6 (1.3)	19.2 (1.3)
\$25,000-\$39,999	4,869	100.0	54.9 (1.7)	45.1 (1.7)	25.4 (1.4)	1.0 (0.3)	18.5 (1.2)	14.1 (1.2)
\$40,000 or more	4,144	100.0	64.0 (1.8)	36.0 (1.8)	17.9 (1.4)	1.6 (0.4)	16.5 (1.3)	9.3 (1.1)
Poverty status								
In poverty	3,374	100.0	35.3 (2.1)	64.7 (2.1)	36.7 (1.9)	1.1 (0.5)	26.8 (2.0)	23.5 (1.7)
Not in poverty	14,573	100.0	53.5 (1.0)	46.5 (1.0)	25.4 (0.9)	1.2 (0.2)	19.7 (0.8)	14.7 (0.8)
Mother's education								
Less than 12 years	3,279	100.0	32.9 (2.2)	67.1 (2.2)	43.0 (2.5)	0.4 (0.2)	23.4 (2.0)	30.0 (2.4)
12 years	8,012	100.0	43.2 (1.3)	56.8 (1.3)	32.5 (1.3)	1.3 (0.3)	22.9 (1.1)	19.5 (1.2)
More than 12 years	7,496	100.0	65.0 (1.2)	35.0 (1.2)	15.2 (0.8)	1.3 (0.2)	18.3 (1.0)	7.1 (0.6)
Place of residence								
MSA	14,544	100.0	50.3 (1.0)	49.7 (1.0)	27.5 (1.0)	1.2 (0.2)	20.8 (0.9)	16.4 (0.9)
Central city	5,991	100.0	48.0 (1.3)	52.0 (1.3)	27.4 (1.5)	1.4 (0.4)	23.1 (1.3)	16.5 (1.3)
Not central city	8,554	100.0	51.9 (1.4)	48.1 (1.4)	27.7 (1.2)	1.0 (0.2)	19.3 (1.1)	16.3 (1.1)
Not MSA	4,464	100.0	48.5 (2.0)	51.5 (2.0)	27.7 (1.7)	1.1 (0.4)	22.5 (1.1)	16.5 (1.5)
Assessed health status								
Excellent, very good, or good	18,193	100.0	50.3 (0.9)	49.7 (0.9)	27.4 (0.8)	1.2 (0.2)	21.0 (0.7)	16.4 (0.7)
Fair or poor	594	100.0	37.1 (5.1)	62.9 (5.1)	33.7 (4.0)	0.0 (0.0)	29.1 (5.5)	17.5 (3.1)

<sup>1</sup>Excludes children whose total exposure to smoke is unknown.

<sup>2</sup>Includes exposed children whose period of exposure is unknown.

<sup>3</sup>Includes all other races, unknown family income, unknown poverty status, unknown education of mother, and unknown assessed health status.

NOTES: Poverty status is determined in the National Health Interview Survey by family size, number of children, and family income using 1987 poverty levels defined by the U.S. Bureau of the Census. MSA is metropolitan statistical area. Figures in parentheses are standard errors of estimates.

decrease as the interval between the pregnancy and the time of interview increased. Obtaining data on the older child presents the problem of documenting increasing outside exposure to the child compounded with the concern that children themselves may actually begin to smoke in the elementary school years.

The questions about mothers' smoking behavior during pregnancy were asked only of biological mothers who were still living in the household and available to respond at the time of the interview. Data presented in this report are limited to those children for whom prenatal maternal smoking information was available. About 11.5 percent of otherwise

eligible sample children 5 years of age and under are excluded from this analysis because the biological mother was not available for interview. Also excluded from this analysis are an additional 2 percent of eligible sample children for whom no smoking exposure information was available on the NHIS-CH questionnaire. For this report, the final NHIS-CH passive smoking sample includes 5,356 sample children representing 86 percent of U.S. children 5 years of age and under. Comparison of sample children by the demographic and socioeconomic descriptors used in this report shows no differences indicating response bias as a result of these exclusions.

The estimates presented in this report are weighted to produce representative national estimates of U.S. noninstitutionalized children 5 years of age and under, less the sample exclusions just described. This weighted national estimate represents about 19 million children. U.S. population totals for all noninstitutionalized children these ages are provided in table 5 for data users interested in approximating total U.S. estimates.

Initially, mothers were asked whether they smoked at all during the year before the child's birth. Subsequent questions included whether they continued to smoke during the entire pregnancy or

Table 2. Number of children 5 years of age and under and percent distribution by whether exposed to smoke before birth, according to selected characteristics: United States, 1988

Characteristic	Number of children in thousands <sup>1</sup>	Total	Not exposed before birth	Exposed before birth		
				Mother smoked	Mother and others smoked	Potential exposure
Percent distribution						
All children <sup>2</sup> . . . . .	18,849	100.0	49.4 (0.9)	28.8 (0.9)	20.8 (0.8)	21.6 (0.8)
<b>Race</b>						
White . . . . .	15,448	100.0	49.9 (1.0)	29.3 (1.0)	21.7 (0.9)	20.7 (0.8)
Black . . . . .	2,728	100.0	41.5 (2.4)	30.0 (1.9)	18.6 (1.7)	28.4 (2.3)
<b>Hispanic origin</b>						
Non-Hispanic . . . . .	16,799	100.0	48.6 (1.0)	29.8 (0.9)	21.6 (0.9)	21.5 (0.8)
Hispanic . . . . .	2,050	100.0	56.5 (2.3)	20.6 (1.8)	13.8 (1.9)	22.5 (2.4)
Mexican-American . . . . .	987	100.0	59.5 (3.7)	15.4 (2.7)	9.9 (2.6)	24.7 (3.4)
<b>Family income</b>						
Less than \$10,000 . . . . .	2,679	100.0	32.1 (2.1)	43.3 (2.0)	31.5 (1.9)	24.5 (1.8)
\$10,000–\$24,999 . . . . .	5,372	100.0	44.1 (1.6)	31.8 (1.4)	23.3 (1.3)	23.8 (1.4)
\$25,000–\$39,999 . . . . .	4,833	100.0	53.3 (1.6)	26.5 (1.5)	19.6 (1.3)	20.1 (1.3)
\$40,000 or more . . . . .	4,109	100.0	62.9 (1.7)	19.5 (1.4)	12.7 (1.2)	17.4 (1.3)
<b>Poverty status</b>						
In poverty . . . . .	3,344	100.0	35.9 (2.1)	37.8 (1.9)	27.9 (1.7)	26.0 (1.8)
Not in poverty . . . . .	14,456	100.0	53.0 (1.0)	26.6 (0.9)	18.9 (0.8)	20.2 (0.8)
<b>Mother's education</b>						
Less than 12 years . . . . .	3,249	100.0	33.0 (2.1)	43.5 (2.6)	34.6 (2.3)	23.2 (1.9)
12 years . . . . .	7,964	100.0	41.7 (1.4)	33.8 (1.3)	24.4 (1.2)	24.3 (1.2)
More than 12 years . . . . .	7,416	100.0	65.3 (1.2)	16.5 (0.8)	10.4 (0.6)	18.0 (0.9)
<b>Place of residence</b>						
MSA . . . . .	14,406	100.0	50.3 (1.0)	28.7 (1.0)	20.8 (1.0)	20.7 (0.9)
Central city . . . . .	5,920	100.0	48.8 (1.5)	28.8 (1.5)	20.7 (1.3)	22.2 (1.5)
Not central city . . . . .	8,487	100.0	51.4 (1.4)	28.7 (1.2)	20.9 (1.1)	19.7 (1.2)
Not MSA . . . . .	4,443	100.0	46.5 (2.1)	28.8 (1.8)	20.8 (1.5)	24.5 (1.1)
<b>Assessed health status</b>						
Excellent, very good, or good . . . . .	18,054	100.0	50.1 (0.9)	28.6 (0.8)	20.7 (0.8)	21.1 (0.7)
Fair or poor . . . . .	574	100.0	33.0 (4.8)	33.6 (4.0)	26.3 (3.8)	32.4 (5.6)

<sup>1</sup>Excludes children whose exposure to smoke before birth is unknown.

<sup>2</sup>Includes all other races, unknown family income, unknown poverty status, unknown education of mother, and unknown assessed health status.

NOTES: Exposure before birth includes children exposed by mothers' direct smoking as well as possible exposure from mothers' contacts who smoked. Poverty status is determined in the National Health Interview Survey by family size, number of children, and family income using 1987 poverty levels defined by the U.S. Bureau of the Census. MSA is metropolitan statistical area. Figures in parentheses are standard errors of estimates.

stopped during the first 3 months or later and the average daily number of cigarettes smoked. An additional question about potential exposure involved the frequency with which the mother was in contact with friends, coworkers, or family members who smoked during the pregnancy.

To assess a child's exposure to cigarette smoke after birth, the mother's current smoking status was determined. If she was not a current smoker, the interval since she had last smoked was ascertained. Other questions were used to determine whether any household member had smoked regularly since the child's birth. If so, determinations were

made as to (a) whether any household member currently smoked and (b) whether it had been more or less than 12 months since anyone in the household had smoked. A facsimile of the NHIS-CH questionnaire items is provided in Current Estimates from the National Health Interview Survey, 1988 (28).

## Results

### Exposure status

Figure 1 shows the distribution of U.S. children 5 years of age and under by whether they were ever exposed to cigarette smoke and the

proportion exposed before and after birth. About one-half of U.S. children 5 years of age and under have ever been exposed to cigarette smoke. For this report, the estimates of children ever exposed include children whose mother smoked at any time during the pregnancy or afterward and children who lived in a household where someone ever smoked regularly since their birth. More than one-fourth of all young children, on the average, were exposed to passive smoke both before and after birth.

A higher proportion of black children (60 percent) than white children (49 percent) were ever exposed, with most of the difference

**Table 3. Number of children 5 years of age and under and percent distribution by whether exposed to household smoke since birth, according to selected characteristics: United States, 1988**

Characteristic	Number of children in thousands <sup>1</sup>	Total	Not exposed since birth	Exposed since birth		
				Total <sup>2</sup>	Current smoker in household	Former smoker in household
Percent distribution						
All children <sup>3</sup>	19,019	100.0	51.1 (0.9)	48.9 (0.9)	42.4 (0.9)	6.1 (0.4)
Race						
White	15,575	100.0	51.9 (1.0)	48.1 (1.0)	41.6 (1.0)	6.1 (0.4)
Black	2,759	100.0	41.5 (2.4)	58.5 (2.4)	51.3 (2.4)	6.7 (1.2)
Hispanic origin						
Non-Hispanic	16,923	100.0	50.4 (1.0)	49.6 (1.0)	43.2 (1.0)	6.0 (0.4)
Hispanic	2,096	100.0	56.4 (2.6)	43.6 (2.6)	35.8 (2.5)	6.9 (1.2)
Mexican-American	1,006	100.0	60.7 (4.1)	39.3 (4.1)	31.8 (3.8)	6.5 (1.6)
Family income						
Less than \$10,000	2,685	100.0	33.4 (2.1)	66.6 (2.1)	57.7 (2.3)	8.7 (1.1)
\$10,000-\$24,999	5,436	100.0	44.3 (1.5)	55.7 (1.5)	48.8 (1.6)	6.3 (0.7)
\$25,000-\$39,999	4,871	100.0	55.9 (1.7)	44.1 (1.7)	38.3 (1.6)	5.4 (0.7)
\$40,000 or more	4,149	100.0	65.7 (1.8)	34.3 (1.8)	29.5 (1.5)	4.6 (0.9)
Poverty status						
In poverty	3,376	100.0	36.4 (2.1)	63.6 (2.1)	55.7 (2.3)	7.6 (1.0)
Not in poverty	14,582	100.0	54.8 (1.0)	45.2 (1.0)	39.2 (1.0)	5.6 (0.4)
Mother's education						
Less than 12 years	3,279	100.0	33.3 (2.2)	66.7 (2.2)	61.2 (2.1)	5.1 (0.8)
12 years	8,014	100.0	44.5 (1.4)	55.5 (1.4)	47.9 (1.4)	7.3 (0.6)
More than 12 years	7,505	100.0	66.3 (1.2)	33.7 (1.2)	27.6 (1.1)	5.4 (0.6)
Place of residence						
MSA	14,550	100.0	51.5 (1.0)	48.5 (1.0)	42.2 (1.1)	5.9 (0.4)
Central city	5,994	100.0	49.4 (1.4)	50.6 (1.4)	43.6 (1.5)	6.3 (0.6)
Not central city	8,556	100.0	52.9 (1.4)	47.1 (1.4)	41.1 (1.4)	5.6 (0.6)
Not MSA	4,469	100.0	49.7 (1.9)	50.3 (1.9)	43.1 (1.7)	6.8 (0.8)
Assessed health status						
Excellent, very good, or good	18,204	100.0	51.5 (0.9)	48.5 (0.9)	42.0 (0.9)	6.0 (0.4)
Fair or poor	594	100.0	37.1 (5.1)	62.9 (5.1)	55.7 (5.3)	6.7 (2.4)

<sup>1</sup>Excludes children whose exposure to smoke in the home after birth is unknown.

<sup>2</sup>Includes children exposed since birth whose period of exposure is unknown.

<sup>3</sup>Includes all other races, unknown family income, unknown poverty status, unknown education of mother, and unknown assessed health status.

NOTES: Poverty status is determined in the National Health Interview Survey by family size, number of children, and family income using 1987 poverty levels defined by the U.S. Bureau of the Census. MSA is metropolitan statistical area. Figures in parentheses are standard errors of estimates.

occurring in the postnatal period (table 1). Children of Hispanic origin were less likely ever to be exposed to smoke than were non-Hispanic children (44 and 51 percent, respectively). Mexican-American children were the least likely to be exposed prenatally, but their "postnatal only" exposure was similar to that of children of other origins.

Differentials in exposure levels were also found among children by various income categories and according to mother's education. About two-thirds of young children in families with incomes of less than \$10,000 were ever exposed to smoke, compared with 36 percent of children whose family income was \$40,000 or

more, almost a twofold risk. Similarly, the overall rate of exposure to passive smoke declined as level of mother's education increased, from 67 percent of children whose mother did not complete high school to 35 percent of those whose mother had 1 year or more of college. Differences were significant at the 0.05 level between each level of income, poverty, and maternal education.

Table 1 also contains exposure estimates according to one NHIS health status measure: Respondent-assessed health status. Respondent-assessed health status for children is reported by the household respondent for NHIS, usually a parent. The question is used to determine

whether the child's overall health is considered excellent, very good, good, fair, or poor.

A higher percent of children in fair or poor health than other children were ever exposed to smoke; almost two-thirds of all children reported to be in fair or poor health were exposed to cigarette smoke either before or after their birth, compared with about one-half of all children whose overall health was reported to be excellent, very good, or good.

Although questions detailing the entire duration of smoking exposure before and after birth were not included as part of this survey, some approximation is possible to estimate

Table 4. Percent of children 5 years of age and under assessed in fair or poor health, by exposure to smoke and selected characteristics: United States, 1988

Characteristic	All children <sup>1</sup>	Never exposed	Total	Ever exposed		
				Mother smoked during pregnancy	Current smoker in household	Former smoker in household
Percent of children						
All children <sup>2</sup> . . . . .	3.2 (0.33)	2.4 (0.34)	4.0 (0.57)	3.7 (0.50)	4.1 (0.64)	3.5 (1.25)
Race						
White . . . . .	3.0 (0.36)	2.2 (0.38)	3.7 (0.63)	3.3 (0.49)	4.0 (0.72)	3.1 (1.18)
Black . . . . .	4.3 (0.95)	3.1 (1.08)	5.1 (1.37)	6.1 (2.08)	5.0 (1.42)	6.4 (4.91)
Hispanic origin						
Non-Hispanic . . . . .	3.0 (0.35)	2.1 (0.34)	3.8 (0.61)	3.6 (0.53)	4.0 (0.69)	3.3 (1.34)
Hispanic . . . . .	4.6 (1.07)	4.1 (1.42)	5.0 (1.59)	5.2 (2.24)	5.3 (1.88)	5.2 (3.34)
Mexican-American . . . . .	5.3 (1.72)	5.5 (2.32)	4.3 (2.31)	2.4 (2.14)	5.4 (2.84)	0.0 (0.00)
Family income						
Less than \$10,000 . . . . .	7.0 (1.52)	4.5 (1.55)	8.1 (2.20)	7.5 (1.63)	8.0 (2.52)	10.7 (4.78)
\$10,000-\$24,999 . . . . .	3.6 (0.56)	2.7 (0.73)	4.4 (0.85)	3.5 (0.95)	4.6 (0.92)	3.4 (2.10)
\$25,000-\$39,999 . . . . .	2.7 (0.54)	2.4 (0.77)	2.9 (0.70)	3.2 (0.91)	3.3 (0.80)	0.0 (0.00)
\$40,000 or more . . . . .	1.4 (0.37)	1.1 (0.37)	1.9 (0.81)	1.3 (0.94)	2.0 (0.94)	2.1 (2.05)
Poverty status						
In poverty . . . . .	6.5 (1.30)	3.5 (1.12)	8.1 (1.95)	7.6 (1.64)	8.0 (2.19)	9.8 (4.44)
Not in poverty . . . . .	2.4 (0.27)	2.0 (0.34)	2.9 (0.41)	2.7 (0.49)	3.2 (0.45)	1.9 (1.01)
Mother's education						
Less than 12 years . . . . .	6.0 (1.28)	3.3 (1.19)	7.3 (1.82)	5.6 (1.23)	7.3 (1.96)	10.6 (6.12)
12 years . . . . .	3.0 (0.47)	2.7 (0.73)	3.3 (0.57)	3.7 (0.75)	3.6 (0.65)	2.3 (1.16)
More than 12 years . . . . .	1.9 (0.28)	1.8 (0.33)	2.0 (0.52)	1.6 (0.76)	1.9 (0.53)	2.5 (1.77)
Place of residence						
MSA . . . . .	2.9 (0.38)	1.9 (0.36)	3.9 (0.68)	3.9 (0.59)	4.1 (0.77)	3.5 (1.44)
Central city . . . . .	2.9 (0.46)	1.4 (0.46)	4.3 (0.82)	4.9 (1.14)	3.9 (0.86)	7.5 (3.21)
Not central city . . . . .	2.9 (0.58)	2.2 (0.53)	3.6 (1.04)	3.2 (0.66)	4.2 (1.21)	0.4 (0.37)
Not MSA . . . . .	4.0 (0.66)	4.0 (0.85)	4.1 (0.95)	3.1 (0.88)	4.4 (1.04)	3.6 (2.55)

<sup>1</sup>Excludes children whose total exposure to smoke is unknown.

<sup>2</sup>Includes all other races, unknown family income, unknown poverty status, and unknown education of mother.

NOTES: Poverty status is determined in the National Health Interview Survey by family size, number of children, and family income using 1987 poverty levels defined by the U.S. Bureau of the Census. MSA is metropolitan statistical area. Figures in parentheses are standard errors of estimates.

the proportion of children at highest risk, that is, those continuously exposed from the prenatal period to the time of interview. For this report children were classified as being "continuously" exposed to cigarette smoke if either (a) their mother smoked during the entire pregnancy and currently smokes or (b) their mother smoked during the entire pregnancy, a household member smoked regularly since their birth, and a household member currently smokes.

Using this operational definition, about 16 percent of U.S. children—one in six—have been exposed continuously, that is, prenatally to tobacco smoke constituents and postnatally to sidestream smoke in the household. About the same proportion of black and white children experienced

continuous exposure to smoke, but more non-Hispanic than Hispanic children were exposed continuously (17 percent and 10 percent, respectively). Children in families with incomes of less than \$10,000 were three times as likely to be exposed from conception to the current time as were those with family incomes of \$40,000 or more (27 and 9 percent). Children whose mother had not completed high school were four times as likely to be exposed as those whose mother continued her education beyond high school (30 and 7 percent).

#### Prenatal exposure

In table 2 estimates of children's exposure to smoke before birth are expanded. The criteria for classifying children's exposure to cigarette smoke

used for this table also differ from those used for figure 1 and table 1. For most of the exposure status categories shown in table 2, the data incorporate estimates for children whose mother was often in contact with a smoker (such as friends, coworkers, or family members who smoked).

Some of the four categories shown in table 2 are not mutually exclusive. They are defined in the following way:

- "Not exposed before birth" includes children whose mother did not smoke at all during pregnancy and did not often come in contact with persons who smoked.
- "Mother smoked" includes all children whose mother reported

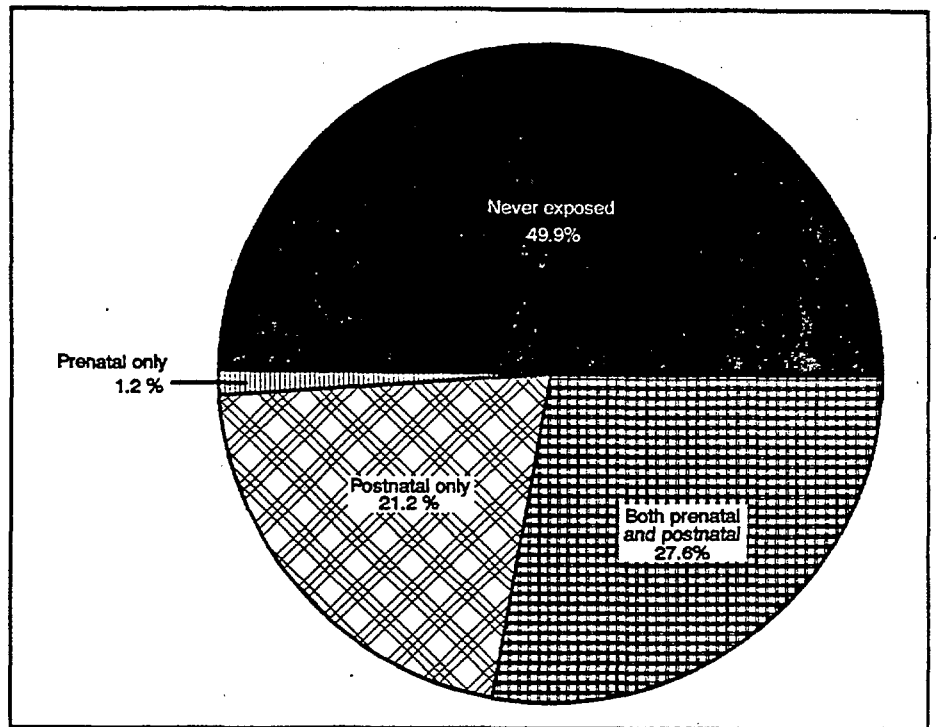
**Table 5. Number of children 5 years of age and under, by selected sociodemographic characteristics and assessed health status: United States, 1988**

Characteristic	Number in thousands
Total <sup>1</sup>	22,107
<b>Race</b>	
White	17,828
Black	3,336
<b>Hispanic origin</b>	
Non-Hispanic	19,570
Hispanic	2,537
Mexican-American	1,229
<b>Family income</b>	
Under \$10,000	3,046
\$10,000-\$24,999	6,279
\$25,000-\$39,999	5,550
\$40,000 or more	4,905
<b>Poverty status</b>	
In poverty	3,878
Not in poverty	16,906
<b>Mother's education</b>	
Less than 12 years	3,959
12 years	9,071
More than 12 years	8,604
<b>Place of residence</b>	
MSA	16,924
Central city	7,038
Not central city	9,886
Not MSA	5,183
<b>Assessed health status</b>	
Excellent, very good, or good	21,198
Fair or poor	664

<sup>1</sup>Includes all other races, unknown family income, unknown poverty status, unknown education of mother, and unknown assessed health status.

NOTES: Poverty status is determined in the National Health Interview Survey by family size, number of children, and family income using 1987 poverty levels defined by the U.S. Bureau of the Census. MSA is metropolitan statistical area.

- smoking at all during the pregnancy.
- "Mother and others smoked" refers to children whose mother smoked at all during the pregnancy and also often came in contact with someone who smoked. This category is a subset of the preceding category (mother smoked), which includes these children as well as children of mothers who smoked but did not come in contact frequently with other smokers.
- "Potential exposure" includes children whose mother did not smoke at all during pregnancy but was often in contact with persons, such as friends, coworkers, or family members, who smoked.



**Figure 1. Percent distribution of children 5 years of age and under by exposure to smoke before and after birth: United States, 1988**

Children in this category, by definition, are not included in any of the preceding categories.

About 29 percent of all children, regardless of race, were exposed prenatally to smoke as a direct result of their mother's smoking. The percent of children of Hispanic origin exposed before birth as a consequence of their mother's smoking was somewhat lower, about 20 percent. Proportionately about twice as many youngsters from the lowest family income category were exposed from their mother's smoke (43 percent) as were children whose family's total earnings were \$40,000 or more (20 percent). The risk of exposure prior to birth from mothers' smoke was more than 2½ times as great for children of mothers with less than a high school education (44 percent) as for those whose mother had 1 year or more of college (17 percent).

On the average, more than one-fourth of the Nation's children were exposed to maternal smoke. However, this estimate rises to 50 percent when children whose nonsmoking mothers were exposed to

sidestream smoke during pregnancy are also considered potentially at risk. Overall, about 22 percent of children were reported to have mothers exposed frequently to cigarette smoke, even though they were not smokers themselves. This estimate was somewhat higher for black children (28 percent, compared with 21 percent of white children). Proportionately there were more children with nonsmoking mothers exposed to smoke among families comprising the lowest income and maternal education categories than among families with incomes of \$40,000 or more and mothers with more than 12 years of education.

The proportions of children with potential exposure, shown in table 2, are very similar to those of children exposed postnatally only by household members, shown in table 1, suggesting that household exposure may be the main potential source for pregnant nonsmoking mothers.

**Postnatal exposure**

Forty-two percent of all U.S. children 5 years of age and under

were currently living in a household with a smoker (table 3). This estimate was highest among black children: On the average, one out of two black children lived with someone who smoked. Only 6 percent of U.S. children lived in households where smoking had ceased since the child was born. Proportionately fewer Hispanic children than others were currently exposed in the home (36 percent).

As with the estimates of children exposed to cigarette smoke prenatally, a disproportionately high number of children comprising the lower income and education categories were currently exposed to smoke in the home. Fifty-eight percent of those whose family income was less than \$10,000 were living with a smoker, compared with 30 percent of children in families with incomes of \$40,000 or more, a twofold risk. More than twice as many children having mothers with less than 12 years of education were currently exposed to household smoke (61 percent) as were children whose mothers reported completing 1 year or more of college (28 percent).

A higher proportion of children in fair or poor health were reported to be living in households with a current smoker: 56 percent versus 42 percent of those whose overall health was said to be good to excellent.

The percent of children living with a household member who had quit smoking appears to be higher among those with incomes less than \$10,000 or in poverty (9 and 8 percent, respectively) than the overall average of 6 percent. These differences may be due to sampling variation. However, the level of current smokers is still highest in these categories.

#### Exposure and assessed health status

As previously mentioned, parents are asked to assess their children's overall health as part of the basic NHIS interview. Accordingly, about 3 percent of all U.S. children 5 years of age and under are said to be in fair or poor health (table 4). The

relative risk of fair or poor health was almost twice as great for children who lived in households with current smokers as it was for children who were never exposed—4.1 and 2.4 percent, respectively. This approximate ratio also is observed between the estimates for most of the smoking categories shown in table 4. However, the differences seen are not statistically significant at the 0.05 level when the standard errors associated with these estimates are considered.

Nevertheless, the estimates in table 4 are included in this report to show an apparent pattern suggesting that, for most children, fair or poor health appears to be associated with various exposures to cigarette smoke. Children currently exposed appear to be at somewhat greater risk than those formerly exposed, whether at home or prenatally. The children at least risk appear to be those who have never been exposed to cigarette smoke at all. The estimates presented in this table should be interpreted with caution, however, because sampling variability may account for the differences that are observed and other determinants of perceived health status have not been taken into account.

#### Summary

In this report, the differences found in exposure by family income, poverty, and total years of maternal education follow what is known about overall smoking rates in the U.S. population (1-6). Overall, about one-half of all U.S. children 5 years of age and under have been exposed to environmental cigarette smoke from prenatal maternal smoking and/or sidestream smoke from household members after their birth. Twenty-one percent were exposed only after they were born, and 28 percent were exposed both from prenatal maternal smoking and subsequent household exposure. Sixteen percent were continuously exposed.

The findings show that a large proportion of children at disadvantage from low income and

educational levels in the household are also at increased risk of exposure to maternal and sidestream smoke, potentially adding to differentials in their health risks. The differences in exposure by family income, poverty status, and total years of maternal education are consistent with current smoking patterns of the U.S. population during the childbearing years. Children 5 years of age and under in families with the lowest income levels were almost twice as likely to have ever been exposed as those with the highest incomes (68 percent compared with 36 percent). Almost twice as many children living in households where the mother had not completed high school as in those where the mother had completed 1 or more years of college had ever been exposed (67 percent compared with 35 percent).

Black children were more likely to have ever been exposed than white children (60 and 49 percent, respectively). Non-Hispanic children were more likely to have been exposed than Hispanic children (51 and 44 percent, respectively), with Mexican-American children the least likely to have been exposed (40 percent).

The children least likely to have been continuously exposed since conception had mothers with more than 12 years of education (7 percent) or lived in households with family incomes of \$40,000 or more (9 percent). Hispanic children were also less likely to be exposed continuously. Mexican-American children had one-half the risk of continuous exposure (8 percent) than non-Hispanic children had (17 percent), because Mexican-American mothers were one-half as likely as others to smoke while pregnant (16 percent compared with 30 percent).

Patterns are similar for children currently living with smokers. About twice as many children living in families with the least income as in families with an income of \$40,000 more were exposed (58 percent versus 30 percent). Children living



with mothers with less than 12 years of education were more than twice as likely to be living with a current smoker (61 percent) as those with the most educated mothers (28 percent). However, 32 percent of Mexican-American children currently lived with a smoker, compared with 43 percent of non-Hispanic children.

The differences found among educational, racial, and ethnic groups reinforce the concern about advertising targeted to the most vulnerable populations (2,6,8,29). The focus of appropriately specific intervention should be intensified for the highest risk groups of parents and parents-to-be.

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## Technical notes

### Methods

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

NHIS consists of two parts: (a) a basic health questionnaire that remains the same each year and is completed for each household member and (b) special topics questionnaires that vary from year to year and usually are asked of just one person in each family. In 1988, the special topics included acquired immunodeficiency syndrome (AIDS) knowledge and attitudes, medical device implants, occupational health, alcohol, and child health. These data sets can be linked to provide additional sources for analysis.

The total sample interviewed for 1988 for the basic health questionnaire consisted of 47,485 households containing 122,310 individuals. The total response rate was 95 percent. For the National Health Interview Survey on Child Health (NHIS-CH), one sample child 17 years of age and under was selected from each family with children in that age range. Interviews were completed for 17,110 children 17 years of age and under, 95 percent of those identified as eligible on the basis of the basic health questionnaire. The overall response rate for NHIS-CH was 91 percent, the product of the response rates for the basic and child health questionnaires.

Because the estimates presented in this report are based on a sample of the population, they are subject to sampling errors. Standard errors of

the estimates have been included in the tables. The standard errors for this report were calculated using SESUDAAN, a SAS-based software package designed to produce standard errors for estimates based on complex, multistage sample designs (30). Standard errors based on such survey designs are typically about 20 percent larger than those that would be obtained with a simple random sample of the same size.

In this report, persons whose overall smoking exposure was unknown for certain items were excluded from both the denominators and numerators of percents and percent distributions. This exclusion of unknowns implicitly assumes that the response distribution for these persons is the same as that for persons for whom valid responses were provided.

All differences cited in this report are statistically significant at the 0.05 level. The *t*-test, with a critical value of 1.96, was used to test all pairwise comparisons. 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.

The results presented in this report were derived from a corrected version of the 1988 NHIS-CH data tape. The original NHIS-CH public use tape, released in 1990, does not contain information about prenatal exposure to smoke for about 10 percent of eligible sample children because of an incorrect editing procedure. Persons interested in purchasing a revised version of the public use tape should request the corrected copy by writing the Division of Health Interview Statistics, National Center for Health Statistics, 6525 Belcrest Road, Hyattsville, Maryland 20782.

### Definition of terms

#### Children's exposure to cigarette smoke

*Never exposed*—Mother did not smoke at all either during the pregnancy or after the child's birth,

and no household member has smoked regularly at any time since the child's birth.

*Ever exposed*—Mother smoked during some part of the pregnancy or after the child's birth, or a household member has smoked regularly at any time since the child's birth.

*Prenatal exposure only*—Mother smoked during some part of the pregnancy but did not smoke after the child's birth, and no household member has smoked regularly at any time since the child's birth.

*Postnatal exposure only*—Mother did not smoke at all during the pregnancy, and mother smoked after the child's birth or a household member has smoked regularly at some time since the child's birth.

*Prenatal and postnatal exposure*—Mother smoked during some part of the pregnancy, and mother smoked after the child's birth or a household member has smoked regularly at some time since the child's birth.

*Continuous exposure*—Mother smoked during the entire pregnancy, and mother reported smoking at time of interview or another household member smoked regularly since the child's birth and reported smoking at time of interview.

*Prenatal exposure*—Terms used only in table 2:

*Not exposed before birth*—Mother did not smoke at all during the pregnancy and while pregnant was not often in contact with persons who did smoke, such as friends, coworkers, or family members.

*Exposed before birth (mother smoked)*—Mother smoked during some part of the pregnancy.

*Exposed before birth (mother and others smoked)*—Mother smoked during some part of the pregnancy and was often in contact with other persons who smoked, such as friends, coworkers, or family members.

*Exposed before birth (potential exposure)*—Mother did not smoke at all during the pregnancy but

while pregnant was often in contact with persons who did smoke, such as friends, coworkers, or family members.

*Exposed since birth*—Mother or another household member smoked since the child's birth.

*Current smoker in household*—Mother or another household member reported smoking at time of interview.

*Former smoker in household*—Mother or another household member smoked since the child's birth, but no household member reported smoking at time of interview.

*Not exposed since birth*—Mother did not smoke since the child's birth, and no other household member smoked regularly at any time since the child's birth.

### Demographic terms

*Race*—The population is divided into three groups according to race—white, black, and all other races. Persons are classified according to the respondents' reported racial identifications. In this report, those of all other races, although not shown as a separate category, are represented in the estimates of "all children."

*Hispanic origin*—A person is classified as Hispanic if the household respondent reports one of the following groups as his or her national origin or ancestry: Puerto Rican, Cuban, Mexican, Latin American, or other Spanish.

*Non-Hispanic origin*—Persons not classified as Hispanic are non-Hispanic. This category includes persons whose Hispanic status is unknown.

*Family income*—This includes the total of all income for the past 12 months received by members of the child's family. Income from all sources is included, for example, wages, salaries, rents from property, pensions, and help from relatives.

*Poverty status*—Persons are classified as being in poverty or not in poverty according to the poverty index originated at the Social Security

Administration in 1964 and revised by the Federal Interagency Committees in 1969 and 1980. The index, based on money income only, is derived from the Department of Agriculture's 1961 economy food plan and reflects the different consumption requirements of families according to their size and composition. The poverty thresholds are updated annually to reflect changes in the Consumer Price Index. Because NHIS data on family income are collected by income categories rather than in specific amounts of money, the NHIS estimates of persons living in poverty will vary slightly from the Current Population Survey estimates.

*Mother's education*—The categories reflect the total number of years of regular school the child's mother completed. A regular school is one that advances a person toward an elementary or high school diploma or a college, university, or professional school degree.

*Place of residence*—A person's residence is classified according to whether it is inside a metropolitan statistical area (MSA) or outside an MSA. Generally speaking, an MSA consists of a county or group of counties containing at least one city having a population of 50,000 or more plus adjacent counties that are metropolitan in character and are economically and socially integrated with the central city.

*Central city*—The largest city in an MSA is always a central city. One or two additional cities may be secondary central cities provided that their population is one-third or more of the largest city, with a minimum population of 25,000, or that they have at least 250,000 inhabitants.

*Not central city*—This includes all of the MSA that is not part of the central city itself.

*Not in MSA*—This includes all other places in the country.

### Health measures

*Respondent-assessed health status*—The categories related to this health measure result from asking the NHIS respondent, "Would you say

(child's) health is excellent, very good, good, fair, or poor?"

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**Suggested citation**

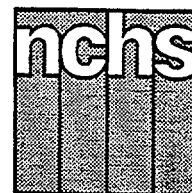
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# Advance Data



From Vital and Health Statistics of the National Center for Health Statistics

## National Ambulatory Medical Care Survey: 1989 Summary

by James E. DeLozier, M.S., and Raymond O. Gagnon, Division of Health Care Statistics

Estimates presented in this report are based on data collected during the National Ambulatory Medical Care Survey (NAMCS), a national probability sample survey conducted by the Division of Health Care Statistics, National Center for Health Statistics, Centers for Disease Control.

During the 12-month period from March 1989 to March 1990, an estimated 692.7 million office visits were made to nonfederally employed, office-based physicians in the United States. This represents an increase of about 56 million visits (8.8 percent) since 1985. Part of this increase is accounted for by the addition of Alaska and Hawaii to the NAMCS in 1989. The rate of office visits has been stable since 1975, with about 2.7 visits per person per year. The rate was 2.8 for 1989; this is not a statistically significant increase but warrants further examination later in this report.

This report provides an overview of the data from the 1989 NAMCS. These data should be considered provisional because final editing may result in minor changes in the estimates. The use of office-based ambulatory care services is described

in terms of the number, percent, and rate of office visits. Statistics are presented on physician, patient, and visit characteristics.

Figure 1 is a facsimile of the 1989 NAMCS Patient Record used by participating physicians to record information about their patients' office visits. It will serve as a useful reference when reviewing survey findings.

Because the estimates presented in this report are based on a sample rather than on the entire universe of office visits, the data are subject to sampling variability. The technical notes at the end of this report provide a brief description of the sample design, an explanation of sampling errors, and guidelines to judge the precision of the estimates. A detailed description of the 1989 NAMCS sample design and survey methodology is forthcoming.

The physician sample for NAMCS was selected with the cooperation of the American Medical Association and the American Osteopathic Association. Their contribution to this effort is gratefully acknowledged.

### Data highlights

#### Physician characteristics

The distribution of office visits according to physician specialty is shown in table 1 and figure 2 for the most frequently visited specialists.

Visits to physicians specializing in general and family practice (GFP) accounted for 29.8 percent of office visits in 1989, not statistically different from the proportion of visits in 1985 (30.5 percent). This may indicate the end of a trend that has shown a steady decrease in the proportion of GFP visits from a high of 41.5 percent in 1974, the first year the NAMCS was conducted. This trend has paralleled the decline in the proportion of general and family physicians during the same time period (1). Of the 13 most frequently visited specialists, only pediatricians showed a significant increase in the proportion of visits since 1985, increasing from 11.4 percent to 12.6 percent of total visits.

#### Patient characteristics

Office visit data according to patient age, sex, and race are shown in tables 2 and 3. Females accounted



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service  
Centers for Disease Control  
National Center for Health Statistics  
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Assurance of Confidentiality—All information which would permit identification of an individual, a practice, or an establishment will be held confidential, will be used only by persons engaged in and for the purposes of the survey and will not be disclosed or released to other persons or used for any other purpose.		Department of Health and Human Services Centers for Disease Control Public Health Service National Center for Health Statistics		<b>A</b>		
1. DATE OF VISIT <div style="text-align: center;">Month / Day / Year</div>		<b>PATIENT RECORD</b> <b>NATIONAL AMBULATORY MEDICAL CARE SURVEY</b>				OMB No. 0920-0234 Expires 8-31-89 (PHS) 6105A
2. ZIP CODE	4. SEX 1 <input type="checkbox"/> FEMALE 2 <input type="checkbox"/> MALE	5. COLOR OR 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	6. ETHNICITY 1 <input type="checkbox"/> HISPANIC ORIGIN 2 <input type="checkbox"/> NOT HISPANIC	7. EXPECTED SOURCE(S) OF PAYMENT <i>[Check all that apply]</i> 1 <input type="checkbox"/> SELF-PAY 4 <input type="checkbox"/> BLUE CROSS/BLUE SHIELD 7 <input type="checkbox"/> NO CHARGE 2 <input type="checkbox"/> MEDICARE 5 <input type="checkbox"/> OTHER COMMERCIAL INSURANCE 8 <input type="checkbox"/> OTHER <i>[Specify]</i> 3 <input type="checkbox"/> MEDICAID 6 <input type="checkbox"/> PRE-PAID PLAN HMO/PA/PPO		8. WAS PATIENT REFERRED FOR THIS VISIT BY ANOTHER PHYSICIAN? 1 <input type="checkbox"/> YES 2 <input type="checkbox"/> NO
3. DATE OF BIRTH <div style="text-align: center;">Month / Day / Year</div>		9. 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		10. PHYSICIAN'S DIAGNOSES  a. PRINCIPAL DIAGNOSIS/PROBLEM ASSOCIATED WITH ITEM 9a.   b. OTHER SIGNIFICANT CURRENT DIAGNOSES		11. HAVE YOU SEEN PATIENT BEFORE?  1 <input type="checkbox"/> YES 2 <input type="checkbox"/> NO ↓ IF YES, FOR THE CONDITION IN ITEM 10a?  1 <input type="checkbox"/> YES 2 <input type="checkbox"/> NO
12. DIAGNOSTIC/SCREENING SERVICES THIS VISIT <i>[Check all ordered or provided]</i> 1 <input type="checkbox"/> NONE 7 <input type="checkbox"/> BLOOD PRESSURE CHECK 13 <input type="checkbox"/> ORAL GLUCOSE TOL. 2 <input type="checkbox"/> PAP TEST 8 <input type="checkbox"/> URINALYSIS 14 <input type="checkbox"/> CHOLESTEROL MEASURE 3 <input type="checkbox"/> PELVIC EXAM 9 <input type="checkbox"/> CHEST X-RAY 15 <input type="checkbox"/> HIV SEROLOGY 4 <input type="checkbox"/> BREAST PALPATION 10 <input type="checkbox"/> DIGITAL RECTAL EXAM 16 <input type="checkbox"/> OTHER BLOOD TEST 5 <input type="checkbox"/> MAMMOGRAM 11 <input type="checkbox"/> PROCT/SIGMOIDOSCOPY 17 <input type="checkbox"/> OTHER <i>[Specify]</i> 6 <input type="checkbox"/> VISUAL ACUITY 12 <input type="checkbox"/> STOOL BLOOD EXAM			13. COUNSELING/ADVICE <i>[Check all ordered or provided]</i> 1 <input type="checkbox"/> NONE 2 <input type="checkbox"/> WEIGHT REDUCTION 3 <input type="checkbox"/> CHOLESTEROL REDUCTION 4 <input type="checkbox"/> SMOKING CESSATION 5 <input type="checkbox"/> HIV TRANSMISSION 6 <input type="checkbox"/> BREAST SELF-EXAM 7 <input type="checkbox"/> OTHER		14. NON-MEDICATION THERAPY <i>[Check all ordered or provided]</i> 1 <input type="checkbox"/> NONE 2 <input type="checkbox"/> PSYCHOTHERAPY 3 <input type="checkbox"/> CORRECTIVE LENSES 4 <input type="checkbox"/> AMBULATORY SURGERY 5 <input type="checkbox"/> PHYSIOTHERAPY 6 <input type="checkbox"/> OTHER <i>[Specify]</i>	
15. MEDICATION THERAPY <i>[Record all new or continued medications ordered or provided at this visit. Use the same brand name or generic name entered on any Rx or office medical record. Include immunizing and desensitizing agents.]</i>  IF NONE, CHECK HERE <input type="checkbox"/>				16. DISPOSITION THIS VISIT <i>[Check all that apply]</i> 1 <input type="checkbox"/> NO FOLLOW-UP PLANNED 2 <input type="checkbox"/> RETURN AT SPECIFIED TIME 3 <input type="checkbox"/> RETURN IF NEEDED, P.R.N. 4 <input type="checkbox"/> TELEPHONE FOLLOW-UP PLANNED 5 <input type="checkbox"/> REFERRED TO OTHER PHYSICIAN 6 <input type="checkbox"/> RETURNED TO REFERRING PHYSICIAN 7 <input type="checkbox"/> ADMIT TO HOSPITAL 8 <input type="checkbox"/> OTHER <i>[Specify]</i>		17. DURATION OF THIS VISIT <i>[Time actually spent with physician]</i>  Minutes
1. _____				a. NEW MEDICATION? YES NO b. FOR DX IN ITEM 10a? YES NO		
2. _____				1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/>		
3. _____				1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/>		
4. _____				1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/>		
5. _____				1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/>		

\* U.S. GOVERNMENT PRINTING OFFICE:1988-226-197

Figure 1. 1989 National Ambulatory Medical Care Survey Patient Record

for about 60 percent of all office visits and for a majority of the visits in each age group except the youngest. The annual visit rate was also higher for females than for males in all age groups except the youngest. For both sexes, the visit rates increased with age after 15 years of age.

As noted earlier, the overall visit rate of 2.8 office visits per person for 1989 is not statistically different from the rate for 1985 and prior years of 2.7. An examination of age-specific

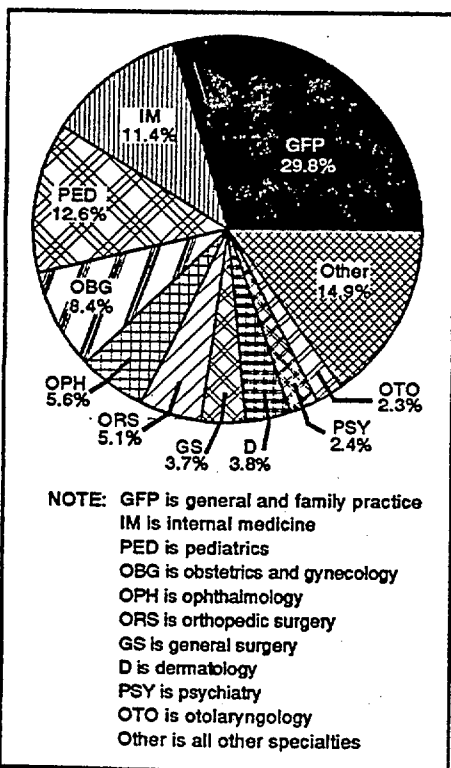
visit rates, however, indicates that the rates for the oldest and youngest patients have increased (figure 3). From 1975 through 1989, the visit rate for patients 65 years of age and over increased from 4.3 to 5.2; and for patients under 15 years of age, it increased from 1.9 to 2.6 visits per year. Data for males and females separately show similar increases in visit rates for the youngest and oldest age groups.

Visits by white persons accounted for about 85 percent of the office visits in 1989, a significantly smaller proportion of visits than the estimate of about 90 percent in 1985. Two factors account for some of this difference. First, the method of reporting race changed; the 1989 data shown in table 3 include an "unspecified" category that was not used in earlier NAMCS data. Prior to 1989, unspecified responses to this item were randomly imputed a race

**Table 1. Number and percent distribution of office visits, by physician specialty and professional identity: United States, 1989**

Physician specialty and professional identity	Number of visits in thousands	Percent distribution
All visits	692,702	100.0
<b>Physician specialty</b>		
General and family practice	206,301	29.8
Pediatrics	87,411	12.6
Internal medicine	78,816	11.4
Obstetrics and gynecology	58,381	8.4
Ophthalmology	38,761	5.6
Orthopedic surgery	35,148	5.1
Dermatology	26,319	3.8
General surgery	25,379	3.7
Psychiatry	16,616	2.4
Otolaryngology	15,956	2.3
Cardiovascular disease	10,840	1.6
Urological surgery	10,157	1.5
Neurology	6,105	0.9
All other specialties	76,511	11.0
<b>Professional identity</b>		
Doctor of medicine	651,392	94.0
Doctor of osteopathy	41,310	6.0

designation. Following that procedure in 1989 would have resulted in about 87.5 percent of the visits being accounted for by white persons. Second, the addition of Alaska and



**Figure 2. Percent distribution of office visits by physician specialty: United States, 1989**

**Table 2. Number, percent distribution, and annual rate of office visits, by sex and age of patient: United States, 1989**

Sex and age	Number of visits in thousands	Percent distribution	Number of visits per person per year <sup>1</sup>
<b>Both sexes</b>			
All ages	692,702	100.0	2.8
Under 15 years	137,502	19.9	2.6
15-24 years	66,868	9.7	1.9
25-44 years	192,593	27.8	2.4
45-64 years	145,160	21.0	3.1
65-74 years	83,692	12.1	4.7
75 years and over	66,888	9.7	5.9
<b>Female</b>			
All ages	417,496	60.3	3.3
Under 15 years	65,138	9.4	2.5
15-24 years	43,065	6.2	2.4
25-44 years	130,222	18.8	3.2
45-64 years	87,076	12.6	3.6
65-74 years	49,560	7.2	5.0
75 years and over	42,435	6.1	5.9
<b>Male</b>			
All ages	275,206	39.7	2.3
Under 15 years	72,364	10.4	2.6
15-24 years	23,803	3.4	1.4
25-44 years	62,370	9.0	1.6
45-64 years	58,084	8.4	2.6
65-74 years	34,133	4.9	4.3
75 years and over	24,453	3.5	5.8

<sup>1</sup>Rates are based on estimates of the civilian noninstitutionalized population of the United States, as of July 1, 1989.

Hawaii to the 1989 sample design contributed to both the decrease in the proportion of visits by white persons and the increase in the proportion of visits by Asians and Pacific Islanders. The estimated 2.7 percent of visits made by Asians and Pacific Islanders, shown in table 3, is more than double the 1.2 percent found in 1985.

**Visit characteristics**

**Prior visit status**—About 83 percent of visits were by patients who had seen the physician before (table 4). Furthermore, a majority of visits (61 percent) were made by patients who were returning for care of problems that had previously been treated by the physician. These figures are substantially the same as those for 1985 and prior years of the NAMCS.

**Reason for visit**—The data in tables 5 and 6 represent the principal reason for visiting the physician's office as expressed by the patient or a patient surrogate. The principal reason is the problem, complaint, or reason listed first in item 9a of the

Patient Record. These data have been classified and coded according to the Reason for Visit Classification for Ambulatory Care (RVC) (2).

The RVC is divided into eight modules (or groups of reasons), as shown in table 5. Those reasons for visit classified as symptoms accounted for about 57 percent of all visits, with respiratory and musculoskeletal symptoms each accounting for about 11 percent of all visits.

The 20 most common principal reasons for visit are shown in table 6 and accounted for nearly 40 percent of all visits. Of these 20 reasons, 18 also appeared in the list of the most

**Table 3. Number and percent distribution of office visits, by race: United States, 1989**

Race	Number of visits in thousands	Percent distribution
All races	692,702	100.0
White	587,976	84.9
All other	83,327	12.0
Black	62,146	9.0
Asian or Pacific Islander	18,948	2.7
American Indian or Alaskan Native	2,233	0.3
Unspecified	21,399	3.1

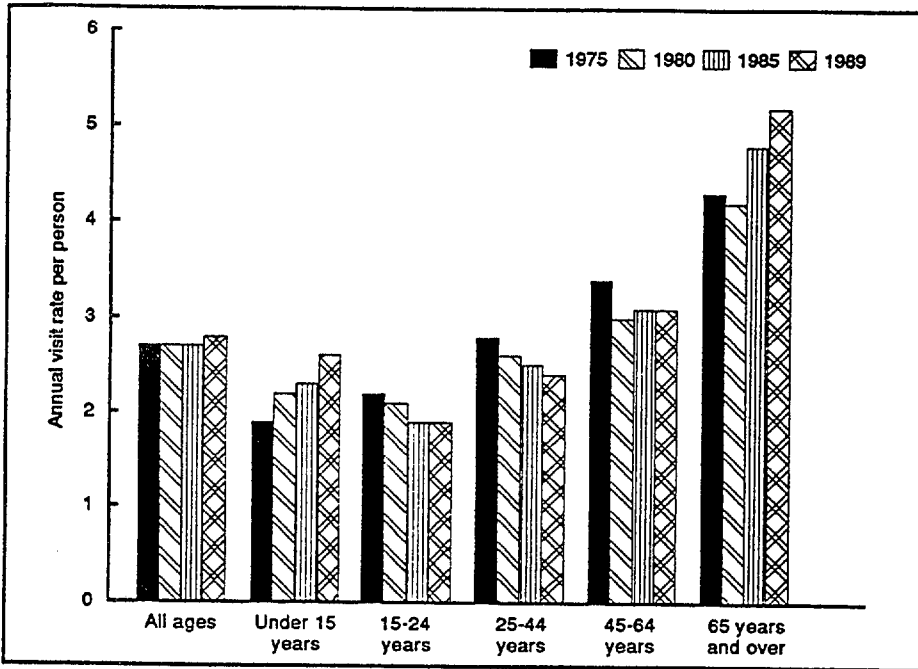


Figure 3. Annual visit rate per person by patient age: United States, 1975, 1980, 1985, and 1989

frequent reasons for visit in 1981 and 1985.

**Diagnostic and screening services**—Information on various diagnostic and screening services that may be ordered or provided during an office visit is presented in table 7. The list of services included on the NAMCS Patient Record (item 12) is changed periodically to enable collection of data on a wide variety of tests and procedures. Services included for a particular survey year are determined by the needs expressed by data users, recommendations of advisors, and anticipated future health data needs. Some items in table 7 were new in

Table 4. Number and percent distribution of office visits, by referral status and prior visit status: United States, 1989

Referral status and prior visit status	Number of visits in thousands	Percent distribution
All visits	692,702	100.0
Referral status		
Referred by another physician	37,643	5.4
Not referred by another physician	655,059	94.6
Prior visit status		
New patient	114,855	16.6
Old patient	577,847	83.4
New problem	155,640	22.5
Old problem	422,207	61.0

the 1989 NAMCS. All other items were included in the NAMCS in 1985 and/or prior survey years. Estimates of the percent of visits for those repeated categories are substantially the same as corresponding estimates in 1985.

Among the new service categories are tests and procedures generally used for screening and early detection

of disease. Noteworthy among these are breast palpation and mammograms ordered or provided at 9.0 percent and 2.5 percent, respectively, of female visits. Digital rectal examinations were ordered or provided at 3.6 percent of visits and cholesterol measures also at 3.6 percent of visits.

**Principal diagnosis**—Data on the principal diagnosis rendered by the physician are presented in tables 8 and 9. The principal diagnosis refers to the first-listed diagnosis in item 10a of the Patient Record. These data were coded and classified according to the *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM)* (3). In table 8, the diagnoses data are grouped into major disease categories as specified in the ICD-9-CM. The Supplementary Classification of the ICD-9-CM, which includes general medical, well child, and normal pregnancy exams, accounted for the largest proportion of visits (15.3 percent). Diseases of the respiratory system represented the second largest proportion, with 13.7 percent of the visits.

The 20 most common diagnoses, listed in table 9 and categorized at the three-digit coding level of the

Table 5. Number and percent distribution of office visits by patient's principal reason for visit: United States, 1989

Principal reason for visit and RVC code <sup>1</sup>	Number of visits in thousands	Percent distribution
All visits	692,702	100.0
Symptom module		
General symptoms S001-S999	394,876	57.0
Symptoms referable to psychological and mental disorders S001-S099	46,493	6.7
Symptoms referable to the nervous system (excluding sense organs) S100-S199	18,060	2.6
Symptoms referable to the cardiovascular and lymphatic systems S200-S259	20,122	2.9
Symptoms referable to the cardiovascular and lymphatic systems S260-S299	4,057	0.6
Symptoms referable to eyes and ears S300-S399	47,493	6.9
Symptoms referable to the respiratory system S400-S499	76,682	11.1
Symptoms referable to the digestive system S500-S639	31,544	4.6
Symptoms referable to the genitourinary system S640-S829	32,030	4.6
Symptoms referable to the skin, nails, and hair S830-S899	43,240	6.2
Symptoms referable to the musculoskeletal system S900-S999	75,155	10.9
Disease module		
Diagnostic, screening, and preventive module D001-D999	69,606	10.0
Treatment module X100-X599	108,572	15.7
Injuries and adverse effects module T100-T899	64,487	9.3
Test results module J001-J999	25,583	3.7
Administrative module R100-R700	7,527	1.1
Administrative module A100-A140	8,325	1.2
Other <sup>2</sup> U990-U999	13,725	2.0

<sup>1</sup>Based on "A Reason for Visit Classification for Ambulatory Care" (RVC), *Vital and Health Statistics*, Series 2, No. 78, Feb. 1979.

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



Table 6. Number and percent distribution of office visits, by the 20 most common principal reasons for visit: United States, 1989

Rank	Most common principal reason for visits in and RVC code <sup>1</sup>	Number of visits in thousands	Percent distribution
1	General medical examination . . . . . X100	27,909	4.0
2	Cough . . . . . S440	24,997	3.6
3	Prenatal examination . . . . . X205	24,056	3.5
4	Symptoms referable to the throat . . . . . S455	16,972	2.5
5	Postoperative visit . . . . . T205	16,660	2.4
6	Well baby examination . . . . . X105	14,831	2.1
7	Earache, or ear infection . . . . . S355	14,468	2.1
8	Back symptoms . . . . . S905	13,744	2.0
9	Skin rash . . . . . S860	12,325	1.8
10	Stomach pain, cramps, and spasms . . . . . S545	12,313	1.8
11	Fever . . . . . S010	11,634	1.7
12	Vision dysfunctions . . . . . S305	10,253	1.5
13	Hypertension . . . . . D510	10,055	1.5
14	Knee symptoms . . . . . S925	9,816	1.4
15	Blood pressure test . . . . . X320	9,792	1.4
16	Headache, pain in head . . . . . S210	9,609	1.4
17	Headcold, upper respiratory infection . . . . . S445	8,669	1.3
18	Nasal congestion . . . . . S400	8,647	1.2
19	Chest pain and related symptoms . . . . . S050	8,399	1.2
20	Neck symptoms . . . . . S900	8,112	1.2
	All other reasons . . . . .	419,439	60.6

<sup>1</sup>Based on "A Reason for Visit Classification for Ambulatory Care" (RVC), *Vital and Health Statistics*, Series 2, No. 78, Feb. 1979.

Table 7. Number and percent of office visits, by diagnostic service and sex: United States, 1989

Diagnostic service	Number of visits in thousands	Both sexes		
		Female	Male	
		Percent		
None . . . . .	265,834	38.4	34.7	43.9
Pap test . . . . .	32,766	4.7	7.8	—
Pelvic exam . . . . .	51,965	7.5	12.5	—
Breast palpation <sup>1</sup> . . . . .	37,929	5.5	9.0	0.1
Mammogram <sup>1</sup> . . . . .	10,655	1.5	2.6	—
Visual acuity . . . . .	45,192	6.5	5.9	7.5
Blood pressure check . . . . .	241,899	34.9	38.9	28.9
Urinalysis . . . . .	87,716	12.7	14.8	9.4
Chest x ray . . . . .	18,419	2.7	2.3	3.1
Digital rectal examination <sup>1</sup> . . . . .	25,071	3.6	4.1	3.0
Proctoscopy or sigmoidoscopy . . . . .	3,134	0.5	0.4	0.6
Stool blood examination <sup>1</sup> . . . . .	15,576	2.2	2.4	2.1
Oral glucose tolerance <sup>1</sup> . . . . .	3,056	0.4	0.5	0.3
Cholesterol measure <sup>1</sup> . . . . .	24,828	3.6	3.6	3.5
HIV serology <sup>2</sup> . . . . .	1,013	0.1	0.1	0.2
Other blood test . . . . .	88,210	12.7	13.1	12.1
Other . . . . .	176,242	25.4	25.1	26.0

<sup>1</sup>Category is new in the 1989 NAMCS.

<sup>2</sup>HIV is human immunodeficiency virus.

ICD-9-CM, accounted for 35 percent of all visits. Essential hypertension was the most common diagnosis (as it was in 1985 and 1981), accounting for 4 percent of all visits. Of the 20 diagnoses listed in table 9, 18 also appeared in the list of the most frequent diagnoses in 1985.

**Therapeutic services**—Selected types of therapy ordered or provided during the visit, including counseling and medications, are presented in table 10. These data are a summation of

information from items 13, 14, and 15 of the Patient Record. Medications (including prescriptions and over-the-counter drugs, immunizations, and desensitizing agents) were utilized in 60.2 percent of all office visits. (More details on the medication data are presented below.)

Counseling, broadly defined to include formal and informal counseling, advice, and patient education, was ordered or provided in about 37.1 percent of the visits. The counseling

categories were new in the 1989 NAMCS. Physicians were instructed to check the appropriate category(ies) when the counseling was a "significant part of the visit" or when the patient was instructed to seek the service from another source. Counseling concerning weight reduction (6.3 percent of visits) was the most frequent category listed. More common counseling topics, such as medical, social, and family counseling, were included in the "other" category (27.9 percent of visits). More detailed data in this area are being collected in the 1991 NAMCS.

Ambulatory surgery was ordered or provided in 1.9 percent of visits, a significant decrease from the estimate of 6.6 percent of visits in 1985. The reason for the decrease is not known but is thought to be the result of a different interpretation of the question by the respondents rather than a real decline in the volume of ambulatory surgery. More detailed data on ambulatory surgery are being collected in the 1991 NAMCS, which may help explain these data.

**Medication therapy**—In item 15 of the Patient Record, the physician was asked to "Record all new or continued medications ordered or provided at this visit. . . . Include immunizations and desensitizing agents." As used in the NAMCS, the term "drug" is interchangeable with the term "medication," and the term "prescribing" is used in the broad sense to mean ordering or providing any medication, either prescription or nonprescription.

Data on the provision of medication by office-based physicians are highlighted in tables 11, 12, and 13. Data on drug visits, visits during which at least one medication was provided or prescribed, are presented in table 11. As noted above, approximately 60 percent of all office visits resulted in the use of one or more drugs, chiefly for therapy but also as diagnostic or preventive agents. By specialty, the percent of visits that were drug visits ranged from 82 percent for cardiovascular disease specialists to about 27 percent for orthopedic surgeons.

Table 8. Number and percent distribution of office visits, by principal diagnosis: United States, 1989

Principal diagnosis and ICD-9-CM code <sup>1</sup>	Number of visits in thousands	Percent distribution
All diagnoses . . . . .	692,702	100.0
Infectious and parasitic diseases . . . . . 001-139	25,466	3.7
Neoplasms . . . . . 140-239	22,319	3.2
Endocrine, nutritional, and metabolic diseases and immunity disorders . . . . . 240-279	27,863	4.0
Mental disorders . . . . . 290-319	25,386	3.7
Diseases of the nervous system and sense organs . . . . . 320-389	74,557	10.8
Diseases of the circulatory system . . . . . 390-459	56,014	8.1
Diseases of the respiratory system . . . . . 460-519	94,593	13.7
Diseases of the digestive system . . . . . 520-579	26,743	3.9
Diseases of the genitourinary system . . . . . 580-629	38,472	5.6
Diseases of the skin and subcutaneous tissue . . . . . 680-709	38,640	5.6
Diseases of the musculoskeletal system and connective tissue . . . . . 710-739	47,906	6.9
Symptoms, signs, and ill-defined conditions . . . . . 780-799	28,883	4.2
Injury and poisoning . . . . . 800-999	55,936	8.1
Supplementary classification . . . . . V01-V82	105,642	15.3
All other diagnoses <sup>2</sup> . . . . .	11,210	1.6
Unknown diagnoses <sup>3</sup> . . . . .	13,073	1.9

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

<sup>2</sup>Includes diseases of the blood and blood-forming organs (280-289); complications of pregnancy, childbirth, and the puerperium (630-676); congenital anomalies (740-759); and certain conditions originating in the perinatal period (760-779).

<sup>3</sup>Includes blank diagnoses, noncodable diagnoses, and illegible diagnoses.

Table 9. Number and percent distribution of office visits, by the 20 most common principal diagnoses: United States, 1989

Rank	Most common principal diagnosis and ICD-9-CM code <sup>1</sup>	Number of visits in thousands	Percent distribution
	Total . . . . .	692,702	100.0
1	Essential hypertension . . . . . 401	27,708	4.0
2	Normal pregnancy . . . . . V22	23,578	3.4
3	General medical examination . . . . . V70	20,166	2.9
4	Suppurative and unspecified otitis media . . . . . 382	20,033	2.9
5	Acute respiratory infections of multiple or unspecified sites . . . . . 465	15,765	2.3
6	Health supervision of infant or child . . . . . V20	15,669	2.3
7	Diabetes mellitus . . . . . 250	13,237	1.9
8	Allergic rhinitis . . . . . 477	11,631	1.7
9	Bronchitis, not specified as acute or chronic . . . . . 490	11,160	1.6
10	Acute pharyngitis . . . . . 462	10,958	1.6
11	Chronic sinusitis . . . . . 473	8,700	1.3
12	Neurotic disorders . . . . . 300	8,511	1.2
13	Diseases of sebaceous glands . . . . . 706	8,146	1.2
14	Disorders of refraction and accommodation . . . . . 367	7,686	1.1
15	Sprains and strains of back except sacroiliac . . . . . 847	7,614	1.1
16	Asthma . . . . . 493	6,822	1.0
17	Contact dermatitis and other eczema . . . . . 692	6,542	0.9
18	Cataract . . . . . 366	6,335	0.9
19	Osteoarthritis and allied disorders . . . . . 715	6,259	0.9
20	Chronic ischemic heart disease except angina pectoris . . . . . 414	5,712	0.8
	All other reasons . . . . .	450,469	65.0

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

Data on the number and percent of drug mentions, that is, the total number of medications listed in item 15 of the Patient Record, are also presented in tables 11, 12, and 13. During office visits, there were about 730.8 million drug mentions in 1989, an average of 1.1 drug mentions for every visit or 1.8 drug mentions for

every visit at which medication(s) was prescribed.

Total drug mentions are distributed according to major therapeutic class in table 12. This classification is adapted from the therapeutic categories of the National Drug Code, 1982 (4). It should be noted that some drugs may have

Table 10. Number and percent of office visits by therapeutic service ordered or provided: United States, 1989

Therapeutic service	Number of visits in thousands	Percent
None . . . . .	142,493	20.6
Medications <sup>1</sup> . . . . .	416,789	60.2
Counseling . . . . .	244,015	37.1
Weight reduction . . . . .	43,853	6.3
Cholesterol reduction . . . . .	21,533	3.1
Smoking cessation . . . . .	15,109	2.2
HIV transmission . . . . .	1,044	0.2
Breast self exam. . . . .	15,779	2.3
Other counseling . . . . .	193,272	27.9
Psychotherapy . . . . .	22,182	3.2
Corrective lenses . . . . .	8,572	1.2
Ambulatory surgery . . . . .	13,095	1.9
Physiotherapy . . . . .	16,204	2.3
Other therapeutic service . . . . .	78,797	11.4

<sup>1</sup>Includes prescription drugs, over-the-counter medications, immunizations, and so forth.

<sup>2</sup>Percent based on female visits only.

application in more than one therapeutic category. In that event, each drug was assigned to the category for which it is most frequently prescribed.

Antimicrobial agents constitute the largest therapeutic class, accounting for 16.7 percent of drug mentions. More than a third of these are from the penicillin group. Cardiovascular-renal and pain-relief drugs were also prominent, with 14.9 and 10.7 percent, respectively, of the total mentions. More than a third of the cardiovascular drugs are antihypertensive agents, and nearly half of the pain-relief drugs are antiarthritics.

The 20 generic substances most frequently provided or prescribed in office visits are shown in table 13. In this table, drug products containing more than one ingredient (combination products) are included in the data for each ingredient. For example, acetaminophen with codeine is included in both the count for acetaminophen and the count for codeine.

The NAMCS drug data base permits classification by such variables as specific product name; generic class; entry form chosen by the physician, that is, brand name, generic name, or the desired therapeutic effect; prescription status, that is, prescription or nonprescription; federally controlled substance status;

**Table 11. Number and percent distribution of drug visits and drug mentions, by physician specialty: United States, 1989**

Physician specialty	Number of drug visits in thousands <sup>1</sup>	Percent distribution	Number of drug mentions in thousands	Percent distribution	Percent drug visits <sup>2</sup>
All specialties . . . . .	416,789	100.0	730,756	100.0	60.2
General and family practice . . . . .	145,947	35.0	258,914	35.4	70.7
Internal medicine . . . . .	59,412	14.3	125,641	17.2	75.4
Pediatrics . . . . .	58,673	14.1	84,514	11.6	67.1
Obstetrics and gynecology . . . . .	25,989	6.2	34,736	4.8	44.5
Dermatology . . . . .	17,261	4.1	32,237	4.4	65.6
Ophthalmology . . . . .	15,462	3.7	23,896	3.3	39.9
Orthopedic surgery . . . . .	9,628	2.3	12,587	1.7	27.4
Cardiovascular disease . . . . .	8,891	2.1	25,585	3.5	82.0
General surgery . . . . .	8,414	2.0	15,249	2.1	33.2
Psychiatry . . . . .	8,119	1.9	13,351	1.8	48.9
Otolaryngology . . . . .	7,861	1.9	12,601	1.7	49.3
Urological surgery . . . . .	4,331	1.0	5,804	0.8	42.6
Neurology . . . . .	3,676	0.9	6,578	0.9	60.2
All other specialties . . . . .	43,123	10.3	79,063	10.8	56.4

<sup>1</sup>Visits at which one or more drugs were prescribed.

<sup>2</sup>Number of drug visits divided by number of office visits multiplied by 100.

**Table 12. Number and percent distribution of drug mentions, by therapeutic classification: United States, 1989**

Therapeutic class <sup>1</sup>	Number of mentions in thousands	Percent distribution
Total mentions . . . . .	730,756	100.0
Antimicrobial . . . . .	122,046	16.7
Cardiovascular-renal . . . . .	109,235	14.9
Pain relief . . . . .	78,216	10.7
Respiratory tract . . . . .	71,584	9.8
Hormones and related agents . . . . .	63,577	8.7
Dermatologic . . . . .	47,960	6.6
Psychopharmacologic . . . . .	38,236	5.2
Metabolic and nutrient . . . . .	31,770	4.3
Gastrointestinal . . . . .	29,770	4.1
Ophthalmic . . . . .	25,674	3.5
Immunologic . . . . .	19,408	2.7
Neurologic . . . . .	14,118	1.9
Hematologic . . . . .	10,114	1.4
Other and unclassified . . . . .	69,048	9.4

<sup>1</sup>Therapeutic class based on the standard drug classification used in the *National Drug Code Directory, 1982 Edition*.

**Table 13. Number and percent of drug mentions for the 20 most frequently used generic substances: United States, 1989**

Rank	Generic substance <sup>1</sup>	Number of mentions in thousands <sup>1</sup>	Percent of total mentions
1	Amoxicillin . . . . .	34,851	4.8
2	Acetaminophen . . . . .	23,780	3.3
3	Erythromycin . . . . .	19,569	2.7
4	Hydrochlorothiazide . . . . .	15,889	2.2
5	Codeine . . . . .	12,118	1.7
6	Phenylephrine . . . . .	11,638	1.6
7	Ibuprofen . . . . .	11,569	1.6
8	Aspirin . . . . .	10,916	1.5
9	Phenylpropanolamine . . . . .	10,641	1.5
10	Trimethoprim . . . . .	10,302	1.4
11	Naproxen . . . . .	10,295	1.4
12	Sulfamethoxazole . . . . .	10,201	1.4
13	Furosemide . . . . .	9,970	1.4
14	Digoxin . . . . .	9,227	1.3
15	Estradiol . . . . .	9,051	1.2
16	Chlorpheniramine . . . . .	8,896	1.2
17	Riboflavin . . . . .	8,878	1.2
18	Vitamin A . . . . .	8,859	1.2
19	Theophylline . . . . .	8,776	1.2
20	Ergocalciferol . . . . .	8,347	1.1

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

**Duration of visit**—Duration of visit refers to the amount of time a physician spent in face-to-face contact with a patient. This time is estimated and recorded by the physician and does not include time spent waiting to see the physician, time spent receiving care from someone other than the physician without the presence of the physician, or time spent by the physician in reviewing records and test results. In cases where the patient received care from a member of the physician's staff, but did not actually see the physician

**Table 14. Number and percent of office visits, by disposition: United States, 1989**

Disposition	Number of visits in thousands	Percent
No followup planned . . . . .	66,377	9.6
Return at specified time . . . . .	424,583	61.3
Return if needed . . . . .	160,282	23.1
Telephone followup planned . . . . .	24,962	3.6
Referred to other physician . . . . .	20,071	2.9
Returned to referring physician . . . . .	6,139	0.9
Admit to hospital . . . . .	7,163	1.0
Other . . . . .	15,536	2.2

**Table 15. Number and percent distribution of office visits, by duration of visit: United States, 1989**

Duration	Number of visits in thousands	Percent distribution
All durations . . . . .	692,702	100.0
0 minutes <sup>1</sup> . . . . .	15,484	2.2
1–5 minutes . . . . .	65,153	9.4
6–10 minutes . . . . .	191,103	27.6
11–15 minutes . . . . .	215,017	31.0
16–30 minutes . . . . .	164,845	23.8
31 minutes and over . . . . .	41,100	5.9
Mean duration: 15.9 minutes		

<sup>1</sup>Represents office visits in which there was no face-to-face contact between the patient and the physician.

during the visit, the duration of visit was recorded as "zero" minutes. Some 70 percent of the visits had a duration of 15 minutes or less (table 15). The mean duration of all visits was 15.9 minutes.

More detailed 1989 NAMCS data are forthcoming in the *Vital and Health Statistics* series. In addition, survey data will be available on computer tape from the National Technical Information Service at a nominal cost about July 1991. Questions regarding this report, future reports, or the NAMCS may be directed to the Ambulatory Care Statistics Branch by calling (301) 436-7132.

**References**

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composition status, that is, single or multiple ingredient; and therapeutic category. A report that describes the method and instruments used to collect and process drug information for the NAMCS has been published (5). Future reports will present detailed drug data from the 1989 NAMCS.

**Disposition**—Data on the visit disposition show that the majority of office visits involved some type of scheduled followup (table 14). For about 65 percent of the visits, a return visit or telephone followup was planned. Only 1 percent of the office visits resulted in admission to a hospital.

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## Technical notes

### Source of data and sample design

The information presented in this report is based on data collected by means of the National Ambulatory Medical Care Survey (NAMCS) from March 20, 1989, through March 18, 1990. The target universe of NAMCS includes office visits made in the United States by ambulatory patients to nonfederally employed physicians who are principally engaged in office practice but not in the specialties of anesthesiology, pathology, or radiology. Telephone contacts and nonoffice visits are excluded.

A multistage probability sample design is used in NAMCS, involving samples of primary sampling units (PSU's), physician practices within PSU's, and patient visits within physician practices. For 1989, a sample of 2,535 non-Federal, office-based physicians was selected from master files maintained by the American Medical Association and American Osteopathic Association. The physician response rate for the 1989 NAMCS was 74 percent. Sample physicians were asked to complete Patient Records (see figure 1) for a systematic random sample of office visits occurring during a randomly assigned 1-week reporting period. Responding physicians completed 38,384 Patient Records.

Characteristics of the physician's practice, such as primary specialty and type of practice, were obtained from the physicians during an induction interview. The U.S. Bureau of the Census, Housing Surveys Branch, was responsible for the survey's data collection. Processing operations and medical coding were performed by the National Center for Health Statistics, Hospital Discharge and Ambulatory Care Survey Section, Research Triangle Park, North Carolina.

### Sampling errors

The standard error is primarily a measure of the sampling variability

**Table I. Provisional relative standard errors for estimated numbers of office visits: National Ambulatory Medical Care Survey, 1989**

Estimated number of office visits in thousands	Relative standard error in percent
200	60.3
500	38.3
875	30.0
1,000	27.2
2,000	19.5
5,000	12.7
10,000	9.4
20,000	7.3
50,000	5.6
100,000	4.9
600,000	4.2

Example of use of table: An aggregate estimate of 50 million visits has a relative standard error of 5.6 percent or a standard error of 2.8 million visits (5.6 percent of 50 million).

that occurs by chance when only a sample, rather than an entire universe, is surveyed. The relative standard error of an estimate is obtained by dividing the standard error by the estimate itself; the result is then expressed as a percent of the estimate. Approximate relative standard errors of selected aggregate statistics are shown in table I, and the standard errors for estimated percent of visits are shown in table II.

Standard errors for estimates of drug mentions will be included in future reports.

### Adjustments for nonresponse

Estimates from NAMCS data were adjusted to account for sample physicians who were in scope but who did not participate in the study. This adjustment was calculated to minimize the impact of response on

final estimates by imputing to nonresponding physicians data from visits to similar physicians. For this purpose, physicians were judged similar if they had the same specialty designation and practiced in the same PSU.

### Test of significance and rounding

In this report, the determination of statistical significance is based on a two-sided *t*-test with a critical value of 1.96 (0.05 level of confidence). Terms relating to difference, such as "greater than" or "less than," indicate that the difference is statistically significant. In the tables, estimates of office 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

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

*Physician*—A physician is a duly licensed doctor of medicine (M.D.) or doctor of osteopathy (D.O.) who is currently in office-based practice and who spends some time caring for ambulatory patients. Excluded from

**Table II. Provisional standard errors for percents of estimated numbers of office visits: National Ambulatory Medical Care Survey, 1989**

Base of percent (visits in thousands)	Estimated percent					
	1 or 99	5 or 95	10 or 90	20 or 80	30 or 70	50
	Standard error in percentage points					
200	6.0	13.8	20.1	30.1	39.4	60.2
500	3.8	8.7	12.7	19.0	24.9	38.1
1,000	2.7	6.2	9.0	13.5	17.6	26.9
2,000	1.9	4.4	6.3	9.5	12.5	19.0
5,000	1.2	2.8	4.0	6.0	7.9	12.0
10,000	0.9	2.0	2.8	4.3	5.6	8.5
20,000	0.6	1.4	2.0	3.0	3.9	6.0
50,000	0.4	0.9	1.3	1.9	2.5	3.8
100,000	0.3	0.6	0.9	1.3	1.8	2.7
600,000	0.1	0.3	0.4	0.5	0.7	1.1

Example of use of table: An estimate of 20 percent based on an aggregate estimate of 50 million visits has a standard error of 1.9 percent or a relative standard error of 9.5 percent (1.9 percent divided by 20 percent).

the NAMCS are physicians who are hospital based; who specialize in anesthesiology, pathology, or radiology; who are federally employed; who treat only institutionalized patients; or who are employed full time by an institution and spend no time seeing ambulatory patients.

*Office*—Offices are the premises physicians identify as locations for their ambulatory practice; these customarily include consultation, examination, or treatment spaces that the patients associate with the particular physician.

*Visit*—A visit is a direct personal exchange between an ambulatory patient and a physician (or a staff member working under the physician's supervision), for the purpose of seeking care and rendering personal health services.

*Drug mention*—A drug mention is the physician's entry of a pharmaceutical agent—by any route of administration—for prevention, diagnosis, or treatment. Generic as well as brand-name drugs are included, as are nonprescription and prescription drugs. Along with all new drugs, the physician also records continued medications if the patient was specifically instructed during the visit to continue the medication.

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

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**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 (estimate has relative standard error of more than 30 percent)
  - # Figure suppressed to comply with confidentiality requirements
-

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**Suggested citation**

DeLozier JE, Gagnon RO. 1989 Summary:  
National Ambulatory Medical Care Survey.  
Advance data from vital and health statistics;  
no. 203. Hyattsville, Maryland: National Center  
for Health Statistics. 1991.

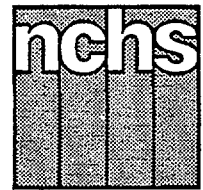
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# Advance Data



From Vital and Health Statistics of the National Center for Health Statistics

## AIDS Knowledge and Attitudes for October–December 1990 Provisional Data From the National Health Interview Survey

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### Introduction

The National Center for Health Statistics has included questions about acquired immunodeficiency syndrome (AIDS) in the National Health Interview Survey (NHIS) since 1987. Data concerning the adult population's knowledge and attitudes about AIDS and transmission of the human immunodeficiency virus (HIV) are collected to assist in the planning of educational programs. Since the initiation of the NHIS AIDS survey, its scope has widened to include more questions on HIV testing and blood donation experience. In addition, the survey also assesses self-perceived risk of becoming infected with HIV, and includes a general risk behavior question similar to that asked by the Red Cross of potential blood donors. Information on the NHIS AIDS survey sample is contained in the Technical notes at the end of this report.

The first AIDS Knowledge and Attitudes Survey was in the field from August through December 1987. Provisional results of that survey were published monthly in *Advance Data*

*From Vital and Health Statistics* (Nos. 146, 148, 150, 151, and 153). During the first 4 months of 1988, the questionnaire was revised to meet program needs at that time. The revised AIDS Knowledge and Attitudes Survey entered the field in May 1988. Provisional findings for the remainder of 1988 were published periodically (*Advance Data From Vital and Health Statistics* Nos. 160, 161, 163, 164, 167, and 175); in addition, two special reports with a focus on minority populations were published from the 1988 data (*Advance Data From Vital and Health Statistics* Nos. 165 and 166).

The 1988 AIDS questionnaire was used without modification throughout 1989, and results were published on a quarterly basis (*Advance Data From Vital and Health Statistics* Nos. 176, 179, 183, and 186). For 1990 the AIDS questionnaire was revised again, with added emphasis on HIV testing procedures and on the distinction between testing in connection with blood donation and for other reasons. Provisional survey findings have been published on a

quarterly basis in *Advance Data From Vital and Health Statistics* Nos. 193, 195, and 198.

The NHIS AIDS questionnaires are developed by the National Center for Health Statistics and an Interagency Task Force created by the Public Health Service Health Data Policy Committee. The Task Force included representatives from the Centers for Disease Control; Office of the Assistant Secretary for Health; National AIDS Program Office; National Institutes of Health; Alcohol, Drug Abuse and Mental Health Administration; Food and Drug Administration; and Health Resources and Services Administration.

The *Advance Data* reports describing the NHIS AIDS data have been restricted to simple descriptive statistics to facilitate their timely release. Thus, these reports do not attempt to explain or interpret differences among population subgroups or to examine relationships among various measures of knowledge and behavior. The NHIS AIDS data bases permit more complex analyses than those



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presented in this series of *Advance Data* reports, and further exploration of the data is encouraged. Public use data tapes of the 1987, 1988, and 1989 AIDS Knowledge and Attitudes Surveys are available at this time.

This report presents provisional data for October–December 1990 for most items included in the NHIS AIDS questionnaire. Table 1 displays percent distributions of persons 18 years of age and over by response categories, according to age, sex, race and ethnicity, and education. In most cases, the actual questions asked of the respondents are reproduced verbatim in table 1 along with the coded response categories. In a few cases, questions or response categories have been rephrased or combined for clearer or more concise presentation of results. 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 questionnaire uses the phrase “the AIDS virus” rather than “HIV,” because it is felt to be more widely recognized and understood. In this

report the two terms are used synonymously.

The population subgroups used in presenting the 1990 NHIS AIDS data differ from those used in previous reports. In reports based on the 1987–89 surveys, two racial categories were shown—white and black. The 1990 reports show three categories that reflect both race and ethnic origin—non-Hispanic white, non-Hispanic black, and Hispanic. This change, which reflects the increasing demand for information about the Hispanic population, means that estimates by race cannot be compared directly between the 1990 and earlier NHIS AIDS *Advance Data* reports. In addition, the revisions in the questionnaire, whether in actual wording or in context and location of questions, must be considered when interpreting trend data.

### Selected findings

The following highlights describe survey results of the NHIS AIDS Knowledge and Attitudes Survey for the period October–December 1990; comparisons with earlier quarters are

also made. Unless otherwise noted in the text, all measures described remained stable over the 3-month period. All differences cited in the text are statistically significant at the .05 level. Table II shows provisional estimates of the standard errors associated with these results.

**Information and communication about AIDS**—In the last quarter of 1990, 87 percent of adults stated that they had received information about AIDS from at least one source in the month preceding the NHIS AIDS survey. The most frequently cited sources of information were television (cited by 75 percent of adults), newspapers and magazines (50 and 41 percent, respectively), radio (28 percent), and health department brochures (16 percent). While the actual proportion of adults who mentioned these sources varied among sociodemographic groups, the ranking of these sources was the same in all subgroups. This rank ordering also remained the same throughout 1990.

In the fourth quarter of 1990, 69 percent of persons with children aged 10–17 years reported ever discussing AIDS with them. Females

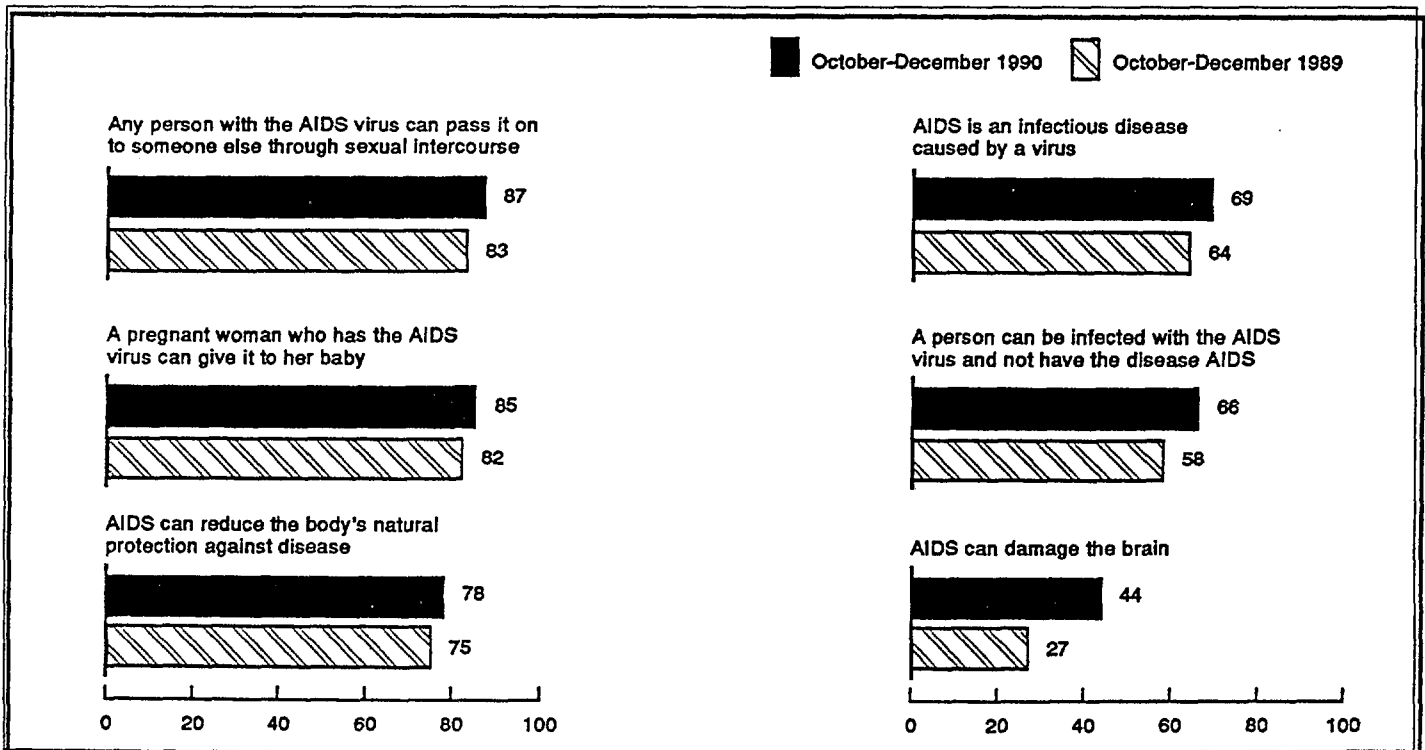


Figure 1. Provisional estimates of percent of adults reporting that selected statements are definitely true: United States, October–December 1990.

were more likely to report having discussed AIDS with their children than males (78 percent compared with 58 percent). Non-Hispanic white and black parents were also more likely than Hispanic parents to have had discussions with their children (71 and 73 percent, respectively, compared with 53 percent). The percent of parents discussing AIDS with their children also increased with years of education. Seventy-four percent of parents also reported that their children received instruction about AIDS in school. These figures are similar to those for the first three quarters of 1990 but are slightly higher than those reported for the last quarter of 1989.

*General AIDS knowledge*—Self-assessed knowledge about AIDS remained stable throughout 1990. In October–December 1990, 19 percent of adults stated they knew a lot about AIDS, 46 percent said they knew some, 25 percent claimed a little knowledge, and 10 percent stated they knew nothing about AIDS. This represents a slight decline in self-assessed levels of knowledge from that reported in 1989. The percent reporting a lot of knowledge declined 5 percentage points from the fourth quarter of 1989 to the fourth quarter of 1990, while the percent with no knowledge increased 3 percentage points over the same period. It is unclear if this shift is a result of an actual decrease in perceived knowledge or because of a change in the location of this question in the 1990 survey.

Objective measures of AIDS knowledge in the NHIS survey showed an increase for most questions between the fourth quarter of 1989 and the fourth quarter of 1990. Figure 1 illustrates specific areas in which gains were noted. The proportion of adults who said it was definitely true that AIDS can damage the brain increased 17 percentage points from 1989 to 1990. Increases in the percent of adults with the correct definitive responses for other questions were not as large and ranged from 3 to 8 percentage points.

A decrease in the percent of adults with the correct definitive

response was noted in 1990 for one question. In the fourth quarter of 1989, 75 percent of adults recognized that it was definitely false that there is a vaccine for AIDS. By the first quarter of 1990, this had decreased to 68 percent and remained at this lower level throughout 1990.

The changes in knowledge noted in 1990 were apparent in all sociodemographic groups examined. As in previous months, the proportions with the correct responses to the general AIDS knowledge questions did vary by sociodemographic factors. In general, adults less than 50 years of age were more knowledgeable than those 50 years of age and older and those with less than 12 years of education were less knowledgeable than those with 12 or more years of school.

Two new questionnaire items were added to the general knowledge section in the 1990 survey. The first assessed whether respondents had heard the AIDS virus called "HIV." The percent of adults who were familiar with this term increased from 67 percent in the first quarter to 79 percent in the fourth quarter. Increases were noted in all the various sociodemographic groups. However, groups who continued to show less familiarity with the term "HIV" included those with less than 12 years of education and Hispanic adults (57 and 61 percent familiar with this term, respectively).

Another new question ascertained responses to the statement that there are drugs available which can extend the life of HIV-infected persons. As of October–December 1990, 45 percent of adults stated that this was definitely true, a figure similar to those for the earlier quarters in 1990.

*Misperceptions about HIV transmission*—The NHIS AIDS questionnaire asked respondents to estimate the risk of HIV transmission associated with several forms of casual contact with infected or potentially infected individuals, such as working with someone with AIDS, using public toilets, and so forth. Respondents were offered five response options for the likelihood of

transmission: very likely, somewhat likely, somewhat unlikely, very unlikely, and definitely not possible. Both "very unlikely" and "definitely not possible" were interpreted as correct responses, even for forms of contact where our current understanding of the virus indicates that there definitely is no possibility of transmission. The decision to accept "very unlikely" as correct was based on the large numbers of respondents who chose that option, seemingly unwilling to commit themselves to the concept of a zero probability.

Despite the generally high levels of understanding about AIDS, particularly about the three major modes of transmission, misperceptions about the likelihood of transmission through casual contact persist. The percent of adults who assessed the risk associated with the various forms of contact in this section of the survey as "very unlikely" or "definitely not possible" remained stable throughout 1990. These percents varied from less than half of adults who believed that transmission via insects, being coughed or sneezed on, and sharing eating utensils was not possible or very unlikely to three-fourths or more of adults for contact with infected individuals at work or school.

In general, misperceptions about HIV transmission varied by the same sociodemographic factors as general knowledge about AIDS. In particular, adults 50 years of age and over and those with fewer than 12 years of education were more likely than younger and more educated adults to be misinformed. Among these less informed population subgroups, the smaller proportion who correctly identified the low level of risk associated with casual contact was usually due to a larger proportion of these groups being unsure about these forms of transmission rather than to a larger percent believing they were likely modes of HIV transmission.

*Blood donation and testing*—As in the past, 40 percent of adults (2 of every 5) reported ever donating blood, 16 percent (1 in 6) donated

since March 1985 when blood donations were first routinely screened for antibodies to HIV, and 7 percent (1 in 14 adults) had donated in the preceding year. Of those who had given blood since March 1985, 70 percent had donated more than once and 3 percent indicated a desire to be tested for HIV as one reason for their donation.

Seventy-nine percent of U.S. adults had heard of the blood test to detect HIV antibodies. This percent remained unchanged throughout 1990 but was a slight percentage increase over that reported in 1989. Sixty-eight percent of all adults in October–December 1990 were aware that blood donations are routinely screened for HIV antibodies and 47 percent felt that the present supply of blood was safe.

Excluding testing performed in conjunction with blood donation, 11 percent of U.S. adults (1 of every 9) reported having had their blood tested for HIV antibodies. When including testing done as part of blood donation, an estimated 26 percent of the adult population had been tested for HIV antibodies as of the last quarter of 1990. This figure is slightly higher than the estimate of 23 percent tested by all means reported in the first two quarters of 1990.

The remainder of this section of the report deals only with HIV antibody testing exclusive of blood donation. As in previous quarters in 1990, testing was more common among those under 50 years of age (14–16 percent) than among older adults (2 percent) and more common among black non-Hispanic adults (15 percent) and Hispanic adults (16 percent) than among white non-Hispanic persons (10 percent). During October–December 1990, 56 percent of those tested stated the tests were required, 39 percent had voluntary testing, and 4 percent had some voluntary and some required tests. The percent reporting required testing increased, while the percent with voluntary tests decreased in the last quarter compared with previous quarters in 1990. This shift was also seen when the most recent HIV

antibody test was focused (58 percent required and 40 percent voluntary in the last quarter of 1990 compared with 52 percent and 47 percent in the first quarter).

Hospitalization or surgery was most often cited as the reason for required testing (mentioned by 12 percent of those tested overall and 24 percent of those 50 years of age and older who were tested). After this, the most commonly mentioned reasons for required HIV testing were military induction or service (reported by 11 percent of all persons tested and 18 percent of those 18–29 years) and life insurance (mentioned by 10 percent). Overall, 5 percent of all adults tested cited immigration as the reason for required testing. However, this reason was given by 34 percent of Hispanic adults and was by far the most common reason for required testing in this group.

The most commonly reported place for the last HIV antibody test was at a doctor's office or HMO (listed by 33 percent of those tested). Almost a fourth (24 percent) were tested at a hospital, emergency room, or outpatient clinic, another 10 percent were tested at a military induction site, and 7 percent at public health departments.

As of October–December 1990, 43 percent of those tested reported receiving counseling about AIDS and the meaning of the test before being tested. This represents a slight increase from January–March 1990 (38 percent). The proportion of tested adults who reported in the fourth quarter that they had received the results of their HIV test (78 percent) was similar to figures reported in earlier quarters. Of those who got their results, less than one-third (31 percent) reported also being given counseling about risk reduction or prevention of HIV transmission. Sixty-one percent of those who got their results received them in person and most (90 percent) felt their results were handled properly in terms of confidentiality.

Seven percent of U.S. adults reported that they plan to be tested for HIV antibodies in the next 12

months, according to the NHIS AIDS data for October–December 1990. This figure is essentially unchanged from figures reported in the past. The proportion with future plans for testing varied by age and race and ethnicity in much the same way that the proportion who had been tested varied. Eleven percent of those 18–29 years of age and 8 percent of those 30–49 years of age indicated that they plan to be tested, while only 2 percent of those 50 years of age and older reported such plans. Among non-Hispanic black adults, 16 percent plan to be tested compared with 9 percent of Hispanic and 5 percent of white non-Hispanic adults.

Reasons for future HIV testing in the last quarter of 1990 were similar to those mentioned in the previous three quarters. The majority (69 percent) of persons who plan to be tested stated that they would be tested voluntarily, because they personally wanted to know if they are infected; another 21 percent indicated they would be tested as part of blood donation. In general the locations at which persons plan to be tested are similar to those reported for tests already conducted, with 60 percent indicating they plan to go to either a private doctor or HMO (40 percent) or hospital, emergency rooms, or clinics (mentioned by 20 percent).

*Risk of HIV infection*—In the fourth quarter of 1990, as in previous months, 5 percent of U.S. adults reportedly received blood transfusions between 1977 and 1985. This figure is slightly higher among those 50 years of age and older (7 percent) than among those 18–29 years of age (3 percent). No other differences were noted across sociodemographic groups.

The 1990 NHIS again asked respondents about their perception of the efficacy of condoms as a means of preventing the sexual transmission of HIV. Respondents in the fourth quarter of 1990, as in the previous three quarters, were less certain about the effectiveness of condoms compared with respondents in 1989. The changes noted were a decreasing

proportion who rated condoms as "very effective" (25 percent in the last quarter of 1990 compared with 33 percent in the last quarter of 1989) and an increase in the percent who stated they did not know how effective condoms were (15 percent in 1990 compared with 7 percent in 1989). These changes were noted in all population subgroups examined.

Compared with 1989, a slight shift in the self-assessed chance of having or getting HIV was noted in 1990. Respondents in 1990 were less likely to indicate they had no chance of having or getting HIV infection (79 and 71 percent, respectively, compared with 83 and 77 percent in the fourth quarter of 1989). The proportion who rated their chances of having or getting HIV as "low" was greater in the last quarter of 1990 (17 and 23 percent) than in the same quarter in 1989 (13 and 18 percent). The proportion who indicated their chances were high or medium remained small (3 percent or less) in the fourth quarter of 1990.

In October–December 1990, only 2 percent of adults reported being in any of the behavior categories associated with an increased risk of HIV infection and AIDS. This figure was similar across the various sociodemographic groups and was unchanged from previous estimates.

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**Suggested citation**

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.

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**Symbols**

- Quantity zero
  - 0 Quantity more than zero but less than 0.05
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**Table 1. Provisional estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, October–December 1990.**

[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									
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Percent distribution																					
1. How much would you say you know about AIDS?																					
A lot	19	23	23	12	18	20	20	16	20	10	15	28									
Some	46	52	52	36	46	46	48	39	38	27	50	53									
A little	25	21	22	30	26	24	24	27	30	32	28	17									
Nothing	10	3	3	22	10	10	8	18	11	30	6	2									
Don't know	0	0	–	0	0	0	0	–	0	0	0	0									
2. In the past month, have you received information about AIDS from any of these sources? <sup>1</sup>																					
Television	75	74	77	74	76	74	75	78	75	71	76	76									
Radio	28	31	31	21	32	24	28	28	30	21	27	32									
Magazines	41	43	45	33	40	41	41	39	34	24	39	50									
Newspapers	50	44	54	50	52	48	52	44	39	32	49	60									
Street signs/billboards	11	16	12	6	13	10	10	17	13	7	10	14									
Store displays/store distributed brochures	6	10	7	4	7	6	5	11	9	5	7	7									
Bus/streetcar/subway displays	5	7	5	2	5	4	4	10	7	3	4	6									
Health department brochures	16	23	17	10	16	17	15	22	19	12	16	19									
Workplace distributed brochures	12	12	16	6	11	12	11	15	12	4	11	16									
School distributed brochures	9	17	9	3	8	9	8	10	10	6	7	12									
Church distributed brochures	4	5	4	3	4	4	3	8	7	4	4	5									
Community organization	4	5	5	3	4	4	4	7	5	3	4	5									
Friend/acquaintance	12	18	13	7	13	12	11	16	16	9	13	13									
Other	3	4	4	1	3	3	3	3	3	1	2	4									
Don't know	1	1	1	1	1	1	1	0	1	1	1	1									
Received no AIDS information in past month	13	11	11	16	13	13	13	13	13	20	13	9									
3. Have you heard of the AIDS virus called HIV?																					
Yes	79	82	85	69	79	79	82	75	61	57	79	90									
No	19	16	13	27	19	19	16	21	36	38	19	9									
Don't know	2	1	2	4	2	3	2	3	3	6	2	1									
4a. AIDS can reduce the body's natural protection against disease.																					
Definitely true	78	82	85	67	79	77	82	65	65	53	78	90									
Probably true	11	9	9	14	11	10	10	10	21	18	11	6									
Probably false	1	1	1	2	1	2	1	3	2	3	2	1									
Definitely false	2	2	1	3	2	3	1	7	3	5	2	1									
Don't know	8	5	4	15	7	9	6	15	9	21	7	2									
4b. AIDS can damage the brain.																					
Definitely true	44	42	46	43	44	44	43	54	41	40	44	46									
Probably true	26	26	25	26	26	26	26	23	30	27	27	24									
Probably false	7	10	7	5	8	7	8	4	7	3	7	9									
Definitely false	4	6	5	2	5	4	5	3	4	3	4	6									
Don't know	19	16	16	24	18	19	19	17	19	26	19	15									
4c. AIDS is an infectious disease caused by a virus.																					
Definitely true	69	76	77	55	71	68	70	72	62	54	69	78									
Probably true	15	14	13	19	15	15	15	12	22	19	16	13									
Probably false	2	2	2	3	2	2	2	1	1	2	2	2									
Definitely false	3	2	3	3	2	3	3	2	2	2	3	2									
Don't know	11	6	6	20	9	12	10	12	14	22	10	5									
4d. A person can be infected with the AIDS virus and not have the disease AIDS.																					
Definitely true	66	70	75	54	66	67	69	62	55	46	66	78									
Probably true	16	14	14	20	16	16	16	15	19	19	17	13									
Probably false	3	3	2	3	3	2	2	2	4	3	3	2									
Definitely false	3	4	2	2	3	3	2	4	5	4	3	2									
Don't know	12	9	7	22	12	12	11	16	18	28	11	6									
4e. Any person with the AIDS virus can pass it on to someone else through sexual intercourse.																					
Definitely true	87	91	90	80	85	88	87	89	80	78	88	90									
Probably true	9	7	7	13	10	8	9	7	16	12	9	8									
Probably false	1	0	1	1	1	0	1	0	1	1	1	0									
Definitely false	0	0	0	0	1	0	0	1	0	0	1	1									
Don't know	3	1	1	7	3	3	3	4	3	9	2	1									
4f. A pregnant woman who has the AIDS virus can give it to her baby.																					
Definitely true	85	88	89	78	83	87	86	87	77	75	86	89									
Probably true	10	9	8	14	12	9	10	8	18	15	10	9									
Probably false	0	0	0	0	0	0	0	0	0	0	1	0									
Definitely false	0	0	0	0	0	0	0	0	0	0	0	0									
Don't know	4	3	2	7	5	3	4	4	4	10	4	1									

See footnotes at end of table.

**Table 1. Provisional estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, October–December 1990—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											
	Age				Sex		Non-Hispanic			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
4g. There are drugs available to treat AIDS or the AIDS virus which can lengthen the life of an infected person.	Percent distribution <sup>1</sup>											
Definitely true . . . . .	46	48	52	39	47	46	48	42	42	33	43	56
Probably true . . . . .	27	26	27	27	27	26	27	24	25	23	28	27
Probably false . . . . .	6	7	5	6	5	6	6	4	5	5	7	5
Definitely false . . . . .	6	7	6	5	6	5	5	9	6	7	6	4
Don't know . . . . .	16	13	11	24	15	17	14	21	21	32	16	8
4h. There is a vaccine available to the public that protects a person from getting the AIDS virus.												
Definitely true . . . . .	3	3	3	2	3	3	2	4	6	4	3	2
Probably true . . . . .	4	3	3	4	3	4	3	5	5	6	4	2
Probably false . . . . .	10	10	9	10	9	10	10	8	11	9	10	9
Definitely false . . . . .	68	71	75	58	70	66	72	58	53	48	68	79
Don't know . . . . .	16	13	11	25	15	18	14	24	25	32	15	9
4i. There is no cure for AIDS at present.												
Definitely true . . . . .	86	87	89	80	85	86	88	82	77	75	86	91
Probably true . . . . .	6	6	6	8	7	6	6	7	10	9	6	5
Probably false . . . . .	1	1	1	1	1	1	1	1	2	1	1	1
Definitely false . . . . .	2	2	1	2	1	2	1	2	3	2	2	1
Don't know . . . . .	5	4	3	9	5	5	4	8	8	13	5	2
5. How likely do you think it is that a person will get AIDS or the AIDS virus infection from—												
5a. Working near someone with the AIDS virus?												
Very likely . . . . .	2	2	2	3	3	2	2	4	3	4	2	2
Somewhat likely . . . . .	6	5	6	7	6	6	6	7	7	7	7	5
Somewhat unlikely . . . . .	9	10	9	10	9	9	9	10	12	10	10	9
Very unlikely . . . . .	40	40	42	40	41	40	42	35	31	34	40	44
Definitely not possible . . . . .	35	40	37	29	34	36	35	34	39	30	35	38
Don't know . . . . .	6	3	4	12	7	6	5	9	8	16	5	3
5b. Eating in a restaurant where the cook has the AIDS virus?												
Very likely . . . . .	7	6	6	7	7	6	6	12	7	9	8	4
Somewhat likely . . . . .	18	17	18	19	19	18	18	20	19	19	20	16
Somewhat unlikely . . . . .	14	14	15	12	14	13	14	12	11	11	13	15
Very unlikely . . . . .	32	34	33	28	32	31	33	26	26	22	31	37
Definitely not possible . . . . .	20	23	22	17	19	21	20	18	25	18	19	22
Don't know . . . . .	10	6	7	17	10	10	9	13	10	20	9	6
5c. Sharing plates, forks, or glasses with someone who has the AIDS virus?												
Very likely . . . . .	11	10	10	12	11	11	10	16	11	14	13	8
Somewhat likely . . . . .	21	19	22	23	22	21	21	22	19	21	22	20
Somewhat unlikely . . . . .	14	14	14	13	14	13	14	9	13	11	13	16
Very unlikely . . . . .	27	30	30	23	27	28	29	23	23	20	27	32
Definitely not possible . . . . .	18	22	19	14	17	19	17	18	23	15	17	20
Don't know . . . . .	9	5	6	15	9	9	8	11	10	19	8	5
5d. Using public toilets?												
Very likely . . . . .	6	6	5	7	5	7	5	11	9	10	7	3
Somewhat likely . . . . .	13	11	12	15	13	13	12	15	18	17	14	10
Somewhat unlikely . . . . .	12	12	12	12	12	12	12	11	10	10	12	13
Very unlikely . . . . .	35	36	38	31	36	34	37	30	25	25	35	41
Definitely not possible . . . . .	26	29	28	20	26	26	26	23	27	21	25	29
Don't know . . . . .	8	6	5	15	8	9	8	11	11	18	8	4
5e. Sharing needles for drug use with someone who has the AIDS virus?												
Very likely . . . . .	95	98	97	91	95	95	96	94	95	89	96	97
Somewhat likely . . . . .	2	1	2	3	2	2	2	2	2	3	2	1
Somewhat unlikely . . . . .	0	0	0	0	0	0	0	0	—	0	0	0
Very unlikely . . . . .	0	1	0	0	0	0	0	0	0	0	0	0
Definitely not possible . . . . .	0	0	0	0	0	0	0	0	0	0	0	0
Don't know . . . . .	2	1	1	5	2	2	2	3	2	7	1	1
5f. Being coughed or sneezed on by someone who has the AIDS virus?												
Very likely . . . . .	8	7	7	11	8	9	8	11	8	12	9	6
Somewhat likely . . . . .	20	16	19	23	19	20	20	19	17	19	21	19
Somewhat unlikely . . . . .	14	15	15	12	15	13	14	12	14	10	13	16
Very unlikely . . . . .	30	33	33	24	31	29	31	27	23	23	29	34
Definitely not possible . . . . .	17	22	18	12	17	18	17	18	23	15	17	19
Don't know . . . . .	11	7	7	18	10	11	10	13	15	21	10	6

See footnotes at end of table.

**Table 1. Provisional estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, October–December 1990—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											
	Age			Sex		Non-Hispanic			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
5g. Attending school with a child who has the AIDS virus?	Percent distribution											
Very likely	2	2	2	2	2	2	2	3	2	3	2	1
Somewhat likely	5	4	5	7	6	5	5	7	8	6	5	4
Somewhat unlikely	9	9	9	9	9	8	9	8	9	8	9	8
Very unlikely	42	40	44	40	43	41	43	37	31	34	41	45
Definitely not possible	36	42	36	30	34	37	36	35	40	30	36	38
Don't know	7	3	5	13	8	7	6	10	9	17	6	3
5h. Mosquitoes or other insects?												
Very likely	10	12	10	10	11	10	9	18	16	15	12	7
Somewhat likely	19	22	18	16	19	18	18	21	25	21	20	16
Somewhat unlikely	8	9	8	8	8	8	8	6	8	6	8	9
Very unlikely	25	23	27	23	25	24	26	20	16	17	23	30
Definitely not possible	19	20	21	16	19	20	20	15	19	13	18	24
Don't know	19	14	17	27	17	21	19	21	17	28	19	15
8. Have you ever discussed AIDS with any of your children aged 10–17? <sup>2</sup>												
Yes	69	64	71	60	58	78	71	73	53	61	68	74
No	30	34	29	39	41	21	28	27	47	37	31	26
Don't know	0	2	0	1	1	0	0	—	—	1	0	0
9. Have any or all of your children aged 10–17 had instruction at school about AIDS? <sup>2</sup>												
Yes	74	68	74	77	71	76	75	77	61	66	74	78
No	9	15	9	9	8	10	10	8	10	13	10	7
Don't know	17	17	17	13	21	14	16	15	29	20	16	15
10. Have you ever donated blood?												
Yes	40	32	43	42	51	30	43	32	26	28	35	50
No	60	68	57	58	49	70	57	67	74	72	65	49
Don't know	0	0	0	0	0	0	0	0	0	1	0	0
11a. Have you donated blood since March 1985?												
Yes	17	24	21	8	21	13	19	11	11	6	15	25
No	82	75	79	92	78	86	81	88	88	93	85	75
Don't know	1	1	0	1	1	1	0	1	1	1	0	1
11b. Have you donated blood in the past 12 months?												
Yes	7	10	9	3	9	5	8	2	5	2	6	10
No	92	89	91	96	90	94	91	97	95	97	93	89
Don't know	1	1	1	1	1	1	1	1	1	1	1	1
12. How many times have you donated blood since March 1985?												
Once	5	9	5	2	6	4	5	4	5	2	5	6
Twice	3	5	4	1	4	3	3	3	2	1	3	5
Three times or more	9	10	11	5	11	6	10	4	4	2	7	13
Don't know	0	0	0	0	0	0	0	0	0	—	0	0
Did not donate blood since March 1985 <sup>3</sup>	83	76	79	92	79	87	81	89	89	94	85	75
13. How many times have you donated blood in the past 12 months?												
Once	4	7	5	1	5	3	4	2	3	2	4	6
Twice	2	2	2	1	2	1	2	1	1	1	2	2
Three times or more	1	1	2	1	1	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 the past 12 months <sup>4</sup>	93	90	91	97	91	95	92	98	95	98	94	90
14. Have you ever heard of a blood test that can detect the AIDS virus infection?												
Yes	79	83	86	69	80	79	82	70	72	62	79	89
No	18	16	12	27	18	18	15	27	26	33	19	10
Don't know	2	2	1	4	2	3	2	3	2	5	2	1
15. To the best of your knowledge, are blood donations routinely tested for the AIDS virus infection?												
Yes	68	72	75	56	68	67	71	53	55	48	66	79
No	5	4	5	5	5	5	4	6	7	5	6	4
Don't know	7	6	6	9	7	7	6	10	10	10	7	5
Never heard of test <sup>5</sup>	21	17	14	31	20	21	18	30	28	38	21	11
16. Was one of your reasons for donating blood because you wanted to be tested for the AIDS virus infection? <sup>6</sup>												
Yes	3	3	3	2	3	2	3	2	4	3	3	3
No	82	82	82	80	79	86	83	73	77	71	75	87
Don't know	0	—	0	—	0	—	0	—	—	1	—	0
Never heard of test <sup>5</sup>	8	7	8	11	8	7	7	13	9	18	11	4
17. Except for blood donations since 1985, have you had your blood tested for the AIDS virus infection?												
Yes	11	16	14	4	13	10	10	15	16	11	9	13
No	66	64	70	62	65	66	69	51	54	49	67	72
Don't know	3	2	3	3	3	3	3	4	2	2	3	3
Never heard of test <sup>5</sup>	21	17	14	31	20	21	18	30	28	38	21	11

See footnotes at end of table.



**Table 1. Provisional estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, October–December 1990—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											
	Age			Sex		Non-Hispanic			Education			
	18–29	30–49	50 years	Male	Female	White	Black	Hispanic	Less than	12 years	More than	
	Total	years	years	and over					12 years	12 years	12 years	
18. How many times have you had your blood tested for the AIDS virus infection, not including blood donations?	Percent distribution											
Once	8	11	10	3	8	7	7	10	11	8	6	9
Twice	2	3	2	1	2	1	2	2	2	2	1	2
Three times or more	2	3	2	0	2	1	2	3	2	1	1	2
Don't know	0	0	0	0	0	0	0	0	1	0	0	0
Never heard of/had test <sup>7</sup>	89	84	86	96	87	90	90	85	84	89	91	87
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	6	8	7	2	7	5	5	6	8	5	4	7
Once	5	7	5	2	5	4	4	7	7	4	4	5
Twice	1	1	1	0	1	1	1	1	1	1	0	1
Three times or more	0	0	0	0	0	0	0	1	—	0	0	0
Don't know	0	—	0	0	0	0	0	—	1	0	0	0
Never heard of/had test <sup>7</sup>	89	84	86	96	87	90	90	85	84	89	91	87
20a. Were the blood tests, including those you had before the past 12 months, required or did you go for them voluntarily, or were there some of each? <sup>8</sup>												
All required	56	60	52	54	58	53	56	50	64	60	51	57
All volunteered	39	35	42	39	36	42	38	45	35	36	44	37
Some of each	4	4	5	2	5	4	5	4	0	2	3	5
Don't know	1	0	1	5	1	2	1	1	—	2	2	0
20b. Were any of the blood tests required for: <sup>8</sup>												
Hospitalization or a surgical procedure?	12	11	9	24	8	16	12	14	10	18	14	8
Health insurance?	3	2	5	2	4	2	4	1	2	4	1	5
Life insurance?	10	6	14	9	14	6	13	3	2	4	6	16
Employment?	7	7	7	7	8	5	7	7	6	5	5	9
Military induction or military service?	11	18	6	7	17	4	12	13	3	4	12	13
Immigration?	5	4	7	3	5	6	1	1	34	14	2	4
Other	14	19	12	7	9	20	14	16	8	17	15	12
Don't know	—	—	—	—	—	—	—	—	—	—	—	—
21. When was your last blood test for the AIDS virus infection? <sup>8</sup>												
1990	45	45	45	41	44	46	44	53	48	48	45	43
1989	22	27	20	16	21	23	22	20	20	20	24	21
1988	15	17	15	11	15	16	15	14	20	17	12	17
1987	9	6	10	16	9	9	11	5	6	4	12	10
1986	4	3	4	2	5	2	3	5	2	4	3	4
1985	2	1	1	5	2	1	2	1	2	2	1	2
Don't know	2	1	2	7	3	2	3	3	1	3	2	2
22a. Was your last test required or did you go for it voluntarily? <sup>8</sup>												
Required	58	64	55	55	61	56	59	53	66	62	53	60
Voluntary	40	36	44	40	38	43	40	46	34	36	45	39
Don't know	1	0	1	5	1	2	1	2	—	2	2	0
22b. Was the test required for: <sup>8</sup>												
Hospitalization or a surgical procedure?	11	11	9	22	8	15	11	12	11	17	14	7
Health insurance?	3	1	5	0	4	2	4	0	2	2	1	5
Life insurance?	10	6	13	9	13	5	12	3	2	4	6	15
Employment?	6	6	7	7	7	5	6	7	6	5	5	7
Military induction or military service?	11	18	6	7	17	3	12	12	3	3	12	13
Immigration?	5	4	7	3	5	6	1	1	34	14	2	4
Other	13	19	10	7	8	19	13	17	8	18	14	11
Don't know	—	—	—	—	—	—	—	—	—	—	—	—
23. Not including a blood donation, where was your last blood test for the AIDS virus done? <sup>8</sup>												
AIDS clinic/counseling/testing site	3	2	3	3	3	3	3	3	1	1	3	3
Clinic run by employer	4	3	4	3	5	2	3	4	5	3	2	5
Doctor/HMO	33	27	37	37	31	36	32	30	48	37	29	35
Public health department	7	9	7	6	6	9	5	12	12	11	8	6
Hospital/emergency room/outpatient clinic	24	21	23	32	18	30	24	26	19	29	30	17
STD clinic	0	0	0	0	0	—	0	1	—	—	1	—
Family planning clinic	2	3	1	—	1	3	2	1	3	3	2	1
Prenatal clinic	0	1	—	—	—	1	0	1	1	1	1	—
Tuberculosis clinic	—	—	—	—	—	—	—	—	—	—	—	—
Other clinic	6	7	5	4	7	4	5	8	3	6	5	6
Drug treatment facility	0	—	0	—	0	0	0	—	—	0	—	0
Military induction/service site	10	18	5	7	16	3	11	12	2	2	12	12
Immigration site	1	0	1	1	1	1	1	1	3	2	0	1
Other	10	8	12	7	12	7	13	3	2	5	7	14
Don't know	—	—	—	—	—	—	—	—	—	—	—	—

See footnotes at end of table.

**Table 1. Provisional estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, October–December 1990—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
24. Before your last blood test for the AIDS virus infection, were you counseled about the AIDS virus and the meaning of the test? <sup>8</sup>	Percent distribution											
Yes	43	43	45	33	43	43	40	57	42	39	40	46
No	56	56	54	65	56	56	59	43	57	58	60	53
Don't know	1	1	0	2	1	1	1	—	1	2	—	0
25. Did you get the results of your last test? <sup>8</sup>												
Yes	78	77	80	73	78	77	77	80	79	73	80	79
No	22	23	20	27	21	22	23	20	20	27	20	21
Don't know	0	0	0	—	0	0	0	—	1	1	—	0
26. Did you want the results of your last test? <sup>9</sup>												
Yes	35	40	36	17	34	36	34	37	33	34	31	37
No	58	56	56	70	60	56	61	43	63	56	65	55
Don't know	7	4	7	13	6	8	5	20	4	10	3	8
27. When you received the results of your last test, did you receive counseling or talk with a health professional about how to lower your chances of becoming infected with the AIDS virus or how to avoid passing it on to another person? <sup>10</sup>												
Yes	31	35	29	27	29	34	25	48	39	44	31	26
No	68	64	70	72	70	66	74	51	61	55	68	73
Don't know	1	1	1	1	1	1	1	1	—	1	1	0
28. Were the results given in person, by telephone, by mail, or in some other way? <sup>10</sup>												
In person	61	64	58	68	58	65	55	67	86	82	63	52
By telephone	16	11	19	15	17	14	18	12	5	10	16	18
By mail	16	17	16	10	18	12	18	16	5	5	15	20
Other	7	8	6	5	6	8	8	4	2	3	5	9
Don't know	0	—	1	1	0	1	1	—	1	1	0	0
29. Do you feel your last test for the AIDS virus infection was handled properly in terms of the confidentiality of your test results? <sup>8</sup>												
Yes	90	91	90	89	90	91	89	92	92	91	89	91
No	4	4	3	4	4	3	4	6	3	2	5	4
Don't know	6	4	7	8	6	6	7	2	5	7	6	6
30. Do you expect to have a blood test for the AIDS virus infection in the next 12 months?												
Yes	7	11	8	2	8	6	5	16	9	7	6	7
No	69	66	75	64	68	70	74	47	58	51	69	78
Don't know	4	5	4	3	4	4	3	6	5	4	4	4
Never heard of test <sup>5</sup>	21	17	14	31	20	21	18	30	28	38	21	11
31. Tell me which of these statements explain why you will have the blood test: <sup>11</sup>												
Voluntarily, because you personally want to know if you are infected	69	73	67	61	67	72	60	83	85	79	75	58
As part of a blood donation	21	24	19	20	26	16	26	13	13	13	19	27
As part of a hospitalization or surgical procedure	11	11	9	18	10	13	10	12	13	13	11	10
As a requirement for health insurance	10	12	8	12	10	10	8	14	11	11	10	9
As a requirement for life insurance	9	10	8	10	9	9	6	13	10	8	9	9
As a requirement for a job, other than military	13	13	14	11	14	12	11	17	14	9	15	13
As a requirement for the military	10	14	7	4	13	6	10	8	4	6	9	12
As a requirement for immigration	3	2	2	5	3	2	1	2	6	3	4	2
As a required part of some other activity that includes a blood sample and automatic AIDS testing	14	16	12	14	11	17	14	12	13	16	13	13
32. Where will you go to have a blood test for the AIDS virus infection? <sup>11</sup>												
AIDS clinic/counseling/testing site	2	2	1	—	1	2	1	2	—	0	2	2
Clinic run by employer	4	4	4	3	5	2	2	4	7	2	3	5
Doctor/HMO	40	33	45	45	38	42	39	43	43	34	43	40
Hospital/emergency room/outpatient clinic	20	20	20	17	17	23	19	20	19	29	18	15
Other clinic	8	12	3	6	8	6	6	9	9	11	8	5
Public health department	8	10	6	7	7	9	6	13	8	12	8	5
Red Cross/blood bank	8	5	10	13	10	6	12	3	4	3	7	12
Other	7	8	7	4	9	5	10	3	—	3	6	11
Don't know	5	6	4	6	4	6	4	3	10	7	4	4

See footnotes at end of table.

**Table 1. Provisional estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, October–December 1990—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											
	Age			Sex		Non-Hispanic			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
33. Did you have a blood transfusion at any time between 1977 and 1985?	Percent distribution											
Yes	5	3	5	7	5	6	5	6	5	7	5	5
No	94	97	94	91	94	93	93	93	95	92	94	94
Don't know	1	0	1	2	1	1	1	1	0	1	1	1
34. Do you think the present supply of blood is safe for transfusions?												
Yes	47	52	49	40	51	43	50	35	38	34	45	55
No	30	30	29	31	27	33	28	39	38	36	32	25
Don't know	23	18	21	29	22	25	22	26	24	30	23	20
35. How effective do you think the use of a condom is to prevent getting the AIDS virus through sexual activity?												
Very effective	25	31	28	19	29	22	26	26	22	19	24	30
Somewhat effective	53	54	56	48	54	52	55	44	45	40	55	57
Not at all effective	5	4	4	5	3	6	4	6	8	7	5	3
Don't know how effective	15	10	11	24	12	18	13	21	18	28	15	8
Don't know method	2	1	1	4	2	3	2	3	6	6	2	1
36. What are your chances of having the AIDS virus?												
High	0	1	1	0	1	0	0	1	1	1	0	0
Medium	2	3	2	2	2	2	2	4	2	2	3	2
Low	17	23	19	10	19	14	17	17	10	10	15	22
None	79	72	77	86	76	81	79	74	85	83	80	75
Don't know	2	2	1	3	2	2	1	5	3	5	1	1
37. What are your chances of getting the AIDS virus?												
High	0	1	1	0	0	1	0	1	0	1	1	0
Medium	3	5	3	2	4	3	3	5	4	3	4	3
Low	23	29	26	14	25	21	24	20	17	13	21	30
None	71	62	68	80	68	73	71	69	73	78	73	65
Don't know	2	2	1	3	2	2	1	4	5	6	2	1
N/A—High chance of already having the AIDS virus	0	1	1	0	1	0	0	1	1	1	0	0
38. Have you ever personally known anyone with AIDS or the AIDS virus?												
Yes	15	15	19	11	14	17	15	18	14	9	12	22
No	82	82	79	86	84	81	83	79	84	88	86	76
Don't know	2	2	3	2	3	2	2	3	2	3	2	2
39. Are any of these statements true for you?												
a. You have hemophilia and have received clotting factor concentrates since 1977.												
b. You are a native of Haiti or Central or East Africa who has entered the United States since 1977.												
c. You are a man who has had sex with another man at some time since 1977, even 1 time.												
d. You have taken illegal drugs by needle 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 (39 a–d).												
f. You have had sex for money or drugs at any time since 1977.												
Yes to at least 1 statement	2	3	3	1	3	2	2	3	2	2	2	2
No to all statements	98	96	97	99	97	98	98	97	98	97	98	97
Don't know	0	0	0	0	1	0	0	1	0	1	0	0

<sup>1</sup>Multiple responses may sum to more than 100.

<sup>2</sup>Based on persons answering yes to question 6, "Do you have any children aged 10 through 17?" Question 7 was "How many do you have?"

<sup>3</sup>Persons answering no or don't know to questions 10 or 11a.

<sup>4</sup>Persons answering no or don't know to questions 10, 11a, or 11b.

<sup>5</sup>Persons answering no or don't know to question 14.

<sup>6</sup>Based on persons answering yes to question 11a.

<sup>7</sup>Persons answering no or don't know to questions 14 or 17.

<sup>8</sup>Based on persons answering yes to question 17.

<sup>9</sup>Persons answering no or don't know to question 25.

<sup>10</sup>Based on persons answering yes to question 25.

<sup>11</sup>Based on persons answering yes to question 30.

## 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 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 1990 National Health Interview Survey of AIDS Knowledge and Attitudes is asked of one randomly chosen adult 18 years of age or over in each family. The estimates in this report are based on completed interviews with 10,331 persons or about 85 percent of eligible respondents.

Table I contains the estimated population size of each of the demographic subgroups included in table 1 to allow readers to derive

provisional estimates of the number of people in the United States with a given characteristic, for example, the number of men who have had their blood tested for HIV. The population figures in table I are based on 1989 data from the NHIS; they are not official population estimates. Table II shows approximate standard errors for most of the estimates presented in table 1. The reader is cautioned about comparing estimates when the denominator is small (for example, when looking only at people who plan to have an HIV antibody test in the next year). Both the estimates in table 1 and the standard errors in table II are provisional. They may differ from estimates made using the final data file because they were calculated using a simplified weighting procedure that does not adjust for all the factors used in weighting the final data file. A final data file covering the entire data collection period for 1990 will be available at the end of 1991.

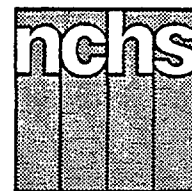
**Table I. Sample sizes for the 1990 National Health Interview Survey of AIDS Knowledge and Attitudes and estimated adult population 18 years of age and over, by selected characteristics: United States, October–December 1990**

Characteristic	Sample Size	Estimated population in thousands
All adults . . . . .	10,331	180,271
<b>Age</b>		
18–29 years . . . . .	2,349	46,282
30–49 years . . . . .	4,137	71,831
50 years and over . . . . .	3,845	62,157
<b>Sex</b>		
Male . . . . .	4,338	85,632
Female . . . . .	5,993	94,638
<b>Race and ethnicity</b>		
Non-Hispanic white . . . . .	8,013	139,440
Non-Hispanic black . . . . .	1,329	19,585
Hispanic . . . . .	654	14,118
<b>Education</b>		
Less than 12 years . . . . .	2,172	36,782
12 years . . . . .	3,927	72,418
More than 12 years . . . . .	4,195	70,036

**Table II. Standard errors, expressed in percentage points, of estimated percents from the 1990 National Health Interview Survey of AIDS Knowledge and Attitudes, by selected characteristics: United States, October–December 1990**

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 . . . . .	0.3	0.6	0.4	0.5	0.4	0.4	0.3	0.8	1.1	0.6	0.4	0.4
10 or 90 . . . . .	0.4	0.8	0.6	0.6	0.6	0.5	0.4	1.1	1.5	0.8	0.6	0.6
15 or 85 . . . . .	0.5	0.9	0.7	0.7	0.7	0.6	0.5	1.3	1.8	1.0	0.7	0.7
20 or 80 . . . . .	0.5	1.1	0.8	0.8	0.8	0.7	0.6	1.4	2.0	1.1	0.8	0.8
25 or 75 . . . . .	0.5	1.1	0.9	0.9	0.8	0.7	0.6	1.5	2.2	1.2	0.9	0.9
30 or 70 . . . . .	0.6	1.2	0.9	1.0	0.9	0.8	0.7	1.6	2.3	1.3	0.9	0.9
35 or 65 . . . . .	0.6	1.3	1.0	1.0	0.9	0.8	0.7	1.7	2.4	1.3	1.0	0.9
40 or 60 . . . . .	0.6	1.3	1.0	1.0	1.0	0.8	0.7	1.7	2.4	1.4	1.0	1.0
45 or 55 . . . . .	0.6	1.3	1.0	1.0	1.0	0.8	0.7	1.8	2.5	1.4	1.0	1.0
50 . . . . .	0.6	1.3	1.0	1.0	1.0	0.8	0.7	1.8	2.5	1.4	1.0	1.0

# Advance Data



From Vital and Health Statistics of the National Center for Health Statistics

## Exposure to Alcoholism in the Family: United States, 1988

by Charlotte A. Schoenborn, M.P.H., Division of Health Interview Statistics

### Highlights

About 43 percent of U.S. adults—76 million people—have been exposed to alcoholism in the family: they grew up with or married an alcoholic or a problem drinker or had a blood relative who was ever an alcoholic or problem drinker. Exposure was higher among women (46.2 percent) than among men (38.9 percent) and declined with age. Exposure to alcoholism in the family was strongly related to marital status, independent of age: 55.5 percent of separated or divorced adults had been exposed to alcoholism in some family member, compared with 43.5 percent of married, 38.5 percent of never married, and 35.5 percent of widowed persons. Nearly 38 percent of separated or divorced women had been married to an alcoholic, but only about 12 percent of currently married women were married to an alcoholic. These findings are highlights of an analysis of the 1988 National Health Interview Survey on Alcohol that is presented in this report.

### The costs of alcoholism

The National Health Interview Survey on Alcohol was undertaken by the National Center for Health Statistics and the National Institute on Alcohol Abuse and Alcoholism to provide new information about one of this country's most serious public health problems. The medical, social, and economic costs of alcoholism in this country are enormous. In the late 1980's an estimated 10.5 million people in the United States exhibited some symptoms of alcoholism or alcohol dependence, and another 7.2 million abused alcohol but did not exhibit symptoms of dependence (1). Health consequences of alcoholism such as liver disease (2-4), cancer (5, 6), pancreatitis (7, 8), neurological disorders (9-11), and fetal alcohol syndrome (12, 13) have been well documented. About half of all traffic fatalities can be traced to drunk driving and studies have indicated that 54 to 74 percent of persons convicted of drunk driving

are alcoholics or problem drinkers (1).

The economic costs of alcoholism in the United States were estimated to be about \$128 billion in 1986, more than half of this accounted for by lost employment and reduced productivity (1). Assuming that drinking patterns remain constant, this figure is projected to rise to \$150 billion by 1995 (14). Finally, alcoholics use a disproportionate share of our health resources. Health care costs for untreated alcoholics have been found to be at least 100 percent higher than those for nonalcoholics (15). Further, it has been estimated that 20-40 percent of all U.S. hospital beds are occupied by persons whose health conditions are complications of alcohol abuse and alcoholism (1).

Alcoholism poses many risks, not only to the alcoholic but also to other family members. First, there is considerable evidence that both genetic and environmental exposure to alcoholism predispose individuals to become alcoholic themselves (16). Adoption studies (17, 18), twin



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studies (19, 20), and medical research with laboratory animals (21, 22) suggest that genetics plays a key role in the development of alcoholism. Longitudinal studies suggest that children who live with an alcoholic parent are at greater risk of becoming alcoholic than are children who do not live with an alcoholic parent (23, 24).

Because studies of environmental exposure in childhood are complicated by the serious methodological problem of assessing human behavior independent of genetic influences (25, 26), studies to date have been inconclusive about the specific environmental influences that may predispose an individual to alcoholism (1). Although researchers vary in the relative importance they give to the two factors, most agree that a combination of environmental and genetic exposure to alcoholism plays a role in development of the disease (24, 27, 28). Thus, persons who live with or are biologically related to an alcoholic are themselves at greater risk of becoming alcoholics than are persons in the general population.

Not only are family members of alcoholics more vulnerable to developing alcoholism themselves, they also are often subjected to many adverse social, psychological, physical, and economic conditions associated with alcoholism (29–31): economic hardship when the alcoholic cannot work or spends a disproportionate share of the family resources on alcohol; social isolation that often results from trying to hide the disease from family, friends, and colleagues; and medical consequences of alcohol-related physical and psychological abuse. All of these contribute to making alcoholism an even more pervasive health problem for this country than may be apparent from the statistics on alcoholics alone.

Because of the important consequences of exposure to alcoholism in the family, this report was prepared to provide an overview of the extent to which U.S. adults have been exposed to alcoholism or problem drinking in the family environment. Data are presented on

the percentage of the adult population who lived with an alcoholic or a problem drinker during their first 18 years of life, the percentage who married (or lived with as if married) an alcoholic or a problem drinker, and the percent who had at least one blood relative who was ever an alcoholic or a problem drinker. Estimates of the percentages of adults with one or more of these three types of exposure are also presented. Variations in exposure by sex, age, education, income, race, Hispanic origin, and marital status are shown and discussed.

Rates of alcohol use and associated problems differ substantially between men and women and among various age groups: men and younger persons have higher rates of alcoholism and alcohol abuse than do women and older persons (32–34). Because of this, exposure to alcoholism in the family may be quite different for men than for women and for persons at various ages. For example, because rates of alcoholism are higher for men, one would expect women to have higher rates of marriage to an alcoholic. Further, older persons who grew up during Prohibition may have lower rates of having been raised with an alcoholic than persons who grew up in an era when alcohol was more easily available. Because of these and other related factors, this report shows statistics on exposure to alcoholism for age and sex subgroups as well as for the total population.

## Data and methods

This report is based on data from the 1988 National Health Interview Survey on Alcohol (NHIS–Alcohol), part of the ongoing National Health Interview Survey conducted by the National Center for Health Statistics (35). The NHIS–Alcohol was cosponsored by the National Institute on Alcoholism and Alcohol Abuse. Interviews for the NHIS are conducted in person by staff of the U.S. Bureau of the Census. For the basic NHIS, the sampling frame is the household. Information is collected on each member of the family (or

families) residing in the household, by proxy if the person is not at home at the time of the interview. For the NHIS–Alcohol, one adult per family was selected as the sample person for the sections related to alcohol use and problems. Self-response was required for the alcohol-related questions, with callbacks made as needed. A total of 43,809 adults ages 18 years and over were interviewed for the NHIS–Alcohol, representing a response rate of 90 percent of respondents identified as eligible during the basic household interview and about 85.5 percent of the total NHIS sample.

The survey contained many questions concerning alcohol consumption; the personal, medical, and social problems associated with alcohol use; and exposure to alcoholism and problem drinking in the family. All questions referred to “problem drinker or alcoholic,” but for brevity in this report, the term “alcoholic” refers to both. This report describes the prevalence of both environmental exposure to alcoholism through having lived with an alcoholic when growing up or in marriage and genetic exposure in terms of having had an alcoholic blood relative.

The terms “problem drinker” and “alcoholic” were not defined for the respondent; thus, the meaning of these terms in this report is respondent defined. Although levels and patterns of alcohol consumption among those identified as alcoholics may differ and may or may not meet the clinical definition of alcoholism (36), as long as the drinking was considered alcoholic by the respondent, it is assumed in this report to have had a potentially significant effect on the respondent and the family unit.

## Questions on exposure to alcoholism

Respondents to the NHIS–Alcohol were asked the following questions:

1. “When you were growing up, that is, during your first 18 years, did you live with anyone who was a problem drinker or alcoholic?”

2. "Have you ever been married to, or lived with someone as if you were married, who was a problem drinker or alcoholic?"
3. "Have any of your (other) blood relatives ever been a problem drinker or alcoholic?"

If there was an affirmative response to the first question, respondents were asked their relationship to the alcoholic they grew up with. If the alcoholic was a parent, they were asked whether this was a biological, adoptive, step, or foster parent. If the alcoholic was a brother or sister, they were asked whether this was a full, half, adoptive, step, or foster sibling. All other blood and nonblood relationships were specified, including cousins, aunts, uncles, and grandparents.

People who reported having grown up with an alcoholic also were asked how long they had lived with the (each) alcoholic. They might have lived with one for as little as a day or as long as their entire childhood, but most people who had lived with an alcoholic did so long enough for there to have been some impact on their life: more than 80 percent had lived with an alcoholic at least 5 years, and about one-half of those (more than 40 percent) had lived with an alcoholic their entire first 18 years. Having grown up with an alcoholic (data shown in table 1) can indicate either environmental and genetic exposure to alcoholism or environmental exposure alone.

The second question elicited information on exposure to alcoholism in any marriage-like relationship, whether legal marriage or not. These data, shown in table 2, indicate environmental exposure only.

The third question concerned blood relatives other than any the respondent grew up with. As with the first question, detailed information was obtained concerning the nature of the relationships. The data in table 3 combine information on blood relatives obtained in questions 1 and 3.

This report is limited to discussion of the prevalence of exposure to alcoholism in the family and does not show details on length

of exposure or relationship of the alcoholic to the respondent. For those interested in analysis of this detailed information, a public use data tape is available from the National Center for Health Statistics, Division of Health Interview Statistics, 6525 Belcrest Road, Room 850, Hyattsville, Maryland 20782.

## Findings

### Growing up with an alcoholic

Table 1 shows the percent of U.S. adults who reported that they had lived with an alcoholic at some time during the first 18 years of their life. Overall, 18.1 percent of adults said that they had lived with an alcoholic at some time during their childhood. Estimates were substantially higher for younger persons: 21.4 percent of persons ages 18–44 years and 16.5 percent of those ages 45–64 years reported such living arrangements, compared with 8.5 percent of adults ages 65 years and over. Although these age differentials were found for both sexes, they were significantly greater for women: women under age 45 years were about 3 times more likely to have lived with an alcoholic while growing up than were women ages 65 years and over; younger men were nearly twice as likely as older men to have grown up with an alcoholic.

Reports of having grown up with an alcoholic were most common among persons with 12 years of education (19.5 percent) and least common among college-educated individuals (16.5 percent). Educational differences in family exposure to alcoholism were found among people under 45 years of age and were greater for women than for men. About 31 percent of younger women who had not completed high school had grown up with an alcoholic, compared with about 20 percent of younger women who had attended college. About 23 percent of younger men who had not graduated from high school had lived with an alcoholic while growing up, compared with about 16 percent of younger men who had attended college.

Overall, no significant income differences were observed. However, for people under 45 years of age, income variations paralleled those found for education: in this age group, 26 percent of those with less than \$10,000 annual income had grown up with an alcoholic, compared with 18.5 percent of those earning \$40,000 or more. The income differences were greater for women (29.9 percent of the lowest income group, compared with 21.1 percent of the highest income group) than for men (20.6 percent of the lowest income group, compared with 16 percent of the highest income group).

Some racial and ethnic differences in exposure to an alcoholic in the childhood home were noted. White persons were more likely than black persons to have grown up with an alcoholic (18.5 percent and 15.6 percent, respectively). This was true for both men and women in every age group (although the racial differences for men ages 65 years and over were not statistically significant).

The prevalence of having grown up with an alcoholic was about the same for Hispanic as for non-Hispanic persons (17.4 and 18.1 percent, respectively). Ethnic differences were statistically significant only for men 45 years of age and over and for women under 45 years of age: reports of having grown up with an alcoholic were more common among non-Hispanic than among Hispanic adults.

Separated or divorced respondents were somewhat more likely than married adults to have grown up with an alcoholic (22.0 percent versus 19.0 percent, respectively). Widowed persons were less likely than persons in any of the other marital status groups to have grown up with an alcoholic (9.5 percent). The largest marital status differences were found among women 18–44 years of age, with 29.2 percent of separated or divorced women having grown up with an alcoholic, compared with 24.9 percent of married women and 19.3 percent of women who had never been

married. The statistic for young widows (27.4 percent) was unreliable because of the small number of persons in this category. Within age groups, separated or divorced men did not differ significantly from married men in terms of prevalence of having grown up with an alcoholic.

### Ever married to an alcoholic

At some time in their lives, 9.2 percent of adults have been married to, or lived with as if married to, an alcoholic or a problem drinker (table 2). This is about half the rate reported in table 1 for having grown up with an alcoholic (18.1 percent). Although the prevalence was slightly higher (11.1 percent) among persons 45–64 years of age, age variations in marrying an alcoholic were small.

Rates of exposure to alcoholism in a marriage were very different for men and women. The total prevalence for men was 3.6 percent, with no significant variation by age. A total of 14.3 percent of women had been married to an alcoholic at some time, with the prevalence highest (17.5 percent) among those 45–64 years of age.

Sociodemographic variations in the rate of having been married to an alcoholic were most notable for women. Across all age groups, less educated and low-income women were more likely than women in the higher education and income groups to have lived in an alcoholic marriage. Race differentials were also noted but varied by age. Of women under 45 years of age, white women were more likely than black women to have been married to an alcoholic (14.4 percent versus 9.2 percent, respectively). In the oldest age groups, however, the relationship was reversed:

17.9 percent of black women had been married to an alcoholic, compared with 11.2 percent of white women. Overall, Hispanic and non-Hispanic women did not differ significantly in their exposure to alcoholism in marriage, although non-Hispanic women under 45 years of age were slightly more likely than Hispanic women to report marriage to an alcoholic (13.8 percent versus

11.7 percent, respectively).

The relationship between marital status and marriage to an alcoholic was one of the most dramatic of all the sociodemographic variations studied. More than one-third (37.6 percent) of currently separated or divorced women but only 12.1 percent of currently married women had been married to an alcoholic at some time. The higher prevalence among separated or divorced women was found in each age group, peaking at 39.0 percent for women 45–64 years of age. Rates for widowed women were also higher than rates for married women: of women under 65 years of age, widows were about twice as likely as currently married women to have been married to an alcoholic. About 5 percent of women who had never been legally married reported having lived with an alcoholic in a marital-type relationship.

In this report, data are shown for three broad age groups for reasons of readability and statistical reliability. However, to assess whether the association between marital status and having been married to an alcoholic could be attributed to the age composition within these three broad groups, analyses were carried out for 10-year age groups; the results remained the same, still showing large differences by marital status in having been married to an alcoholic (data not shown). The most probable explanation of the statistical association between having been married to an alcoholic and being a separated, divorced, or widowed woman is that alcoholism in husbands causes marriages to end in divorce, separation, or widowhood.

For men, sociodemographic variations were, for the most part, unremarkable because of the fact that few men reported ever having been married to an alcoholic. However, as with women, separated or divorced men were more likely than married men to ever have been married to an alcoholic: 10.8 percent, compared with 3.0 percent of married men, with the highest prevalence (13.7 percent) found among

separated or divorced men ages 45–64 years.

### Having an alcoholic blood relative

Table 3 shows the percent of adults who had had at least one blood relative who was an alcoholic. For this report, no attempt was made to distinguish between close relatives (parents, siblings, and children) and more distant relatives, although this information is available in the 1988 NHIS–Alcohol. Therefore, these statistics represent a measure of genetic exposure to alcoholism but may or may not include environmental exposure (that is, living in close contact with the alcoholic relative).

In 1988, 37.9 percent of U.S. adults had had at least one blood relative who was ever an alcoholic or a problem drinker. Rates were higher for persons under 45 years of age (41.9 percent) than for those ages 45–64 (36.5 percent) and those 65 years of age and over (26.0 percent). Women were somewhat more likely than men to have had an alcoholic blood relative (39.2 percent versus 36.5 percent, respectively). These sex differences were similar to those observed for having grown up with an alcoholic but were much smaller than the sex differences found for having been married to an alcoholic.

Overall, 35.2 percent of adults with less than 12 years of education had had an alcoholic blood relative, compared with 38.9 percent of those with 12 years of education and 38.5 percent of persons who had attended college. Although some educational differentials were noted among women, they were neither large nor consistent. No statistically significant educational differences were observed for men.

In most cases, exposure to alcoholism in a blood relative did not vary by income: 38.7 percent of all persons with an income of less than \$25,000 reported such exposure, compared with 39.5 percent of persons with incomes of \$25,000 or more.



White persons were more likely (38.6 percent) than were black persons (35.8 percent) and persons of other races (25.8 percent) to have had an alcoholic blood relative, although this was not found in all age groups for either men or women.

The largest and most consistent finding concerning sociodemographic differentials in exposure to alcoholism in a blood relative was in the contrast between Hispanics and non-Hispanics: 32.2 percent of Hispanic adults had had an alcoholic blood relative, compared with 38.4 percent of non-Hispanic persons. In every age and sex group, Hispanic persons were less likely than non-Hispanic persons to report having had an alcoholic blood relative, although the results for women 65 years of age and over were not statistically significant.

Separated or divorced adults were more likely than others to have had an alcoholic blood relative (42.3 percent), followed by married persons (39.1 percent), never-married persons (36.2 percent), and widows (26.5 percent). Although findings were not entirely consistent within age groups, some interesting associations may be noted. For instance, in the youngest age group, men and women who were separated or divorced were significantly more likely than never-married persons to report having had an alcoholic blood relative: 44.1 percent of separated or divorced men, compared with 34.4 percent of never-married men, and 48.3 percent of separated or divorced women, compared with 40.1 percent of never-married women.

### Combined exposure

Table 4 shows the percent of adults who reported one or more of the several types of exposure to alcoholism in the family—while growing up, in marriage, or in a blood relative. This combined exposure represents the total known prevalence of exposure to alcoholism in the family. A total of 42.8 percent of adults reported some familial exposure to alcoholism. Prevalence

was higher among women (46.2 percent) than among men (38.9 percent) and among younger people than older people: 46.1 percent of persons under 45 years of age reported some exposure, compared with 31.4 percent of those 65 years of age and over.

Educational differentials for the total population were small: 41.2 percent of adults with less than 12 years of education had at least some type of exposure to alcoholism in the family, compared with 43.8 percent of adults with 12 years of education and 42.7 percent of those with more than 12 years of schooling.

As for education, income differences for the total population were small. About 46 percent of adults with incomes of less than \$10,000 had some type of exposure to an alcoholic in the family, compared with about 43 percent of adults earning \$40,000 or more. Analyses for men and women separately revealed consistent, statistically significant income differences only for persons under 45 years of age. In this age group, 44.4 percent of men with incomes of less than \$10,000 reported some exposure to alcoholism in the family, compared with 40.1 percent of men with incomes of \$40,000 or more. Low-income women under 45 years of age had among the highest rates of exposure—55.8 percent, compared with 48.3 percent for women with incomes of \$40,000 or more.

Overall, white and non-Hispanic persons were more likely than black and Hispanic persons to report exposure to alcoholism in the family, with some age variations. For races other than white and black, rates of exposure to alcoholism in the family appear to be substantially below those for black and for white persons, especially under age 45 years; these statistics should be interpreted with caution due to their large sampling errors.

Table 4 shows marked marital status differences in familial exposure to alcoholism: 55.5 percent of separated or divorced adults had been exposed to alcoholism in a family member, compared with

43.0 percent of married, 38.5 percent of never-married, and 35.5 percent of widowed persons. Although the patterns were the same for men and women (that is, separated or divorced persons had the highest rates and widowed persons had the lowest), the rates themselves were much higher for women. Overall, 61.3 percent of separated or divorced women had been exposed to alcoholism in a family member, compared with 45.8 percent of separated or divorced men.

### Discussion

Tables 1–4 provide an overview of a significant public health problem in this country: environmental and genetic exposure to the disease of alcoholism in the family. This report deals only with perceived exposure to an alcoholic family member and not the actual prevalence of alcoholism. The definition of an alcoholic or a problem drinker was left entirely to the respondent and was undoubtedly influenced by the respondent's social and cultural life experiences and personal drinking patterns. Not all of the persons identified as alcoholics or problem drinkers by respondents will fit the clinical definition of an alcoholic. However, with the disease of alcoholism, perception that there is a problem is sufficient to set in motion a chain of events that may lead to a number of adverse outcomes for the family and social unit—regardless of the absolute level of alcohol consumption. In the words of sociologist W.I. Thomas, "If men define situations as real they are real in their consequences" (37).

Statistics on total exposure shown in this report may actually underestimate true exposure, for two reasons. First, they do not include exposure to nonblood relatives or friends, unless the respondent grew up with them. Although the impact of such relationships may be less than that of the family relationships described, they still can influence environmental exposure. Second, there is a tendency among families of alcoholics to deny that there is a problem until it becomes completely

unmanageable (31). Thus, some respondents who were exposed to less severe alcohol problems in a family member may have failed to report this exposure because they had not yet recognized alcohol as the source of family difficulties.

Significant age variations were found in exposure to alcoholism in the family—especially while growing up and, to a lesser extent, among blood relatives. Several explanations for these age differentials are possible. First, there may have been actual increases in the prevalence of alcoholic-type drinking among the younger generations, resulting in greater exposure. A recent study showed an increase in alcohol dependence over a 17-year period (38) and increases in heavy drinking among men and women under 35 years of age (39). Second, this increase could be due to changes over the past several decades in the stage at which alcoholic or problem drinking is identified. It used to be that alcoholism was not labeled as such until it reached an advanced stage, when the alcoholic got “falling-down” drunk, drank in the morning, couldn’t go to work, and ended up on “skid row.” Today, alcoholism is often recognized in its earlier stages, when the alcoholic cannot control his or her drinking but has not yet exhibited the more classic symptoms of the disease (40). Thus, changes in the stage at which alcoholism is recognized could account for some of the increased reported prevalence among the younger generations. A third explanation could be selective recall of events. Persons 65 years of age and over may not remember their childhood as clearly as younger persons, and memories of alcoholic drinking may not come readily to mind, especially if it was not labeled as such at the time.

Women reported higher rates of exposure to an alcoholic relative than did men, a finding consistent with those of other studies (41). One possible explanation for the sex difference is that women may more readily than men label drinking as alcoholic (41). Although this hypothesis cannot be tested directly

with the NHIS–Alcohol, it is possible to examine differences between men and women in the way they define light, moderate, and heavy drinking, which would shed some light on this issue.

Socioeconomic differentials in exposure to alcoholism were most consistent among persons under 45 years of age. In this age group, less educated and lower income adults were more likely than better educated and higher income persons to report having had an alcoholic family member when growing up, through marriage, or through blood. In the older age groups, socioeconomic differences were not as clear or consistent.

Racial differences also were most consistent among persons under 45 years of age. In this age group, white persons were consistently more likely than black persons to report exposure to an alcoholic relative. Among older persons (45 years of age and over), significant racial differences were found for some of the types of exposure, but not all; and frequently it was the black adults who had the higher rates.

Although it is clear that sociodemographic differentials are not the same across age groups, reasons for this finding remain obscure. In light of the complexity and progressive nature of the disease of alcoholism and the significance of the sociodemographic environment for the development, identification, and treatment of alcoholism, it may be that alcoholism or problem drinking is more likely to develop among different groups of people at different times in their lives or more likely to be identified as a problem at different life stages. Further study of these issues is needed.

Overall, Hispanic persons were less likely than non-Hispanic persons to report exposure to an alcoholic family member (table 4). These findings appear to contradict those of studies that have shown alcoholism to be a major problem in the Hispanic community (42, 43). The lower prevalence of reported exposure to alcoholism among Hispanics may reflect cultural differences in either

the perception or the labeling of alcoholism: because heavy drinking, particularly among Hispanic males, may be considered acceptable (43), it may be less likely to be perceived or labeled as “alcoholic or problem drinking.”

Marital status variations in exposure to alcoholism shown in this report suggest that alcoholism may play an important role in marital dissolution and premature widowhood in the United States. Certainly, exposure is very high across all marital status groups, but it is highest among separated or divorced persons: nearly 56 percent of separated or divorced persons had been exposed to alcoholism in the family at some point in their lives, compared with 43 percent of married persons. Nearly two-thirds of separated or divorced women and nearly half of separated or divorced men under 45 years of age had been exposed to alcoholism in the family at some time.

Of the three types of exposure studied, marital status differentials are most striking for marriage to an alcoholic. Separated or divorced men and women were three times as likely as married men and women to say they had been married to an alcoholic or a problem drinker. Separated or divorced persons also had higher rates of exposure to alcoholism while growing up or in a blood relative, but the magnitude of the differences was not as great as for marriage to an alcoholic. The statistics in table 2 on marriage to an alcoholic also show that widows under 65 years of age were about twice as likely as married women to have been married to an alcoholic (26 percent versus 13 percent, respectively).

The marital status findings suggest that a significant number of divorces as well as considerable premature widowhood may be the result, at least in part, of the effects of alcoholism. Although many marriages survive the effects of alcoholism, either because the alcoholic seeks help or because the family accommodates to the alcoholic drinking, it is clear that a large number of marriages dissolve in the face of alcoholism.

## Conclusion

This report indicates that about 43 percent of U.S. adults have been exposed to alcoholism or problem drinking in the family. In some cases, this exposure is very direct, as when persons grow up in a family with an alcoholic, and frequently lasts a lifetime. Sometimes the exposure is to an alcoholic spouse and lasts for varying lengths of cohabitation. Finally, the exposure may be strictly by blood, with little or no social contact. In all three cases, however, the presence of alcoholism in a family member poses some risk, both for adverse social, psychological, and economic outcomes and for biological predisposition to the disease itself.

Of about 177 million adults 18 years of age and over in 1988, about 76 million were exposed to alcoholism in their family in some way. It should be noted that this report does not include exposure to alcoholism in nonbiological extended family members, such as in-laws or stepchildren. Nor does it address issues of exposure in nonfamily relationships such as in the workplace (employee, coworker, supervisor) or among friends who may play a significant role in a person's life. Finally, because the study was limited to adults, estimates of the numbers of people exposed to alcoholism do not include children who lived with or were biologically related to an alcoholic family member. It is clear from this study that statistics on numbers of alcoholics in this country—10.5 million—greatly underestimate the total number of people affected by the disease of alcoholism.

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Table 1. Percent of adults who lived with an alcoholic or a problem drinker at some time during their first 18 years of life, by selected characteristics: United States, 1988

Sex and characteristic	All ages		18-44 years		45-64 years		65 years and over	
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error
<b>Both sexes</b>								
Total <sup>1</sup> . . . . .	18.1	0.25	21.4	0.33	16.5	0.42	8.5	0.37
<b>Education:</b>								
Less than 12 years . . . . .	18.3	0.46	27.2	0.89	17.6	0.86	9.0	0.53
12 years . . . . .	19.5	0.40	23.2	0.52	16.8	0.69	8.3	0.61
More than 12 years . . . . .	16.5	0.32	18.1	0.42	15.5	0.66	7.6	0.70
<b>Income:</b>								
Less than \$10,000 . . . . .	19.6	0.55	26.0	0.98	17.4	1.15	9.2	0.64
\$10,000-\$24,999 . . . . .	19.1	0.43	24.2	0.61	16.7	0.81	8.5	0.55
\$25,000-\$39,999 . . . . .	18.6	0.47	20.8	0.60	16.2	0.79	10.1	1.10
\$40,000 or more . . . . .	18.0	0.45	18.5	0.61	18.3	0.81	9.7	1.45
<b>Race:</b>								
White . . . . .	18.5	0.27	22.0	0.36	17.3	0.46	8.6	0.40
Black . . . . .	15.6	0.54	18.5	0.75	11.8	1.02	7.4	1.13
Other . . . . .	15.0	1.65	17.0	2.20	10.9	1.92	7.7	3.00
<b>Hispanic origin:</b>								
Hispanic . . . . .	17.4	0.86	19.7	1.11	13.7	1.70	4.9	1.46
Non-Hispanic . . . . .	18.1	0.25	21.5	0.34	16.7	0.43	8.6	0.38
<b>Marital status:</b>								
Married . . . . .	19.0	0.31	22.7	0.42	16.8	0.50	9.0	0.53
Widowed . . . . .	9.5	0.50	25.9	4.15	12.7	1.16	7.8	0.53
Separated or divorced . . . . .	22.0	0.63	26.3	0.89	17.7	0.97	10.2	1.28
Never married . . . . .	16.3	0.49	16.8	0.53	14.0	1.41	6.0	1.16
<b>Male</b>								
Total <sup>1</sup> . . . . .	16.5	0.31	18.6	0.46	15.7	0.56	9.0	0.57
<b>Education:</b>								
Less than 12 years . . . . .	17.3	0.70	23.4	1.29	17.4	1.23	9.2	0.86
12 years . . . . .	17.1	0.53	19.6	0.72	14.8	0.98	8.3	1.03
More than 12 years . . . . .	15.5	0.46	16.3	0.57	15.4	0.89	9.1	1.15
<b>Income:</b>								
Less than \$10,000 . . . . .	17.9	1.00	20.6	1.54	18.9	2.13	10.3	1.31
\$10,000-\$24,999 . . . . .	17.4	0.59	21.4	0.86	14.9	1.14	9.2	0.88
\$25,000-\$39,999 . . . . .	17.0	0.64	18.7	0.82	15.3	1.16	9.2	1.51
\$40,000 or more . . . . .	16.1	0.63	16.0	0.89	17.3	1.10	11.4	2.17
<b>Race:</b>								
White . . . . .	16.9	0.34	19.2	0.48	16.1	0.62	9.1	0.61
Black . . . . .	13.9	0.90	15.1	1.18	13.3	1.72	8.5	2.04
Other . . . . .	14.2	2.88	15.9	3.81	10.1	3.04	6.1	4.11
<b>Hispanic origin:</b>								
Hispanic . . . . .	16.1	1.29	18.8	1.66	10.4	2.37	4.4	2.21
Non-Hispanic . . . . .	16.5	0.32	18.5	0.47	16.0	0.59	9.1	0.58
<b>Marital status:</b>								
Married . . . . .	17.0	0.39	20.3	0.59	15.8	0.64	9.0	0.66
Widowed . . . . .	9.4	1.18	19.0	9.90	9.9	2.90	8.8	1.27
Separated or divorced . . . . .	19.0	0.94	21.4	1.35	16.9	1.58	11.0	2.36
Never married . . . . .	14.7	0.72	14.9	0.77	14.3	1.98	8.2	2.42
<b>Female</b>								
Total <sup>1</sup> . . . . .	19.5	0.33	24.1	0.43	17.3	0.56	8.2	0.44
<b>Education:</b>								
Less than 12 years . . . . .	19.2	0.61	30.9	1.11	17.8	1.17	8.9	0.65
12 years . . . . .	21.4	0.53	26.2	0.68	18.3	0.91	8.3	0.74
More than 12 years . . . . .	17.6	0.44	19.9	0.57	15.6	0.92	6.4	0.84
<b>Income:</b>								
Less than \$10,000 . . . . .	20.6	0.67	29.9	1.12	16.5	1.32	8.7	0.74
\$10,000-\$24,999 . . . . .	20.5	0.58	26.8	0.78	18.1	1.04	7.9	0.66
\$25,000-\$39,999 . . . . .	20.3	0.65	23.0	0.83	17.1	1.20	10.9	1.62
\$40,000 or more . . . . .	19.9	0.69	21.1	0.86	19.6	1.20	7.6	1.87
<b>Race:</b>								
White . . . . .	20.0	0.35	24.7	0.48	18.4	0.62	8.3	0.47
Black . . . . .	16.9	0.72	21.4	1.00	10.6	1.25	6.6	1.31
Other . . . . .	15.8	1.55	18.3	1.99	11.4	2.45	9.1	3.57
<b>Hispanic origin:</b>								
Hispanic . . . . .	18.6	1.11	20.6	1.33	16.5	2.63	5.3	1.94
Non-Hispanic . . . . .	19.5	0.34	24.4	0.45	17.4	0.59	8.3	0.45
<b>Marital status:</b>								
Married . . . . .	20.8	0.44	24.9	0.57	17.9	0.70	8.9	0.77
Widowed . . . . .	9.5	0.54	27.4	4.58	13.2	1.24	7.6	0.58
Separated or divorced . . . . .	23.8	0.78	29.2	1.09	18.2	1.22	9.8	1.43
Never married . . . . .	18.2	0.69	19.3	0.75	13.7	1.95	4.7	1.21

<sup>1</sup>Total includes unknown sociodemographic characteristics.

Table 2. Percent of adults who have ever been married to an alcoholic or a problem drinker, by selected characteristics: United States, 1988

Sex and characteristic	All ages		18-44 years		45-64 years		65 years and over	
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error
Both sexes								
Total <sup>1</sup>	9.2	0.16	8.6	0.20	11.1	0.33	8.2	0.31
Education:								
Less than 12 years	11.1	0.35	12.1	0.64	11.8	0.69	9.3	0.49
12 years	9.9	0.28	9.6	0.33	11.9	0.57	7.4	0.53
More than 12 years	7.4	0.21	6.8	0.25	9.5	0.51	7.3	0.59
Income:								
Less than \$10,000	14.3	0.55	12.7	0.80	21.3	1.19	13.1	0.71
\$10,000-\$24,999	10.4	0.30	10.7	0.41	13.2	0.68	6.9	0.47
\$25,000-\$39,999	8.3	0.33	7.9	0.39	9.8	0.64	7.3	0.90
\$40,000 or more	7.0	0.29	6.2	0.34	8.4	0.58	8.1	1.25
Race:								
White	9.3	0.18	9.1	0.23	10.8	0.36	7.8	0.33
Black	8.8	0.41	6.4	0.42	13.5	1.00	12.7	1.13
Other	6.9	0.75	5.8	0.74	10.2	2.11	8.1	2.75
Hispanic origin:								
Hispanic	8.0	0.54	7.1	0.55	11.5	1.51	6.6	1.60
Non-Hispanic	9.3	0.16	8.8	0.21	11.1	0.34	8.3	0.32
Marital status:								
Married	7.6	0.18	8.2	0.26	7.8	0.34	4.9	0.36
Widowed	14.9	0.57	22.1	3.57	22.7	1.41	12.1	0.59
Separated or divorced	27.6	0.66	26.8	0.85	29.6	1.28	26.1	1.75
Never married	3.5	0.23	3.6	0.24	3.9	0.75	0.6	0.35
Male								
Total <sup>1</sup>	3.6	0.15	3.4	0.19	4.0	0.31	3.2	0.32
Education:								
Less than 12 years	3.7	0.33	5.0	0.65	3.3	0.54	2.3	0.39
12 years	3.5	0.24	3.4	0.30	4.2	0.54	2.7	0.54
More than 12 years	3.5	0.21	3.0	0.24	4.3	0.49	5.4	0.77
Income:								
Less than \$10,000	4.4	0.47	3.3	0.54	8.3	1.64	4.7	0.82
\$10,000-\$24,999	4.2	0.30	4.8	0.42	4.7	0.66	2.2	0.41
\$25,000-\$39,999	3.4	0.27	3.3	0.33	3.5	0.59	4.0	0.95
\$40,000 or more	3.0	0.27	2.4	0.34	3.5	0.49	5.9	1.43
Race:								
White	3.6	0.16	3.6	0.21	4.0	0.34	3.0	0.32
Black	3.6	0.43	2.9	0.52	4.8	1.05	5.0	1.15
Other	2.0	0.69	1.8	0.73	1.1	0.77	6.6	4.58
Hispanic origin:								
Hispanic	2.2	0.47	1.9	0.48	3.7	1.42	0.6	0.65
Non-Hispanic	3.7	0.16	3.6	0.20	4.1	0.32	3.3	0.32
Marital status:								
Married	3.0	0.17	3.2	0.24	2.9	0.31	2.4	0.34
Widowed	6.6	1.00	5.6	3.76	7.6	2.49	6.3	1.09
Separated or divorced	10.8	0.81	9.6	0.95	13.7	1.68	8.7	1.93
Never married	2.6	0.27	2.6	0.29	4.1	0.99	0.5	0.49
Female								
Total <sup>1</sup>	14.3	0.26	13.6	0.33	17.5	0.56	11.8	0.50
Education:								
Less than 12 years	17.5	0.57	19.1	1.04	19.7	1.18	14.3	0.79
12 years	15.0	0.42	15.0	0.52	17.5	0.89	10.3	0.80
More than 12 years	11.5	0.37	10.6	0.42	15.6	0.94	9.0	0.85
Income:								
Less than \$10,000	20.2	0.73	19.5	1.16	29.1	1.59	16.7	0.90
\$10,000-\$24,999	15.9	0.47	16.3	0.66	19.6	1.05	10.7	0.81
\$25,000-\$39,999	13.4	0.58	12.8	0.67	16.0	1.17	10.3	1.49
\$40,000 or more	11.4	0.51	10.1	0.59	14.1	1.12	10.8	2.04
Race:								
White	14.5	0.28	14.4	0.37	17.2	0.59	11.2	0.53
Black	13.0	0.62	9.2	0.62	20.4	1.62	17.9	1.73
Other	11.6	1.33	10.1	1.40	16.1	3.22	9.4	3.43
Hispanic origin:								
Hispanic	13.0	0.86	11.7	0.95	18.3	2.54	10.7	2.63
Non-Hispanic	14.4	0.26	13.8	0.34	17.5	0.56	11.8	0.51
Marital status:								
Married	12.1	0.32	12.6	0.41	12.9	0.63	8.0	0.70
Widowed	16.5	0.64	25.7	4.19	25.7	1.59	13.3	0.67
Separated or divorced	37.6	0.88	37.2	1.16	39.0	1.65	36.0	2.41
Never married	4.6	0.36	4.9	0.40	3.8	1.14	0.7	0.47

<sup>1</sup>Total includes unknown sociodemographic characteristics.

Table 3. Percent of adults who have a blood relative who was ever an alcoholic or a problem drinker, by selected characteristics: United States, 1988

Sex and characteristic	All ages		18-44 years		45-64 years		65 years and over	
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error
<b>Both sexes</b>								
Total <sup>1</sup> . . . . .	37.9	0.36	41.9	0.44	36.5	0.57	26.0	0.58
<b>Education:</b>								
Less than 12 years . . . . .	35.2	0.65	44.2	1.12	34.0	1.07	26.4	0.79
12 years . . . . .	38.9	0.50	42.5	0.62	37.7	0.86	25.2	0.94
More than 12 years . . . . .	38.5	0.46	40.7	0.55	37.1	0.94	26.3	1.20
<b>Income:</b>								
Less than \$10,000 . . . . .	32.7	0.72	45.1	1.10	39.3	1.55	26.8	1.01
\$10,000-\$24,999 . . . . .	36.7	0.57	44.4	0.72	36.2	1.05	26.5	0.85
\$25,000-\$39,999 . . . . .	39.5	0.61	41.7	0.76	37.2	1.06	30.8	1.67
\$40,000 or more . . . . .	39.5	0.61	40.8	0.81	39.3	1.03	27.4	1.93
<b>Race:</b>								
White . . . . .	32.6	0.38	43.2	0.47	37.1	0.63	25.8	0.61
Black . . . . .	35.8	0.86	37.8	1.14	33.7	1.57	29.1	1.69
Other . . . . .	25.8	1.80	25.6	2.43	27.9	3.19	20.8	4.35
<b>Hispanic origin:</b>								
Hispanic . . . . .	32.2	1.19	35.7	1.43	25.7	2.29	16.6	3.05
Non-Hispanic . . . . .	38.4	0.36	42.5	0.44	37.2	0.60	26.2	0.59
<b>Marital status:</b>								
Married . . . . .	39.1	0.43	43.5	0.52	36.7	0.68	27.2	0.84
Widowed . . . . .	26.5	0.75	47.1	4.40	33.4	1.61	23.6	0.80
Separated or divorced . . . . .	42.3	0.76	46.7	0.99	37.8	1.35	30.6	1.86
Never married . . . . .	36.2	0.70	36.9	0.75	34.1	2.01	21.8	2.06
<b>Male</b>								
Total <sup>1</sup> . . . . .	36.5	0.45	39.5	0.60	34.7	0.79	27.1	0.88
<b>Education:</b>								
Less than 12 years . . . . .	35.7	0.99	41.6	1.60	34.7	1.61	28.8	1.31
12 years . . . . .	37.0	0.70	39.9	0.91	34.9	1.32	25.3	1.61
More than 12 years . . . . .	36.6	0.61	38.5	0.77	34.8	1.21	25.7	1.73
<b>Income:</b>								
Less than \$10,000 . . . . .	38.1	1.15	41.6	1.68	39.3	2.79	28.1	1.91
\$10,000-\$24,999 . . . . .	37.3	0.74	41.0	1.01	35.2	1.52	28.9	1.29
\$25,000-\$39,999 . . . . .	37.8	0.81	40.0	1.05	34.9	1.51	29.9	2.45
\$40,000 or more . . . . .	37.1	0.83	38.8	1.14	36.1	1.36	25.3	2.81
<b>Race:</b>								
White . . . . .	37.3	0.48	40.9	0.63	34.9	0.85	27.0	0.91
Black . . . . .	34.7	1.30	34.6	1.70	37.3	2.39	29.6	2.88
Other . . . . .	21.6	2.87	22.4	3.84	18.5	4.02	21.4	5.87
<b>Hispanic origin:</b>								
Hispanic . . . . .	30.6	1.76	34.9	2.25	21.2	3.02	12.3	3.80
Non-Hispanic . . . . .	36.9	0.45	39.9	0.60	35.6	0.82	27.5	0.89
<b>Marital status:</b>								
Married . . . . .	37.3	0.55	41.8	0.74	34.9	0.89	27.6	1.03
Widowed . . . . .	25.6	1.65	25.2	10.15	26.3	4.03	25.4	1.75
Separated or divorced . . . . .	40.3	1.21	44.1	1.65	36.6	2.24	28.9	3.17
Never married . . . . .	34.0	0.98	34.4	1.03	33.1	2.68	21.0	3.37
<b>Female</b>								
Total <sup>1</sup> . . . . .	39.2	0.42	44.2	0.54	38.1	0.76	25.2	0.69
<b>Education:</b>								
Less than 12 years . . . . .	34.9	0.75	46.8	1.33	33.4	1.39	24.6	0.96
12 years . . . . .	40.5	0.65	44.8	0.82	39.8	1.15	25.2	1.09
More than 12 years . . . . .	40.6	0.60	42.9	0.71	39.9	1.33	26.7	1.49
<b>Income:</b>								
Less than \$10,000 . . . . .	39.1	0.78	47.8	1.18	39.4	1.84	26.2	1.13
\$10,000-\$24,999 . . . . .	39.9	0.73	47.7	0.90	36.9	1.38	24.5	1.08
\$25,000-\$39,999 . . . . .	41.3	0.81	43.5	1.01	39.5	1.52	31.7	2.34
\$40,000 or more . . . . .	42.2	0.84	42.8	1.03	42.9	1.57	29.9	2.84
<b>Race:</b>								
White . . . . .	39.9	0.46	45.4	0.59	39.2	0.83	24.9	0.74
Black . . . . .	36.6	1.00	40.5	1.31	30.9	1.79	28.8	2.05
Other . . . . .	29.8	1.99	29.2	2.50	34.0	4.31	20.3	6.35
<b>Hispanic origin:</b>								
Hispanic . . . . .	33.6	1.35	36.4	1.60	29.6	2.94	19.6	4.14
Non-Hispanic . . . . .	39.6	0.44	44.9	0.56	38.7	0.80	25.3	0.70
<b>Marital status:</b>								
Married . . . . .	40.8	0.54	45.0	0.68	38.7	0.92	26.7	1.21
Widowed . . . . .	26.7	0.85	52.0	4.86	34.8	1.79	23.2	0.92
Separated or divorced . . . . .	43.5	0.94	48.3	1.23	38.6	1.63	31.5	2.35
Never married . . . . .	38.8	0.91	40.1	0.98	35.3	2.87	22.2	2.64

Total includes unknown sociodemographic characteristics.

Table 4. Percent of adults who lived with during their first 18 years, were ever married to, or had a blood relative who was an alcoholic or problem drinker, by selected characteristics: United States, 1988

Sex and characteristic	All ages		18-44 years		45-64 years		65 years and over	
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error
<b>Both sexes</b>								
Total <sup>1</sup>	42.8	0.38	46.1	0.46	42.3	0.60	31.4	0.63
Education:								
Less than 12 years	41.2	0.69	49.6	1.12	40.2	1.13	32.6	0.85
12 years	43.8	0.53	47.0	0.65	43.7	0.91	29.7	0.99
More than 12 years	42.7	0.48	44.4	0.58	42.3	0.96	31.5	1.21
Income:								
Less than \$10,000	46.1	0.77	51.0	1.24	49.6	1.45	35.1	1.15
\$10,000-\$24,999	44.2	0.61	49.7	0.77	43.0	1.12	31.4	0.90
\$25,000-\$39,999	43.8	0.63	45.5	0.79	42.4	1.08	35.5	1.76
\$40,000 or more	43.3	0.64	44.1	0.83	43.7	1.07	32.1	2.03
Race:								
White	43.5	0.40	47.6	0.48	42.7	0.66	31.0	0.66
Black	40.8	0.88	41.4	1.15	41.1	1.60	36.9	1.86
Other	29.4	1.89	28.8	2.48	32.7	3.36	25.6	4.53
Hispanic origin:								
Hispanic	36.3	1.23	39.3	1.46	31.3	2.35	20.5	3.20
Non-Hispanic	43.3	0.38	46.8	0.46	43.0	0.62	31.7	0.64
Marital status:								
Married	43.0	0.46	47.4	0.54	40.9	0.72	30.5	0.88
Widowed	35.5	0.83	57.8	4.36	45.5	1.78	31.5	0.88
Separated or divorced	55.5	0.75	58.7	1.03	52.1	1.46	47.4	2.02
Never married	38.5	0.70	39.3	0.75	36.5	2.04	22.4	2.09
<b>Male</b>								
Total <sup>1</sup>	38.9	0.46	41.7	0.60	37.5	0.81	29.8	0.89
Education:								
Less than 12 years	38.2	0.99	44.5	1.59	37.0	1.68	30.9	1.32
12 years	39.3	0.72	42.0	0.93	37.8	1.35	27.6	1.64
More than 12 years	39.0	0.63	40.7	0.79	37.6	1.25	29.9	1.75
Income:								
Less than \$10,000	41.2	1.16	44.4	1.73	43.7	2.67	31.2	1.95
\$10,000-\$24,999	40.3	0.77	44.5	1.04	38.1	1.53	31.0	1.31
\$25,000-\$39,999	40.0	0.82	41.9	1.06	37.6	1.55	32.8	2.54
\$40,000 or more	39.1	0.84	40.1	1.16	38.9	1.38	30.8	2.91
Race:								
White	39.7	0.49	43.2	0.63	37.7	0.88	29.6	0.93
Black	37.0	1.33	36.6	1.69	39.8	2.44	33.0	2.96
Other	23.5	2.87	24.4	3.80	19.0	4.04	25.9	6.79
Hispanic origin:								
Hispanic	32.4	1.76	36.6	2.24	23.6	3.13	12.9	3.81
Non-Hispanic	39.4	0.46	42.1	0.61	38.4	0.83	30.3	0.91
Marital status:								
Married	39.5	0.56	43.8	0.74	37.3	0.93	29.8	1.05
Widowed	30.2	1.76	30.6	10.43	30.1	4.13	30.2	1.92
Separated or divorced	45.8	1.25	49.4	1.69	42.2	2.33	34.9	3.39
Never married	35.9	0.97	36.3	1.01	35.6	2.79	21.4	3.40
<b>Female</b>								
Total <sup>1</sup>	46.2	0.46	50.4	0.56	46.7	0.79	32.6	0.77
Education:								
Less than 12 years	43.8	0.84	54.7	1.36	43.1	1.49	33.8	1.09
12 years	47.4	0.67	51.4	0.83	48.0	1.16	30.9	1.17
More than 12 years	46.5	0.62	48.1	0.73	47.9	1.34	32.9	1.54
Income:								
Less than \$10,000	49.0	0.82	55.8	1.27	53.2	1.77	36.8	1.28
\$10,000-\$24,999	47.6	0.78	54.7	0.94	46.8	1.47	31.7	1.22
\$25,000-\$39,999	47.6	0.83	49.2	1.04	47.2	1.53	37.9	2.50
\$40,000 or more	47.8	0.87	48.3	1.06	49.3	1.59	33.8	2.92
Race:								
White	47.0	0.50	51.9	0.61	47.4	0.85	32.0	0.82
Black	43.8	1.06	45.3	1.34	42.1	1.99	39.6	2.35
Other	35.2	2.31	33.8	2.83	41.6	4.55	25.3	6.51
Hispanic origin:								
Hispanic	39.6	1.43	41.6	1.67	38.0	3.10	25.8	4.30
Non-Hispanic	46.7	0.47	51.2	0.58	47.2	0.82	32.8	0.78
Marital status:								
Married	46.5	0.58	50.6	0.69	44.7	0.97	31.4	1.28
Widowed	36.6	0.92	63.9	4.68	48.5	1.89	31.8	1.00
Separated or divorced	61.3	0.90	64.3	1.19	58.1	1.67	54.5	2.50
Never married	41.7	0.91	43.2	0.98	37.6	2.84	22.9	2.67

<sup>1</sup>Total includes unknown sociodemographic characteristics.



## Technical Notes

The estimates presented in this report are based on data from 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 interviewed by personnel of the U.S. Bureau of the Census. Interviewers obtain information about the health and other characteristics of each member of the households included in the NHIS sample.

The NHIS consists of two parts: (a) a basic health and demographic questionnaire that remains almost the same from year to year and is completed for each household member and (b) special topic questionnaires that vary from year to year and usually are asked of just one person in each family. In 1988, the special topics included knowledge and attitudes about acquired immunodeficiency syndrome (AIDS), medical device implants, occupational health, alcohol, and child health. Data tapes from these surveys can be linked for investigation of cross cutting research issues.

The total sample interviewed for 1988 for the basic health questionnaire consisted of 47,485 households containing 122,310 individuals. The total response rate was about 95 percent, with proxy responses accepted for household members not home at the time of interview. For the National Health Interview Survey on Alcohol (NHIS-Alcohol), one adult per family 18 years of age or over was selected for interview, and self-response was required for all items. A total of 43,809 alcohol questionnaires were completed, representing 90 percent of respondents identified as eligible at the time of the household interview and an overall response rate of 85.5 percent (the product of the response rate for the basic questionnaire and the response rate for the special topic questionnaire).

The basic sampling unit for the NHIS is the household, and the response rate for the basic health and demographic section of the NHIS is based on number of households. A household may contain multiple families (persons related by blood, marriage, or adoption); in 1988, 97.8 percent of responding households contained only one family. In the basic NHIS, information was collected on all persons in each family residing in the household. For the NHIS-Alcohol (as with most NHIS special topic questionnaires), one sample person was selected from each family. For the purposes of calculating a response rate for the NHIS-Alcohol, the total number of families in the NHIS sample was estimated. For noninterviewed households, the number of families was assumed to be one. However, for households in which multiple families were identified, the total number of families was included in the denominator. Because the response rate for the basic NHIS is based on number of households, the denominator for calculating the response rate for the NHIS-Alcohol questionnaire (51,223) is slightly higher than that used for calculating the response rate for the basic health questionnaire (50,061). Item nonresponse was 0.9–2.4 percent for the questions discussed in this report.

The NHIS-Alcohol questionnaire was administered face to face, with telephone followup as needed. One section of the questionnaire, containing questions on the social and behavioral consequences of alcohol use, was self-administered because of its sensitive nature. Information on that section will be included in a future report.

Because the estimates shown in this report are based on a sample, they are subject to sampling error. The standard error is a measure of the sampling error. The standard errors shown in tables 1–4 of this report were calculated using SUDAAN (SURvey DATA ANalysis), developed by the Research Triangle Institute for analysis of complex

sample surveys. The procedure used was DESCRIPT, and the design was UNEQWOR (without replacement sampling with unequal probabilities of selection at the first stage).

All differences cited in this report are statistically significant at the 0.05 level. A *t*-test with a critical value of 1.96 was used to test all comparisons that are discussed. 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.

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**Suggested citation**

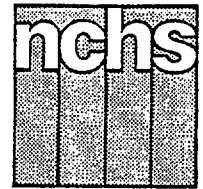
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# Advance Data



From Vital and Health Statistics of the National Center for Health Statistics

## AIDS Knowledge and Attitudes of Black Americans: United States, 1990

### Provisional Data From the National Health Interview Survey

by Ann M. Hardy, Dr.P.H., and Ann E. Biddlecom, M.A., Division of Health Interview Statistics

#### Introduction

This report is one of two special reports examining awareness of acquired immunodeficiency syndrome (AIDS) and the human immunodeficiency virus (HIV) among racial and ethnic minority groups of the U.S. population. Based on data collected in the 1990 National Health Interview Survey (NHIS), this report describes various aspects of AIDS-related knowledge and HIV antibody testing experience for non-Hispanic black adults 18 years of age and over. It presents differentials by age, sex, and education for the non-Hispanic black population residing in the United States and compares selected measures with the non-Hispanic white population. The second of these special reports (*Advanced Data From Vital and Health Statistics* No. 207) focuses on similar information for Hispanic adults.

The National Center for Health Statistics (NCHS) has included

questions about AIDS in the NHIS since 1987. Data concerning the adult population's knowledge about AIDS and transmission of the human immunodeficiency virus (HIV) are collected to assist in planning and monitoring AIDS educational programs. Since the initiation of the NHIS AIDS survey, its scope has widened to include more questions on HIV testing and blood donation experience and a general risk behavior question similar to that asked of potential blood donors by the American Red Cross. Detailed information on the NHIS AIDS survey sample is contained in the Technical notes at the end of this report.

The first AIDS Knowledge and Attitudes Survey was in the field from August–December 1987. Provisional results of that survey were published monthly in *Advanced Data From Vital and Health Statistics* (Nos. 146, 148, 150, 151, and 153). In 1988 the NHIS AIDS questionnaire was revised and

this version of the survey entered the field in May 1988. Provisional findings from the 1988 survey were published periodically (*Advance Data From Vital and Health Statistics* Nos. 160, 161, 163, 164, 167, and 175). Although data on black adults has been included in all reports, two special reports focused in detail on minority populations and were published using 1988 data (*Advance Data From Vital and Health Statistics* Nos. 165 and 166).

The 1988 AIDS questionnaire was used without modification throughout 1989 and results were published on a quarterly basis (*Advanced Data From Vital and Health Statistics* Nos. 176, 179, 183, and 186). For 1990 the AIDS questionnaire was revised again, with added emphasis on HIV testing procedures and on the distinction between HIV testing in connection with blood donation and testing for other reasons. Provisional findings have been published quarterly in



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*Advance Data From Vital and Health Statistics* Nos. 193, 195, 198, and 204.

The NHIS AIDS questionnaires have been developed by NCHS and an Interagency Task Force created by the Public Health Service Data Policy Committee. The Task Force includes representatives from the Centers for Disease Control; Office of the Assistant Secretary for Health; National AIDS Program Office; National Institutes of Health; Alcohol, Drug Abuse and Mental Health Administration; Food and Drug Administration; and Health Resources and Services Administration.

This report presents provisional data for 1990 for most items included in the AIDS questionnaire. Tables 1 and 2, for non-Hispanic black and white adults respectively, show percent distributions by response categories according to age, sex, and education. In most cases, the actual questions asked are reproduced verbatim in the tables along with the response categories. A few questions and responses have been rephrased or combined for more concise presentation of results. 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.

The population subgroups highlighted in this report reflect the respondents' characterizations of race and ethnic origin. For each member of a household, the household respondent for the main NHIS interview was asked "What is the number of the group [on this card] that represents [name of sample person]'s race?" The choices on the response card were Aleut, Eskimo, or American Indian; Asian or Pacific Islander; black; white; and another group not listed. The household respondent was then asked "Are any of these groups [name of sample person]'s national origin or ancestry?"

The choices on the list were Puerto Rican, Cuban, Mexican/Mexicano, Mexican American, Chicano, other Latin American, and other Spanish. Only those persons classified as black non-Hispanic or white non-Hispanic were included in this analysis.

The population subgroups used in this report differ from those highlighted in the 1988 report on black Americans. That report did not take into account ethnicity; thus Hispanic individuals could have been included in either the black or white groups. In addition, some of the AIDS survey questions were revised in actual wording or in context and location between 1988 and 1990. For these reasons, comparisons between this report and the 1988 report must be made cautiously. The more dramatic changes across time will be noted in this report.

### Selected findings

Patterns of knowledge and attitudes about AIDS and HIV were similar within the non-Hispanic black population to those of the U.S. population as a whole, with the greatest levels of knowledge occurring among the young and the well-educated. There were exceptions, especially in the areas of knowledge of the HIV blood test and perceived risk of HIV transmission through casual contact with an infected individual. The following highlights describe various aspects of AIDS knowledge and attitudes from the NHIS data for 1990, focusing on differences within the non-Hispanic black population and differences between non-Hispanic black adults and non-Hispanic white adults. Unless otherwise noted, all differences cited in the text are statistically significant at the .05 level (see tables II and III for approximate standard errors of estimates).

*Sources of information and communication about AIDS and HIV*—During 1990, 88 percent of non-Hispanic black adults reported having received information about AIDS from any source in the month preceding the NHIS. Television was the most frequently cited source of

information about AIDS among non-Hispanic black adults (77 percent). Similar proportions were noted among non-Hispanic white adults.

Written sources of AIDS information were the next most frequently mentioned sources of AIDS information among non-Hispanic black adults: 45 percent read about AIDS in newspapers and 40 percent received information in magazines. Almost one-third (30 percent) of non-Hispanic black adults reported receiving information about AIDS on the radio, and, interestingly, non-Hispanic black men were much more likely to report the radio as a source of information about AIDS than non-Hispanic black women (34 percent compared with 27 percent).

Overall, some of the most noticeable differences in sources of AIDS information were by education level, especially for written sources of information (figure 1). For example, the proportion of non-Hispanic black individuals who had received information about AIDS in newspapers increased from 33 percent of those adults with less than 12 years of school to 56 percent of those adults with more than 12 years of school. A similar increase by education level was evident in the proportion who received AIDS information from magazines. There was no significant difference by level of education in the proportion of adults who reported having received information about AIDS via television. Similar educational differences noted among non-Hispanic black adults were also evident among non-Hispanic white adults.

Non-Hispanic black parents with children between the ages of 10 and 17 years were just as likely as non-Hispanic white parents to report that they had ever discussed AIDS with their children. A substantial difference existed between men and women regardless of race and ethnicity: 56 percent of non-Hispanic black men and 79 percent of women with children ages 10 to 17 had ever discussed AIDS with their children.

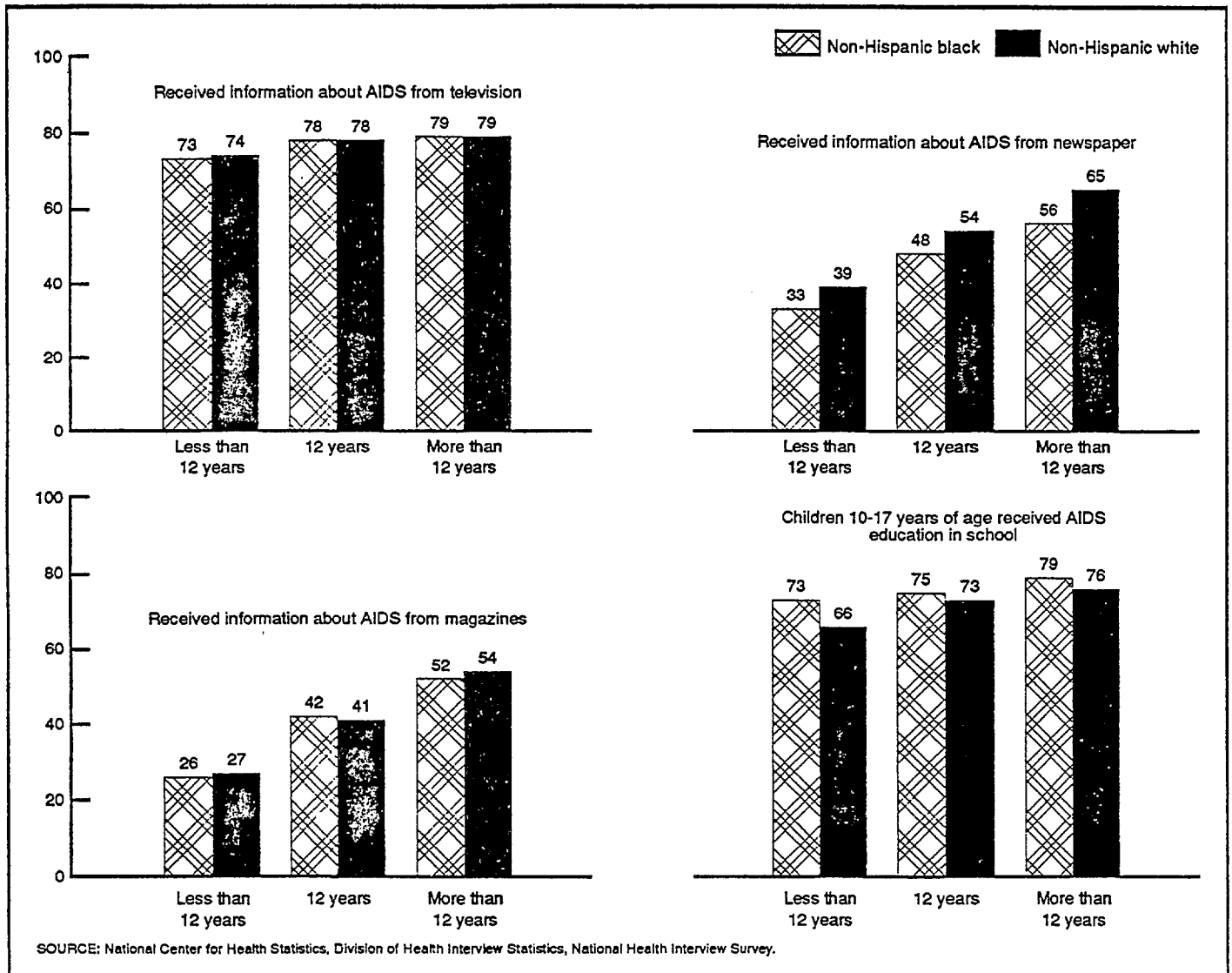


Figure 1. Provisional estimates of percent of non-Hispanic black and non-Hispanic white adults exposed to selected sources of AIDS information, by years of education: United States, 1990.

There was a similar gender difference among non-Hispanic white parents (58 percent compared with 80 percent). Of non-Hispanic black adults with children ages 10 to 17 years, 75 percent stated that their children had received AIDS education in school. Approximately the same proportion (74 percent) of non-Hispanic white adults with children ages 10 to 17 years also stated that their children received AIDS education in school.

When asked if they have ever personally known anyone with AIDS or the AIDS virus, 18 percent of non-Hispanic black adults responded that they had. Over one-quarter (27 percent) of non-Hispanic black persons with more than 12 years of education reported knowing someone

with AIDS or the AIDS virus, compared with 11 percent of those persons with less than 12 years of education. Of non-Hispanic black adults 30 to 49 years of age, 23 percent knew someone with AIDS compared with 16 percent of non-Hispanic black adults ages 18 to 29 years and 13 percent of non-Hispanic black adults 50 years of age and over. Non-Hispanic white individuals were less likely to have personally known someone with AIDS or the AIDS virus (15 percent).

*General AIDS knowledge* — In terms of self-assessed knowledge about AIDS, 16 percent of non-Hispanic black adults stated that they knew a lot about AIDS, 39 percent some, 27 percent a little, and 17 percent nothing. The

proportion of non-Hispanic black adults claiming to know a lot or some about AIDS increased with education, from 31 percent of those with less than 12 years of education to 75 percent of those with over 12 years of education. Young non-Hispanic black adults, ages 18 to 29 years, were much more likely to report knowing a lot or some about AIDS than their counterparts ages 50 years and over (67 percent compared with 29 percent). In comparison to non-Hispanic black adults, non-Hispanic white adults were more likely to feel that they knew a lot or some about AIDS (19 percent and 49 percent, respectively) and less likely to feel that they knew little or nothing (23 percent and 9 percent).

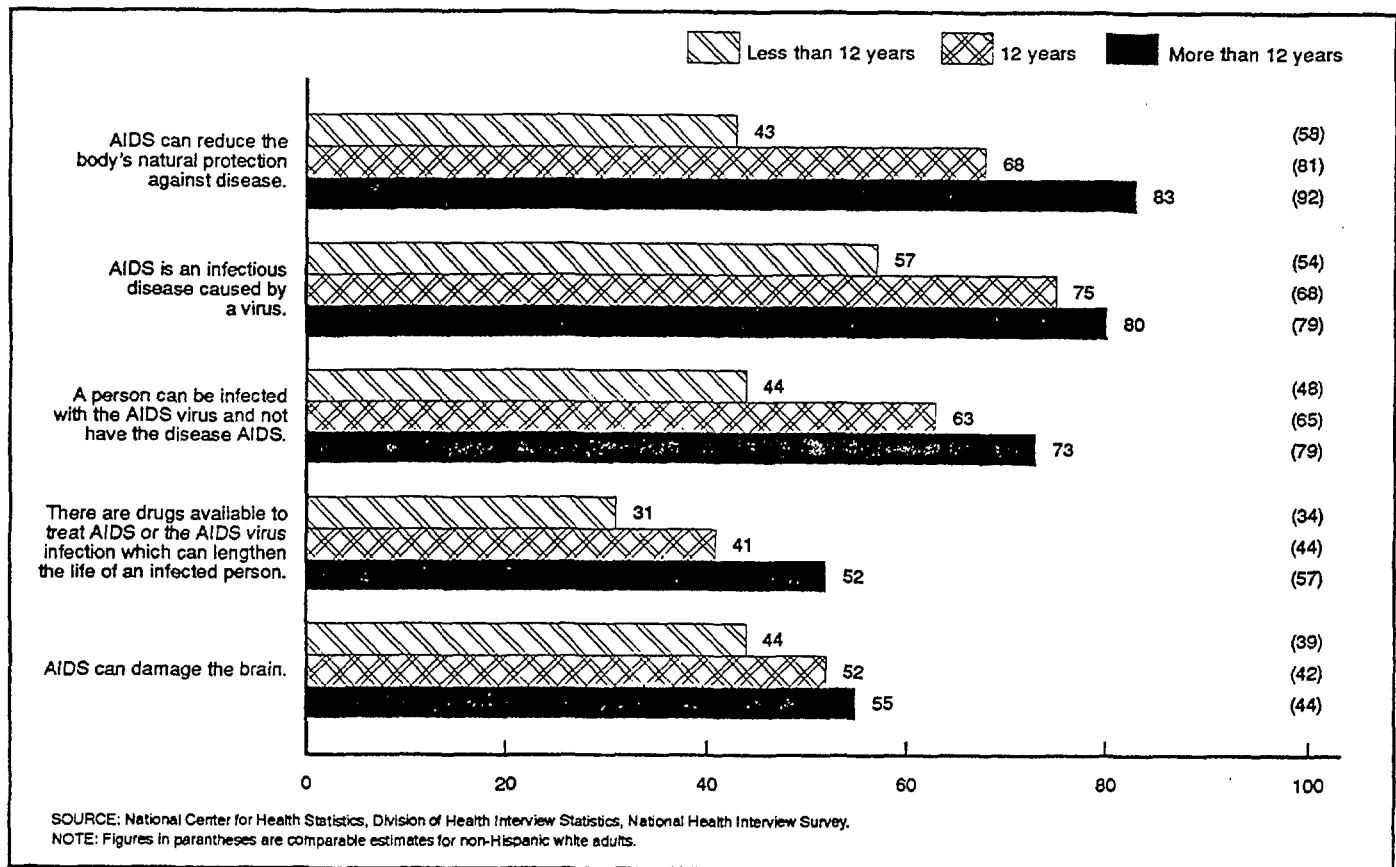


Figure 2. Provisional estimates of percent of non-Hispanic black adults who thought selected statements about AIDS definitely true, by years of education: United States, 1990.

The proportion of non-Hispanic black persons who correctly identified the major modes of AIDS transmission (sexual intercourse, perinatal contact, and shared needles for drug use) was relatively high for all sociodemographic groups, and non-Hispanic black and non-Hispanic white individuals were equally aware of the major modes of HIV transmission. For other facts about AIDS, education differentials were evident in both racial groups. Variations in general knowledge about AIDS also occurred by age with adults 50 years of age and over consistently less likely to identify correctly selected statements about AIDS and the AIDS virus as definitely true or false.

Figure 2 illustrates the differences in objective measures of general knowledge about AIDS by education level within the non-Hispanic black population (corresponding proportions for the non-Hispanic white population are in parentheses). In general, persons with less than 12 years of school were not

as knowledgeable about some of the basic facts about AIDS than were those persons with 12 or more years of school, regardless of race. For example, the proportion of non-Hispanic black adults who knew that AIDS can reduce the body's natural protection against disease varied from 43 percent of individuals with less than 12 years of education to 83 percent of those with more than 12 years of education. Furthermore, less than half (44 percent) of non-Hispanic black adults with under 12 years of education thought that a person can be infected with the AIDS virus and not have the disease AIDS compared with almost three-quarters (73 percent) of those adults with more than 12 years of education.

A new questionnaire item was added to the general AIDS knowledge section in the 1990 survey to ascertain responses to the statement that there are drugs available which can extend the life of an HIV-infected person. There was a positive association between the

proportion of non-Hispanic black adults answering this statement correctly and the education level of the respondent. As illustrated in figure 2, similar education patterns were found for non-Hispanic white adults (with respective percentages in parentheses).

*Misperceptions about HIV transmission*—The NHIS AIDS questionnaire asked respondents to estimate the risk of HIV transmission associated with several forms of casual contact with HIV-infected or potentially infected individuals, such as working near someone with AIDS or sharing eating utensils with an HIV-infected person. Of the five response options for the likelihood of transmission, both "very unlikely" and "definitely not possible" were interpreted as correct responses, even for forms of contact where our current understanding of the virus indicates that there is definitely no possibility of transmission. The decision to accept "very unlikely" as correct was based on the large

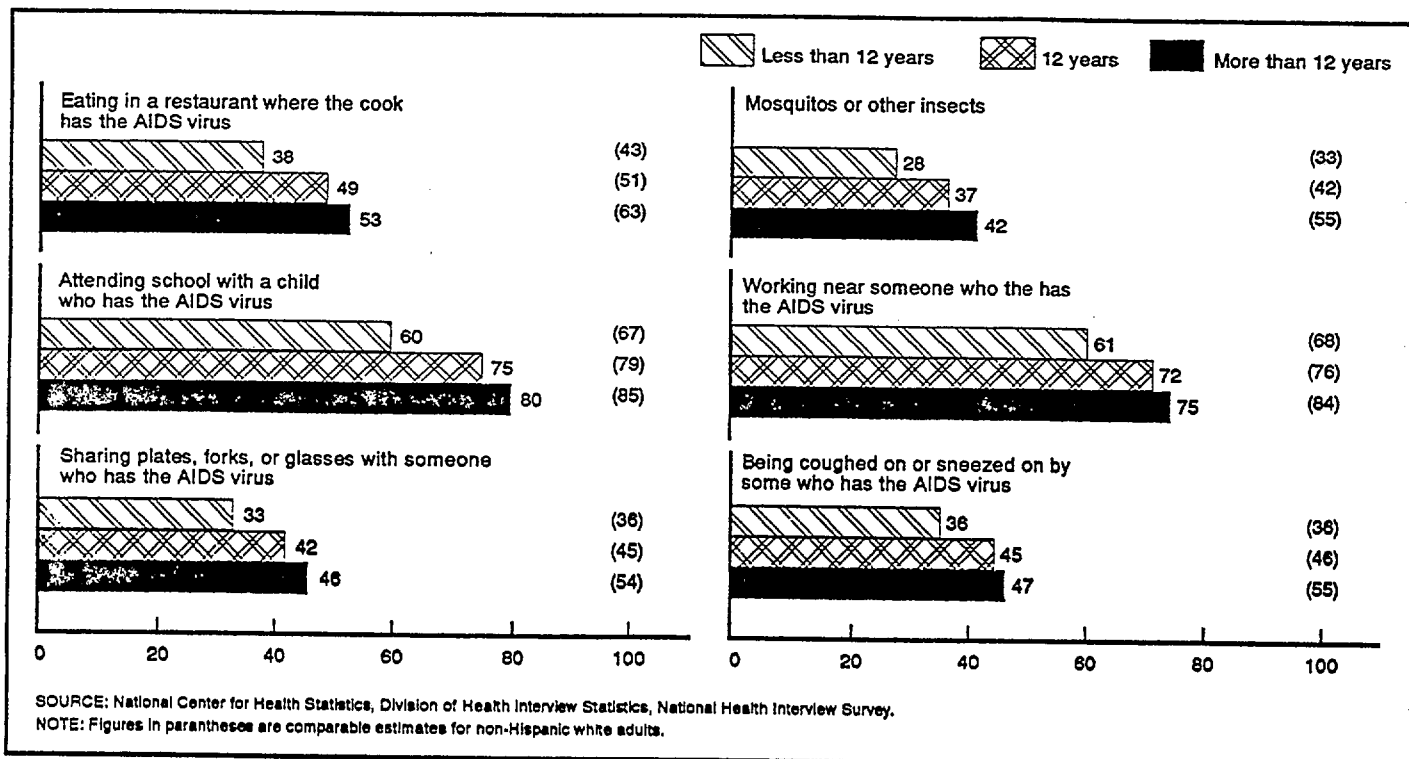


Figure 3. Provisional estimates of percent of non-Hispanic black adults who thought it very unlikely or definitely not possible to become infected with the AIDS virus in selected ways, by years of education: United States, 1990.

numbers of respondents who chose that option, seemingly unwilling to commit themselves to the concept of a zero probability.

Despite the generally high levels of understanding about the three major modes of transmission of AIDS, misperceptions about the likelihood of transmission through casual contact persisted, with particularly striking racial differences consistent across most questions in this section. Figure 3 shows the proportions of non-Hispanic black adults, by education level and race, who correctly identified the low or nonexistent risks associated with various forms of casual contact with HIV-infected persons. As the level of education rises, the proportion of adults with misperceptions about HIV transmission declines. However, racial differences remain even among the most educated. For example, 75 percent of non-Hispanic black adults with more than 12 years of education thought it very unlikely or definitely not possible to become infected with the AIDS virus from "working near someone with the AIDS virus" compared with 84

percent of non-Hispanic white adults with more than 12 years of education.

The forms of contact perceived as most threatening by both non-Hispanic black and white individuals were those that involved potential exchange of saliva or blood. Only 46 percent of non-Hispanic black adults with more than 12 years of education thought it very unlikely or definitely not possible to get AIDS or the AIDS virus from sharing plates, forks, or glasses with an infected individual; for non-Hispanic white adults, the comparable proportion was 54 percent. Less than half of either non-Hispanic black (36 percent) or non-Hispanic white (46 percent) adults correctly identified the very low to nonexistent risk of becoming infected with the AIDS virus from mosquitoes or other insects.

From 1988-90, there were several noticeable increases in the proportion of black individuals (all black adults in 1988 and non-Hispanic black adults in 1990) who correctly identified the low risk of casual transmission of the AIDS virus. Fifty-nine percent of black adults in 1988 considered it very unlikely or definitely not possible

to contract the AIDS virus by working near an AIDS-infected individual compared with 69 percent of non-Hispanic black adults in 1990. The next largest increase over time occurred for those correctly assessing the low risk of AIDS transmission associated with eating in a restaurant where the cook has the AIDS virus: rising from 38 percent of black adults in 1988 to 47 percent of non-Hispanic black adults in 1990. Relatively smaller increases occurred for whites (all whites in 1988 and non-Hispanic whites in 1990) over time in misperceptions of AIDS transmission.

*Blood donation and HIV testing*—Approximately one-third of non-Hispanic black adults indicated that they had ever donated blood. Non-Hispanic black males were twice as likely as non-Hispanic black females to have been previous blood donors (46 percent compared with 23 percent); the proportion who reported ever donating also increased by years of education. Non-Hispanic white adults were more likely than non-Hispanic black adults to have reported ever donating blood (43 percent). The demographic patterns of blood donation noted

among the non-Hispanic black population were also seen in the non-Hispanic white population.

Twelve percent of non-Hispanic black adults reported donating blood since March 1985 when routine screening of donated blood for HIV antibodies began. Of the 12 percent, one-third donated only once and the remainder donated on two or more occasions. Again, blood donations increased with education and were more common among males than females. Seventeen percent of non-Hispanic white adults donated blood since March 1985. The proportion of these who were one-time donors was about the same as in the non-Hispanic black donor population. Four percent of non-Hispanic black adults and 7 percent of non-Hispanic white adults donated blood in the past year. For each group, most had donated only once and the same pattern of increased donations by education was noted.

About two-thirds (68 percent) of non-Hispanic black adults had heard of the blood test to detect HIV antibodies. This is similar to the 66 percent of all black adults who had heard of the test in 1988. The percent who were aware of the test varied greatly by age and education. Only 52 percent of non-Hispanic black persons 50 years and over had heard of the test compared with 72 to 75 percent of younger non-Hispanic black adults. The proportion who had heard of the test ranged from 51 percent of those with less than 12 years of education to 84 percent of those with more than 12 years. Awareness of the antibody test was higher among non-Hispanic white adults (81 percent). This figure was only slightly higher than that reported in 1988 for all white adults (78 percent). The same patterns of awareness by age and education were also noted among non-Hispanic white persons, but within all socio-demographic categories, awareness was higher among non-Hispanic white adults than among non-Hispanic black adults.

Only about half (53 percent) of non-Hispanic black adults believe that

blood donations are routinely tested for HIV-infection. This figure is about the same as that reported in 1988 for all black adults (55 percent). Again, this figure varied widely by years of education from 35 percent of those with less than 12 years to 70 percent of those with more than 12 years of education. A higher proportion of non-Hispanic white adults (71 percent) knew that blood donations are screened. Some of this difference is attributable to the lower percentage of non-Hispanic black adults who knew of the HIV antibody test compared with non-Hispanic white adults. However, even among those aware of the HIV test, non-Hispanic black persons were still less likely than non-Hispanic white persons to believe that donations are tested.

In 1990, a question was added to the survey to assess what percentage of those who had donated blood since HIV screening began in 1985 did so, at least in part, to be tested for AIDS. For non-Hispanic black adults who had donated during that time, the figure was 8 percent. For non-Hispanic black male donors, the figure was 12 percent, much higher than that reported by their female counterparts (2 percent). Two percent of non-Hispanic white donors indicated that testing was one of the reasons for their donation. In this group, males were not any more likely to indicate they had donated to be tested than females.

Excluding testing performed as part of blood donation, 14 percent of non-Hispanic black adults reported that they had been tested for antibodies to HIV. For non-Hispanic white adults the figure was lower, 9 percent. The difference between these two racial and ethnic groups is even more striking when one considers that fewer non-Hispanic black adults were aware of HIV testing. About one-fifth (21 percent) of non-Hispanic black persons who were aware of the antibody test have been tested compared with 11 percent of knowledgeable non-Hispanic white adults. In both groups, testing increased with years of education and was highest among those 18 to 29

years of age compared with older adults. If testing through blood donation is also included, then overall 24 percent of non-Hispanic black and 24 percent of non-Hispanic white adults have been tested for antibodies to HIV. These figures are higher than those seen in 1988: 14 percent of all black adults tested and 17 percent of all white adults tested.

The remainder of this section deals only with HIV antibody testing exclusive of testing that occurs as part of blood donation. For both non-Hispanic black and white adults, the majority (71 percent and 67 percent, respectively) who had been tested, had been tested only once. This was particularly true for those tested in the past year.

When the circumstances for testing were examined, differences between non-Hispanic black and white adults were notable. For non-Hispanic black adults tested, 51 percent had done so voluntarily, while 44 percent indicated that their testing was required. For non-Hispanic white adults who had been tested, these figures were nearly reversed: 43 percent were tested voluntarily and 52 percent had required testing. For non-Hispanic black individuals, the most commonly cited reason for required testing was military induction or service (11 percent of all those tested and 20 percent of non-Hispanic black men tested). This was followed by hospitalization or surgery (10 percent) and employment (9 percent). Life insurance was mentioned by only 3 percent of non-Hispanic black persons tested. For non-Hispanic white adults, the reasons were somewhat different. Hospitalization or surgery was cited most often (12 percent), military induction was next (11 percent), followed by life insurance (10 percent), and employment (7 percent). Similar figures were noted for the proportion of tests required and the reasons mentioned for required testing when only the last HIV antibody test was focused on.

The two most frequently reported places for the last antibody test for



both non-Hispanic black and white adults were doctor's office or HMO (listed by 28 percent of non-Hispanic black adults and 31 percent of non-Hispanic white adults), and hospital, emergency room or outpatient clinic (mentioned by 23 percent and 26 percent, respectively). The third most common site among non-Hispanic black persons tested was a public health department (mentioned by 12 percent) followed by military induction site (11 percent). In non-Hispanic white adults, the order of these two places was reversed with military induction site reported as the place of testing by 11 percent and public health departments by 6 percent.

Of non-Hispanic black adults who were tested, 52 percent reported receiving counseling about AIDS and the meaning of the test before testing. This figure was lower for non-Hispanic white adults tested (38 percent). The majority of both non-Hispanic black and white persons who were tested got their results (80 percent and 75 percent, respectively). Those who did not get their results may include some individuals whose results were not yet available at the time of interview. For both racial and ethnic groups, about one-third of those who had not gotten their results indicated that they did want them. Less than half of non-Hispanic black adults who got their results (43 percent) indicated that they also received post-test counseling about risk reduction and/or prevention of HIV transmission. For non-Hispanic white persons who were tested and got their results, the percentage who also received post-test counseling was much lower at 24 percent. Non-Hispanic black adults were more likely to have received their results in person (68 percent) when compared with white persons (58 percent), while non-Hispanic white persons were more likely than non-Hispanic black persons to have received their results in the mail (19 percent compared with 12 percent). Sixteen percent of both groups got their results over the telephone. This larger proportion of

non-Hispanic black adults who got their results in person may help explain the larger proportion who also received post-test counseling. Over 90 percent of both non-Hispanic black and white adults who were tested felt their results were handled properly in terms of confidentiality.

Fourteen percent of non-Hispanic black adults reported that they plan to be tested for HIV-infection in the next year. By age, this figure ranged from 22 percent of those age 18 to 29 years to 5 percent of those over 49 years. Non-Hispanic black men were more likely than women to plan future testing (17 percent compared with 12 percent). Persons with 12 or more years of education were slightly more likely to indicate future plans than those with less than 12 years (16 percent compared with 11 percent). In comparison, only 5 percent of non-Hispanic white adults reported that they planned to be tested.

Among non-Hispanic black persons with plans to be tested, 82 percent said they would do so voluntarily because they personally wanted to know if they were infected. Eighteen percent said they would be tested as a requirement for a non-military job, and 14 percent as a requirement for health insurance (note: percentages sum to more than 100 percent because respondents may choose more than one reason for being tested). Among non-Hispanic white individuals with plans to be tested, only 58 percent indicated it would be voluntary because they wanted to know their infection status, 28 percent listed blood donation as the reason for their future test, and 13 percent stated it would be a requirement for a nonmilitary job. As with HIV testing that has already been done, a private doctor or HMO was mentioned most often as the site for future HIV testing by both non-Hispanic black and white adults. Public health departments were mentioned by more than twice as many non-Hispanic black adults as white adults (14 percent compared with 6 percent), while non-Hispanic white persons mentioned the American Red Cross or other blood

banks as a site more often than non-Hispanic black persons (12 percent and 3 percent, respectively). This may be a reflection of the larger number of white individuals who plan future testing as part of blood donation.

*Prevention and perceived risk of HIV-infection*—The 1990 NHIS again asked respondents about their perception of the efficacy of condoms as a means of preventing the sexual transmission of the AIDS virus. A similar proportion of non-Hispanic black adults and non-Hispanic white adults rated condoms as "very effective" (28 percent compared with 27 percent). A large shift in response occurred for those rating condoms as "somewhat effective" with non-Hispanic black adults less likely to state this than non-Hispanic white adults (44 percent compared with 54 percent). There was little change between non-Hispanic black respondents in 1990 and all black respondents (Hispanic and non-Hispanic) in 1988 in response to the question of perceived effectiveness of condoms.

Slight changes were evident among sociodemographic groups in the non-Hispanic black population in 1990. The proportion who rated condoms as "very effective" or "somewhat effective" increased by education level and decreased by age. A substantial gender difference also emerged: 35 percent of non-Hispanic black men rated condoms as "very effective" in preventing the transmission of the AIDS virus compared with only 22 percent of non-Hispanic black women.

Five percent of non-Hispanic black individuals reported that they had received a blood transfusion between 1977 and 1985, the period before the blood supply was screened for HIV. Very few differences were evident among sociodemographic or racial groups with respect to this risk.

Overall, 71 percent of non-Hispanic black adults felt there was no chance of their becoming infected with HIV, and 19 percent assessed their chance of infection as low. Four percent felt their risk was medium, and only 1 percent reported

a high risk. Another 1 percent of non-Hispanic black adults felt that there was a high chance that they were already infected with HIV. Non-Hispanic white persons reported similar levels of perceived risk of AIDS infection: 73 percent felt they had no chance of becoming infected with AIDS, 22 percent felt their chances were low, 3 percent reported a medium chance, and less than 1 percent reported a high chance of becoming infected with AIDS.

A significant gender difference emerged in respondents' perceived risk of AIDS infection: women were more likely than men to report that there was no chance of their having or getting HIV. In addition, perceived risk of infection increased with education but decreased with age for both racial and ethnic groups.

Only 3 percent of non-Hispanic black persons reported being in any of the behavior categories highly associated with an increased risk of HIV-infection and AIDS, a figure similar to previous estimates in 1988 for all black adults (Hispanic and non-Hispanic). Two percent of all non-Hispanic white persons identified themselves as belonging to at least one of the behavior categories. This small proportion was similar across various sociodemographic categories for both non-Hispanic black and white adults.

**Table 1. Provisional estimates of the percent of black persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990**

[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		Education		
		18-29 years	30-49 years	50 years and over	Male	Female	Less than 12 years	12 years	More than 12 years
Percent distribution									
Total	100	100	100	100	100	100	100	100	100
1. How much would you say you know about AIDS?									
A lot	16	19	20	8	17	16	9	16	25
Some	39	48	45	21	36	41	22	44	50
A little	27	27	27	28	28	27	28	31	21
Nothing	17	6	8	42	18	16	41	8	4
Don't know	0	0	0	0	0	0	0	0	0
2. In the past month, have you received information about AIDS from any of these sources? <sup>1</sup>									
Television	77	77	79	75	77	77	73	78	79
Radio	30	34	33	21	34	27	24	30	37
Magazines	40	45	44	29	39	41	26	42	52
Newspapers	45	47	49	38	46	45	33	48	56
Street signs/billboards	17	24	17	10	19	15	12	17	24
Store displays/store distributed brochures	11	17	11	6	12	11	8	12	13
Bus/streetcar/subway displays	10	15	10	5	12	9	7	12	12
Health department brochures	23	33	24	11	21	25	15	25	29
Workplace distributed brochures	16	15	21	9	15	16	6	17	24
School distributed brochures	11	19	10	3	9	12	7	10	15
Church distributed brochures	8	10	7	6	7	8	6	8	9
Community organization	8	9	8	5	7	8	5	8	10
Friend/acquaintance	16	21	18	9	17	16	11	17	20
Other	3	3	3	3	3	3	2	3	4
Don't know	1	1	0	1	1	1	1	1	0
Received no AIDS information in past month	12	9	11	17	13	12	19	10	8
3. Have you heard the AIDS virus called HIV?									
Yes	70	74	78	54	69	70	52	73	85
No	27	24	20	40	28	26	43	25	12
Don't know	3	2	2	7	3	4	5	3	3
4a. AIDS can reduce the body's natural protection against disease.									
Definitely true	64	68	73	47	66	63	43	68	83
Probably true	12	12	10	14	11	12	16	12	7
Probably false	3	3	2	4	2	3	4	3	2
Definitely false	6	8	5	6	6	7	8	7	3
Don't know	15	9	9	29	15	15	30	11	5
4b. AIDS can damage the brain.									
Definitely true	50	48	56	44	51	50	44	52	55
Probably true	24	23	22	25	23	24	26	23	22
Probably false	4	6	4	3	4	5	3	4	6
Definitely false	3	6	3	1	4	3	2	4	4
Don't know	19	16	15	27	19	19	26	17	13
4c. AIDS is an infectious disease caused by a virus.									
Definitely true	71	79	77	54	71	71	57	75	80
Probably true	14	12	12	18	14	13	16	13	12
Probably false	2	1	2	1	1	2	1	2	1
Definitely false	2	2	3	2	2	3	2	3	3
Don't know	12	6	7	25	11	12	23	8	4
4d. A person can be infected with the AIDS virus and not have the disease AIDS.									
Definitely true	60	65	68	44	57	62	44	63	73
Probably true	16	15	15	18	16	15	16	17	14
Probably false	2	3	2	3	3	2	4	2	2
Definitely false	5	8	5	3	6	4	5	6	4
Don't know	17	10	11	32	18	16	31	12	7
4e. ANY person with the AIDS virus can pass it on to someone else through sexual intercourse.									
Definitely true	87	91	91	77	86	88	80	89	92
Probably true	8	6	6	13	8	7	11	7	6
Probably false	1	1	1	0	1	1	0	1	1
Definitely false	0	0	1	0	0	0	0	0	1
Don't know	4	2	2	10	4	4	9	2	1
4f. A pregnant women who has the AIDS virus can give it to her baby.									
Definitely true	85	88	90	75	83	86	77	87	91
Probably true	10	8	7	14	12	8	13	8	7
Probably false	0	0	0	0	0	0	0	1	0
Definitely false	0	0	0	0	0	0	0	0	0
Don't know	5	3	2	11	5	5	10	3	1

See footnotes at end of table.

**Table 1. Provisional estimates of the percent of black persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990—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	Age			Sex		Education			
	Total	18-29	30-49	50 years	Male	Female	Less than	12 years	More than
		years	years	and over			12 years		12 years
<b>4g. There are drugs available to treat AIDS or the AIDS virus which can lengthen the life of an infected person.</b>	Percent distribution								
Definitely true . . . . .	41	39	48	33	41	41	31	41	52
Probably true . . . . .	23	26	21	21	22	24	20	23	25
Probably false . . . . .	5	7	5	4	5	6	5	7	4
Definitely false . . . . .	10	11	10	9	11	9	10	11	8
Don't know . . . . .	21	18	15	33	21	21	33	18	12
<b>4h. There is a vaccine available to the public that protects a person from getting the AIDS virus.</b>									
Definitely true . . . . .	5	5	6	5	6	5	8	5	4
Probably true . . . . .	6	6	5	6	5	6	7	7	3
Probably false . . . . .	9	11	8	8	8	10	7	10	10
Definitely false . . . . .	57	61	65	44	59	56	43	60	70
Don't know . . . . .	22	17	16	37	21	23	35	19	13
<b>4i. There is no cure for AIDS at present.</b>									
Definitely true . . . . .	81	82	86	73	80	81	74	81	87
Probably true . . . . .	7	8	6	8	7	7	8	8	5
Probably false . . . . .	2	2	2	2	2	2	2	3	1
Definitely false . . . . .	3	3	2	3	3	2	3	2	3
Don't know . . . . .	8	5	5	14	8	8	13	6	4
<b>5. How likely do you think it is that a person will get AIDS or the AIDS virus infection from—</b>									
<b>5a. Working near someone with the AIDS virus?</b>									
Very likely . . . . .	5	4	5	6	5	5	6	5	3
Somewhat likely . . . . .	7	6	7	8	7	8	9	6	8
Somewhat unlikely . . . . .	9	11	9	8	9	9	7	11	9
Very unlikely . . . . .	36	36	37	34	37	36	33	37	38
Definitely not possible . . . . .	33	38	36	26	34	33	28	35	37
Don't know . . . . .	9	5	6	18	8	10	17	6	4
Very likely . . . . .	10	10	9	10	10	9	13	11	5
Somewhat likely . . . . .	18	17	19	19	20	17	19	17	20
Somewhat unlikely . . . . .	12	15	12	10	12	13	10	13	14
Very unlikely . . . . .	27	25	29	25	26	27	21	28	31
Definitely not possible . . . . .	20	24	21	13	20	20	17	21	22
Don't know . . . . .	13	9	9	23	12	14	21	10	8
<b>5c. Sharing plates, forks, or glasses with someone who has the AIDS virus?</b>									
Very likely . . . . .	14	14	12	16	15	13	17	13	11
Somewhat likely . . . . .	23	22	23	23	23	22	22	22	24
Somewhat unlikely . . . . .	11	12	12	9	11	12	8	13	13
Very unlikely . . . . .	23	22	26	20	23	23	19	23	27
Definitely not possible . . . . .	18	21	19	11	17	18	14	19	19
Don't know . . . . .	12	9	7	20	11	12	20	9	6
<b>5d. Using public toilets?</b>									
Very likely . . . . .	10	10	8	11	9	10	13	11	5
Somewhat likely . . . . .	15	12	15	18	15	15	17	14	15
Somewhat unlikely . . . . .	12	11	13	10	11	12	9	12	13
Very unlikely . . . . .	29	31	31	25	30	29	25	29	34
Definitely not possible . . . . .	23	27	26	16	24	22	17	25	26
Don't know . . . . .	11	8	7	20	10	12	18	9	6
<b>5e. Sharing needles for drug use with someone who has the AIDS virus?</b>									
Very likely . . . . .	93	96	96	88	94	93	89	95	97
Somewhat likely . . . . .	3	2	2	4	2	3	4	3	1
Somewhat unlikely . . . . .	0	0	0	0	0	0	0	0	—
Very unlikely . . . . .	0	1	0	0	0	1	1	0	1
Definitely not possible . . . . .	0	0	0	0	0	0	0	0	0
Don't know . . . . .	3	1	1	7	3	3	6	1	1
<b>5f. Being coughed or sneezed on by someone who has the AIDS virus?</b>									
Very likely . . . . .	11	9	11	14	11	11	14	11	9
Somewhat likely . . . . .	20	18	20	22	19	20	21	20	19
Somewhat unlikely . . . . .	13	16	13	10	13	13	9	14	16
Very unlikely . . . . .	26	27	29	21	27	25	22	27	28
Definitely not possible . . . . .	17	22	17	12	17	17	14	18	19
Don't know . . . . .	13	8	10	22	12	14	20	11	8
<b>5g. Attending school with a child who has the AIDS virus?</b>									
Very likely . . . . .	3	3	3	5	3	4	6	3	1
Somewhat likely . . . . .	6	4	6	9	7	6	9	6	5
Somewhat unlikely . . . . .	9	10	9	8	9	9	8	10	9
Very unlikely . . . . .	37	37	39	33	37	36	33	37	42
Definitely not possible . . . . .	35	41	36	26	35	35	27	38	38
Don't know . . . . .	10	5	6	19	9	11	18	7	5

See footnotes at end of table.

**Table 1. Provisional estimates of the percent of black persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990—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	Age			Sex		Education			
	Total	18-29	30-49	50 years	Male	Female	Less than	More than	
		years	years	and over			12 years	12 years	12 years
5h. Mosquitoes or other insects?	Percent distribution								
Very likely . . . . .	16	17	15	14	17	14	19	15	13
Somewhat likely . . . . .	22	23	22	20	23	21	21	22	22
Somewhat unlikely . . . . .	7	7	7	6	6	7	5	8	8
Very unlikely . . . . .	20	21	20	18	20	19	18	19	23
Definitely not possible . . . . .	16	17	18	12	15	16	10	18	19
Don't know . . . . .	20	14	18	29	18	22	27	19	15
8. Have you ever discussed AIDS with any of your children aged 10-17? <sup>2</sup>									
Yes . . . . .	69	64	72	56	56	79	60	71	77
No . . . . .	31	36	28	44	44	20	40	29	23
Don't know . . . . .	0	-	0	-	-	0	-	0	-
9. Have any or all of your children aged 10-17 had instruction at school about AIDS? <sup>2</sup>									
Yes . . . . .	75	67	77	72	71	79	73	75	79
No . . . . .	8	18	8	5	6	10	7	9	9
Don't know . . . . .	17	15	16	23	24	11	20	17	12
10. Have you ever donated blood?									
Yes . . . . .	33	28	36	33	46	23	27	30	43
No . . . . .	67	72	63	66	54	77	72	70	57
Don't know . . . . .	0	0	0	1	0	0	1	0	0
11a. Have you donated blood since March 1985?									
Yes . . . . .	12	19	14	3	16	9	6	13	19
No . . . . .	87	81	85	96	83	90	93	86	80
Don't know . . . . .	1	0	1	1	1	1	1	1	1
11b. Have you donated blood in the past 12 months?									
Yes . . . . .	4	6	5	1	5	3	1	4	7
No . . . . .	95	94	95	98	94	97	98	95	93
Don't know . . . . .	1	0	1	1	1	1	1	1	1
12. How many times have you donated blood since March 1985?									
Once . . . . .	4	7	5	1	5	4	2	5	6
Twice . . . . .	3	5	3	1	5	2	2	3	5
Three times or more . . . . .	5	6	6	1	7	3	2	4	8
Don't know . . . . .	0	0	0	0	0	0	0	0	0
Did not donate blood since March 1985 <sup>3</sup> . . . . .	88	81	86	97	84	91	94	87	81
13. How many times have you donated blood in the past 12 months?									
Once . . . . .	3	5	3	0	3	2	1	3	4
Twice . . . . .	1	1	1	0	1	0	0	1	1
Three times or more . . . . .	0	0	1	0	1	0	0	0	1
Don't know . . . . .	0	-	0	-	-	0	-	0	-
Did not donate blood in the past 12 months <sup>4</sup> . . . . .	96	94	95	99	95	97	99	96	93
14. Have you ever heard of a blood test that can detect the AIDS virus infection?									
Yes . . . . .	68	72	75	52	68	67	51	70	84
No . . . . .	30	26	23	43	30	30	45	28	15
Don't know . . . . .	3	2	2	5	3	2	4	2	1
15. To the best of your knowledge, are blood donations routinely tested for the AIDS virus infection?									
Yes . . . . .	53	57	61	36	53	53	35	54	70
No . . . . .	6	7	7	5	7	6	6	7	7
Don't know . . . . .	8	8	7	10	8	9	10	9	7
Never heard of test <sup>5</sup> . . . . .	32	28	25	48	32	33	49	30	16
16. Was one of your reasons for donating blood because you wanted to be tested for the AIDS virus infection? <sup>6</sup>									
Yes . . . . .	8	10	6	2	12	2	6	10	7
No . . . . .	64	60	69	65	59	72	50	54	78
Don't know . . . . .	-	-	-	-	-	-	-	-	-
Never heard of test <sup>5</sup> . . . . .	17	16	17	23	15	19	33	20	8
17. Except for blood donations since 1985, have you had your blood tested for the AIDS virus infection?									
Yes . . . . .	14	20	16	5	16	13	9	14	20
No . . . . .	51	50	57	45	50	52	40	53	61
Don't know . . . . .	2	2	2	2	2	2	2	2	2
Never heard of test <sup>5</sup> . . . . .	32	28	25	48	32	33	49	30	16
18. How many times have you had your blood tested for the AIDS virus infection, not including blood donations?									
Once . . . . .	10	13	11	4	10	9	6	10	12
Twice . . . . .	2	4	2	1	3	2	1	2	4
Three times or more . . . . .	2	4	3	0	3	2	2	2	3
Don't know . . . . .	0	0	0	0	-	0	0	0	0
Never heard of/had test <sup>7</sup> . . . . .	86	80	84	95	84	87	91	86	80

See footnotes at end to table.

Table 1. Provisional estimates of the percent of black persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990—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	Age			Sex		Education			
	18-29	30-49	50 years	Male	Female	Less than	12 years	More than	
	Total	years	years	and over		12 years	12 years	12 years	
19. How many times in the past 12 months have you had your blood tested for the AIDS virus infection, not including blood donations?	Percent distribution								
None . . . . .	6	6	8	2	7	5	3	6	9
Once . . . . .	7	11	7	3	7	7	5	7	9
Twice . . . . .	1	1	1	0	1	1	1	1	2
Three times or more . . . . .	1	1	1	0	1	1	0	0	1
Don't know . . . . .	0	—	0	—	—	0	0	0	—
Never heard of/had test <sup>7</sup> . . . . .	86	80	84	95	84	87	91	86	80
20a. Were the blood tests, including those you had before the past 12 months, required or did you go for them voluntarily, or were there some of each? <sup>8</sup>									
All required . . . . .	44	49	40	43	46	42	43	46	43
All volunteered . . . . .	51	47	53	57	49	53	55	50	50
Some of each . . . . .	3	4	4	—	5	2	2	2	6
Don't know . . . . .	1	1	2	—	0	2	1	2	0
20b. Were any of the blood tests required for: <sup>8</sup>									
Hospitalization or a surgical procedure? . . . . .	10	11	8	13	5	15	15	8	10
Health insurance? . . . . .	1	2	1	2	2	1	1	2	1
Life insurance? . . . . .	3	2	5	—	4	2	—	2	5
Employment? . . . . .	9	7	12	6	12	7	6	11	9
Military induction or military service? . . . . .	11	15	9	0	20	2	6	15	10
Immigration? . . . . .	2	1	3	3	1	3	3	2	2
Other . . . . .	14	17	9	22	10	17	14	13	14
Don't know . . . . .	—	—	—	—	—	—	—	—	—
21. When was your last blood test for the AIDS virus infection? <sup>8</sup>									
1990 . . . . .	33	35	29	40	32	34	41	32	30
1989 . . . . .	38	41	36	34	36	39	40	39	35
1988 . . . . .	14	14	15	8	12	15	10	12	18
1987 . . . . .	8	4	12	10	10	7	3	8	10
1986 . . . . .	3	4	3	3	5	1	3	4	3
1985 . . . . .	1	1	1	1	1	1	2	1	1
Don't know . . . . .	2	0	3	5	2	2	1	3	2
22a. Was your last test required or did you go for it voluntarily? <sup>8</sup>									
Required . . . . .	46	51	42	42	49	42	44	46	46
Voluntary . . . . .	52	48	55	58	50	54	55	50	53
Don't know . . . . .	1	1	2	—	0	2	1	2	0
22b. Was the test required for: <sup>8</sup>									
Hospitalization or a surgical procedure? . . . . .	8	9	7	13	5	11	14	7	8
Health insurance? . . . . .	1	1	0	1	1	1	—	1	1
Life insurance? . . . . .	2	1	4	—	3	2	—	1	4
Employment? . . . . .	9	7	12	6	12	6	6	11	8
Military induction or military service? . . . . .	11	14	9	0	19	2	5	14	9
Immigration? . . . . .	2	1	3	3	1	3	3	2	2
Other . . . . .	14	18	8	22	9	18	17	12	13
Don't know . . . . .	—	—	—	—	—	—	—	—	—
23. Not including a blood donation, where was your last blood test for the AIDS virus done? <sup>8</sup>									
AIDS clinic/counseling/testing site . . . . .	4	2	5	3	5	2	3	4	4
Clinic run by employer . . . . .	5	7	4	6	6	4	5	6	6
Doctor/HMO . . . . .	28	24	32	34	24	32	23	26	33
Public health department . . . . .	12	14	13	3	12	13	23	12	8
Hospital/emergency room/outpatient clinic . . . . .	23	21	22	39	17	29	27	23	22
STD clinic . . . . .	0	0	1	1	0	0	—	1	1
Family planning clinic . . . . .	1	1	0	—	1	1	1	1	0
Prenatal clinic . . . . .	1	2	—	—	0	2	2	2	0
Tuberculosis clinic . . . . .	—	—	—	—	—	—	—	—	—
Other clinic . . . . .	6	7	5	6	6	6	7	4	7
Drug treatment facility . . . . .	0	1	—	—	1	—	—	—	1
Military induction/service site . . . . .	11	14	9	0	19	2	4	14	10
Immigration site . . . . .	1	—	2	—	1	1	1	0	1
Other . . . . .	6	5	5	7	6	5	6	5	6
Don't know . . . . .	0	1	—	—	1	—	—	—	1
24. Before your last blood test for the AIDS virus infection, were you counseled about the AIDS virus and the meaning of the test? <sup>8</sup>									
Yes . . . . .	52	54	49	54	56	48	54	50	53
No . . . . .	47	45	49	46	43	50	46	48	46
Don't know . . . . .	0	0	1	—	0	1	0	1	—
25. Did you get the results of your last test? <sup>8</sup>									
Yes . . . . .	80	79	79	85	82	78	80	79	81
No . . . . .	19	20	19	13	18	20	18	19	19
Don't know . . . . .	0	—	0	2	—	1	1	0	—

See footnotes at end of table.

**Table 1. Provisional estimates of the percent of black persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990—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		Education		
		18-29 years	30-49 years	50 years and over	Male	Female	Less than 12 years	12 years	More than 12 years
		Percent distribution							
26. Did you want the results of your last test? <sup>9</sup>									
Yes	35	40	33	23	38	33	36	35	35
No	51	42	56	71	50	51	46	51	52
Don't know	14	18	12	6	13	15	18	14	13
27. When you received the results of your last test, did you receive counseling or talk with a health professional about how to lower your chances of becoming infected with the AIDS virus or how to avoid passing it on to another person? <sup>10</sup>									
Yes	43	44	43	39	46	40	46	44	41
No	56	55	57	59	53	60	54	55	59
Don't know	0	0	-	2	1	0	-	1	-
28. Were the results given in person, by telephone, by mail, or in some other way? <sup>10</sup>									
In person	68	72	65	63	65	71	78	71	61
By telephone	12	10	14	12	10	15	9	9	16
By mail	16	14	19	11	20	12	4	17	19
Other	4	3	2	11	5	2	8	2	4
Don't know	0	-	-	2	0	-	-	1	-
29. Do you feel your last test for the AIDS virus infection was handled properly in terms of the confidentiality of your test results? <sup>8</sup>									
Yes	92	92	93	92	93	92	93	93	92
No	3	3	3	5	5	1	4	3	3
Don't know	3	4	3	3	2	5	3	2	5
30. Do you expect to have a blood test for the AIDS virus infection in the next 12 months?									
Yes	14	22	15	5	17	12	11	16	16
No	47	43	54	41	44	49	34	48	60
Don't know	6	7	7	5	6	6	5	6	8
Never heard of test <sup>5</sup>	32	28	25	48	32	33	49	30	16
31. Tell me which of these statements explain why you will have the blood test: <sup>11</sup>									
Voluntarily, because you personally want to know if you are infected	82	80	82	87	80	84	90	83	74
As part of a blood donation	16	17	17	12	18	15	13	16	20
As part of a hospitalization or surgical procedure	12	13	9	17	11	13	13	11	11
As a requirement for health insurance	14	16	12	15	16	12	14	13	16
As a requirement for life insurance	12	15	9	12	14	10	13	11	14
As a requirement for a job, other than military	18	18	19	15	22	14	16	18	20
As a requirement for the military	11	15	7	4	15	6	7	12	11
As a requirement for immigration	3	3	3	4	4	3	4	3	3
As a required part of some other activity that includes a blood sample and automatic AIDS testing	14	15	15	9	13	15	13	13	16
32. Where will you go to have a blood test for the AIDS virus infection? <sup>11</sup>									
AIDS clinic/counseling/testing site	3	3	2	-	3	2	1	4	2
Clinic run by employer	5	5	5	7	6	4	1	6	7
Doctor/HMO	37	30	41	54	31	44	36	35	40
Hospital/emergency room/outpatient clinic	21	21	21	21	20	22	26	23	13
Other clinic	9	10	7	8	10	7	7	8	11
Public health department	14	17	12	7	13	14	20	12	11
Red Cross/blood bank	3	3	4	2	5	2	2	3	5
Other	6	8	5	-	10	2	1	7	9
Don't know	3	3	3	1	3	3	7	2	1
33. Did you have a blood transfusion at any time between 1977 and 1985?									
Yes	5	2	7	7	4	6	6	4	6
No	94	98	93	92	95	93	93	95	94
Don't know	1	0	1	1	1	1	1	1	1
34. Do you think the present supply of blood is safe for transfusions?									
Yes	36	37	40	29	41	32	30	35	44
No	38	42	37	35	33	42	39	41	34
Don't know	26	21	23	36	26	27	31	25	23
35. How effective do you think the use of a condom is to prevent getting the AIDS virus through sexual activity?									
Very effective	28	33	29	20	35	22	23	30	31
Somewhat effective	44	44	49	36	41	46	32	48	51
Not at all effective	6	7	6	5	5	7	8	6	5
Don't know how effective	19	14	14	30	16	21	31	14	11
Don't know method	4	2	2	8	3	4	7	3	2
36. What are your chances of having the AIDS virus?									
High	1	1	1	0	1	1	1	1	1
Medium	4	5	4	2	5	3	3	4	4
Low	15	19	18	9	17	14	8	17	21
None	76	73	74	83	72	79	80	76	72
Don't know	4	2	4	6	4	3	7	3	2

See footnotes at end of table.

**Table 1. Provisional estimates of the percent of black persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990—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	Age			Sex		Education			
	18-29	30-49	50 years	Male	Female	Less than	12 years	More than	
	Total	years	years	and over		12 years	12 years	12 years	
37. What are your chances of getting the AIDS virus?	Percent distribution								
High . . . . .	1	1	1	0	1	1	1	0	1
Medium . . . . .	4	6	4	2	5	4	3	4	5
Low . . . . .	19	23	21	11	21	16	11	19	26
None . . . . .	71	65	68	81	67	74	76	72	65
Don't know . . . . .	4	3	4	5	4	4	7	3	3
N/A—High chance of already having the AIDS virus . . . . .	1	1	1	0	1	1	1	1	1
38. Have you ever personally known anyone with AIDS or the AIDS virus?									
Yes . . . . .	18	16	23	13	16	19	11	16	27
No . . . . .	80	82	75	84	81	79	86	81	70
Don't know . . . . .	2	2	2	3	3	2	3	2	2
39. Are any of these statements true for you?									
a. You have hemophilia and have received clotting factor concentrates since 1977.									
b. You are a native of Haiti or Central or East Africa who has entered the United States since 1977.									
c. You are a man who has had sex with another man at some time since 1977, even 1 time.									
d. You have taken illegal drugs by needle 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 (39 a–d).									
f. You have had sex for money or drugs at any time since 1977.									
Yes to at least 1 statement . . . . .	3	4	5	1	4	3	2	4	4
No to all statements . . . . .	96	95	95	99	95	97	97	96	96
Don't know . . . . .	0	0	0	1	1	0	1	0	—

<sup>1</sup>Multiple responses may sum to more than 100.

<sup>2</sup>Based on persons answering yes to question 6, "Do you have any children aged 10 through 17?" Question 7 was "How many do you have?"

<sup>3</sup>Persons answering no or don't know to question 10 or 11a.

<sup>4</sup>Persons answering no or don't know to question 10, 11a, or 11b.

<sup>5</sup>Persons answering no or don't know to question 14.

<sup>6</sup>Based on persons answering yes to question 11a.

<sup>7</sup>Persons answering no or don't know to questions 14 or 17.

<sup>8</sup>Based on persons answering yes to question 17.

<sup>9</sup>Persons answering no or don't know to question 25.

<sup>10</sup>Based on persons answering yes to question 25.

<sup>11</sup>Based on persons answering yes to question 30.



**Table 2. Provisional estimates of the percent of white non-Hispanic persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990**

[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		Education		
		18-29 years	30-49 years	50 years and over	Male	Female	Less than 12 years	12 years	More than 12 years
Percent distribution									
Total . . . . .	100	100	100	100	100	100	100	100	100
1. How much would you say you know about AIDS?									
A lot . . . . .	19	23	23	13	18	19	9	14	28
Some . . . . .	49	57	56	36	48	50	31	51	55
A little . . . . .	23	18	19	31	24	22	32	28	15
Nothing . . . . .	9	2	2	20	9	9	28	7	2
Don't know . . . . .	0	0	0	0	0	0	0	0	0
2. In the past month, have you received information about AIDS from any of these sources? <sup>1</sup>									
Television . . . . .	78	79	78	77	79	77	74	78	79
Radio . . . . .	31	37	34	23	35	27	21	29	37
Magazines . . . . .	44	48	48	37	42	46	27	41	54
Newspapers . . . . .	56	51	59	55	57	54	39	54	65
Street signs/billboards . . . . .	11	16	12	6	12	9	6	9	14
Store displays/store distributed brochures . . . . .	6	10	6	4	7	6	4	6	7
Bus/streetcar/subway displays . . . . .	3	5	4	2	4	3	2	2	5
Health department brochures . . . . .	17	24	17	11	16	18	11	16	20
Workplace distributed brochures . . . . .	11	12	16	6	11	11	4	10	16
School distributed brochures . . . . .	8	14	9	3	7	9	5	6	11
Church distributed brochures . . . . .	4	3	4	3	4	3	2	3	4
Community organization . . . . .	4	5	5	3	4	4	2	4	6
Friend/acquaintance . . . . .	12	19	13	7	12	12	9	11	14
Other . . . . .	3	4	4	2	3	3	1	2	5
Don't know . . . . .	1	0	0	1	1	1	1	1	0
Received no AIDS information in past month . . . . .	11	9	10	14	11	12	17	11	8
3. Have you heard the AIDS virus called HIV?									
Yes . . . . .	76	82	83	63	75	76	52	73	88
No . . . . .	22	17	15	33	23	21	44	25	11
Don't know . . . . .	2	1	1	4	2	2	5	2	1
4a. AIDS can reduce the body's natural protection against disease.									
Definitely true . . . . .	82	87	89	70	82	81	58	81	92
Probably true . . . . .	9	8	7	13	9	9	16	11	5
Probably false . . . . .	1	1	1	2	1	1	2	1	0
Definitely false . . . . .	1	1	1	2	1	2	3	2	0
Don't know . . . . .	7	3	2	13	6	7	20	6	2
4b. AIDS can damage the brain.									
Definitely true . . . . .	42	40	44	42	43	42	39	42	44
Probably true . . . . .	26	27	25	26	26	26	28	28	23
Probably false . . . . .	8	11	9	5	8	8	4	7	10
Definitely false . . . . .	4	6	5	2	5	4	3	3	6
Don't know . . . . .	19	16	16	25	18	21	27	20	16
4c. AIDS is an infectious disease caused by a virus.									
Definitely true . . . . .	70	80	78	56	72	68	54	68	79
Probably true . . . . .	15	12	12	19	14	15	19	16	12
Probably false . . . . .	2	2	2	3	2	2	2	3	2
Definitely false . . . . .	3	2	3	3	3	3	3	3	3
Don't know . . . . .	10	4	5	19	9	11	21	10	5
4d. A person can be infected with the AIDS virus and not have the disease AIDS.									
Definitely true . . . . .	68	74	76	55	67	68	48	65	79
Probably true . . . . .	16	14	14	20	17	16	20	18	13
Probably false . . . . .	3	3	2	3	3	2	4	3	2
Definitely false . . . . .	3	4	2	2	3	2	3	3	2
Don't know . . . . .	11	6	6	20	11	11	26	11	5
4e. ANY person with the AIDS virus can pass it on to someone else through sexual intercourse.									
Definitely true . . . . .	88	93	91	82	87	89	82	88	90
Probably true . . . . .	9	6	7	12	10	8	10	9	8
Probably false . . . . .	1	1	1	0	1	0	0	0	1
Definitely false . . . . .	0	0	0	0	1	0	0	0	0
Don't know . . . . .	3	1	1	5	3	3	7	2	1
4f. A pregnant women who has the AIDS virus can give it to her baby.									
Definitely true . . . . .	86	90	89	80	84	88	77	86	90
Probably true . . . . .	10	8	8	13	12	8	14	10	8
Probably false . . . . .	0	0	0	0	0	0	0	0	0
Definitely false . . . . .	0	0	0	0	0	0	0	0	0
Don't know . . . . .	4	2	2	6	4	3	8	3	2

See footnotes at end of table.

Table 2. Provisional estimates of the percent of white non-Hispanic persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990—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	Age			Sex		Education			
	Total	18-29 years	30-49 years	50 years and over	Male	Female	Less than 12 years	12 years	More than 12 years
4g. There are drugs available to treat AIDS or the AIDS virus which can lengthen the life of an infected person.	Percent distribution								
Definitely true	48	51	53	40	48	47	34	44	57
Probably true	27	26	27	29	27	27	25	30	26
Probably false	6	7	5	5	6	5	6	6	5
Definitely false	5	7	5	4	6	4	6	5	4
Don't know	14	10	9	22	13	15	30	15	7
4h. There is a vaccine available to the public that protects a person from getting the AIDS virus.									
Definitely true	2	2	2	2	2	2	3	2	2
Probably true	3	3	2	3	3	3	5	3	2
Probably false	10	10	9	11	10	10	11	11	9
Definitely false	72	76	79	61	74	70	54	70	81
Don't know	14	9	8	23	12	16	28	15	7
4i. There is no cure for AIDS at present.									
Definitely true	87	90	91	82	87	87	78	87	92
Probably true	6	5	5	8	6	6	8	7	5
Probably false	1	1	1	1	1	1	1	1	1
Definitely false	2	2	1	2	2	2	2	2	1
Don't know	4	2	2	7	4	4	10	4	2
5. How likely do you think it is that a person will get AIDS or the AIDS virus infection from—									
5a. Working near someone with the AIDS virus?									
Very likely	2	1	2	3	2	2	3	2	1
Somewhat likely	6	5	5	6	6	5	7	6	4
Somewhat unlikely	9	9	9	9	9	9	9	10	8
Very unlikely	42	42	43	41	43	41	38	41	44
Definitely not possible	36	41	39	31	35	38	30	35	40
Don't know	5	2	3	10	5	5	13	5	2
5b. Eating in a restaurant where the cook has the AIDS virus?									
Very likely	5	4	5	6	5	5	8	6	3
Somewhat likely	18	18	17	18	18	17	20	20	15
Somewhat unlikely	13	15	14	12	14	13	11	13	14
Very unlikely	34	36	37	30	34	34	26	32	39
Definitely not possible	21	23	22	18	20	21	17	19	24
Don't know	9	4	6	16	8	10	19	10	5
5c. Sharing plates, forks, or glasses with someone who has the AIDS virus?									
Very likely	10	8	10	11	10	10	13	11	7
Somewhat likely	21	19	21	22	22	20	23	22	19
Somewhat unlikely	14	16	14	13	14	13	11	14	15
Very unlikely	29	32	31	25	30	29	22	28	34
Definitely not possible	18	22	19	14	17	19	14	17	20
Don't know	8	4	5	14	8	9	17	8	5
5d. Using public toilets?									
Very likely	5	4	4	6	4	5	8	5	3
Somewhat likely	12	11	11	15	12	13	17	14	9
Somewhat unlikely	12	13	12	11	12	12	10	13	12
Very unlikely	37	37	40	34	39	36	28	36	42
Definitely not possible	26	30	29	20	26	26	19	24	31
Don't know	7	4	4	13	7	8	16	7	4
5e. Sharing needles for drug use with someone who has the AIDS virus?									
Very likely	96	98	98	93	96	96	91	97	98
Somewhat likely	2	1	1	3	2	2	3	2	1
Somewhat unlikely	0	0	0	0	0	0	0	0	0
Very unlikely	0	0	0	0	0	0	0	0	0
Definitely not possible	0	0	0	0	0	0	0	0	0
Don't know	2	0	0	4	1	2	5	1	1
5f. Being coughed or sneezed on by someone who has the AIDS virus?									
Very likely	8	6	7	10	7	8	11	8	6
Somewhat likely	20	17	19	23	20	20	21	21	18
Somewhat unlikely	15	16	16	13	15	14	12	14	16
Very unlikely	31	35	34	26	32	30	23	30	36
Definitely not possible	17	21	18	12	16	17	13	16	19
Don't know	10	5	6	17	9	11	19	10	5
5g. Attending school with a child who has the AIDS virus?									
Very likely	1	1	1	2	1	1	3	1	1
Somewhat likely	5	4	4	6	5	4	7	5	4
Somewhat unlikely	9	9	9	9	9	9	9	9	8
Very unlikely	43	43	45	42	44	42	37	43	46
Definitely not possible	36	43	38	30	35	37	30	36	39
Don't know	6	1	3	12	5	6	15	5	2

See footnotes at end of table.

**Table 2. Provisional estimates of the percent of white non-Hispanic persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990—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	Age			Sex		Education			
	Total	18-29 years	30-49 years	50 years and over	Male	Female	Less than 12 years	12 years	More than 12 years
	Percent distribution.								
5h. Mosquitoes or other insects?									
Very likely . . . . .	9	10	8	8	10	8	12	10	6
Somewhat likely . . . . .	18	21	17	16	19	17	20	20	15
Somewhat unlikely . . . . .	8	10	9	7	9	8	6	8	10
Very unlikely . . . . .	26	26	28	24	27	25	20	24	31
Definitely not possible . . . . .	20	20	22	18	19	21	13	18	24
Don't know . . . . .	19	13	15	26	17	21	28	20	14
8. Have you ever discussed AIDS with any of your children aged 10-17? <sup>2</sup>									
Yes . . . . .	69	58	71	62	58	80	58	66	76
No . . . . .	31	41	29	37	42	20	42	34	24
Don't know . . . . .	0	1	0	0	0	0	1	0	0
9. Have any or all of your children aged 10-17 had instruction at school about AIDS? <sup>2</sup>									
Yes . . . . .	74	60	74	74	70	77	66	73	76
No . . . . .	9	19	9	7	8	10	13	10	8
Don't know . . . . .	17	21	17	18	22	13	21	17	16
10. Have you ever donated blood?									
Yes . . . . .	43	36	46	43	54	32	31	38	52
No . . . . .	57	64	54	56	45	68	69	62	48
Don't know . . . . .	0	0	0	0	0	0	0	0	0
11a. Have you donated blood since March 1985?									
Yes . . . . .	17	26	21	8	21	13	7	15	24
No . . . . .	82	74	79	92	78	86	92	85	76
Don't know . . . . .	1	0	0	1	1	0	1	0	1
11b. Have you donated blood in the past 12 months?									
Yes . . . . .	7	11	9	3	9	5	3	6	10
No . . . . .	92	89	90	96	90	94	97	93	89
Don't know . . . . .	1	0	1	1	1	0	1	0	1
12. How many times have you donated blood since March 1985?									
Once . . . . .	5	10	5	2	5	5	3	5	6
Twice . . . . .	3	5	4	1	4	2	1	3	4
Three times or more . . . . .	9	11	12	4	11	6	3	7	13
Don't know . . . . .	0	0	0	0	0	0	0	0	0
Did not donate blood since March 1985 <sup>3</sup> . . . . .	83	74	79	92	79	87	93	85	76
13. How many times have you donated blood in the past 12 months?									
Once . . . . .	4	7	5	2	5	3	2	4	5
Twice . . . . .	2	2	2	1	2	1	0	1	3
Three times or more . . . . .	1	2	2	1	2	1	1	1	2
Don't know . . . . .	0	0	0	0	0	0	0	0	0
Did not donate blood in the past 12 months <sup>4</sup> . . . . .	93	89	91	97	91	94	97	94	90
14. Have you ever heard of a blood test that can detect the AIDS virus infection?									
Yes . . . . .	81	87	89	69	82	80	64	80	90
No . . . . .	16	12	9	26	16	17	32	17	9
Don't know . . . . .	2	1	1	5	2	3	4	3	1
15. To the best of your knowledge, are blood donations routinely tested for the AIDS virus infection?									
Yes . . . . .	71	80	79	57	72	71	52	69	81
No . . . . .	4	3	5	4	4	4	4	4	4
Don't know . . . . .	6	5	5	8	6	6	8	7	5
Never heard of test <sup>5</sup> . . . . .	19	13	11	31	18	20	36	20	10
16. Was one of your reasons for donating blood because you wanted to be tested for the AIDS virus infection? <sup>5</sup>									
Yes . . . . .	2	3	2	1	2	1	3	2	2
No . . . . .	84	84	86	78	83	86	73	80	87
Don't know . . . . .	0	—	0	—	0	0	—	0	0
Never heard of test <sup>5</sup> . . . . .	8	8	6	14	8	8	18	11	5
17. Except for blood donations since 1985, have you had your blood tested for the AIDS virus infection?									
Yes . . . . .	9	15	12	3	11	8	7	8	12
No . . . . .	70	70	75	63	69	70	55	70	76
Don't know . . . . .	2	2	2	3	2	2	2	2	3
Never heard of test <sup>5</sup> . . . . .	19	13	11	31	18	20	36	20	10
18. How many times have you had your blood tested for the AIDS virus infection, not including blood donations?									
Once . . . . .	6	10	8	2	7	6	4	5	8
Twice . . . . .	2	3	2	1	2	1	1	1	2
Three times or more . . . . .	1	2	2	0	2	1	1	1	2
Don't know . . . . .	0	0	0	0	0	0	0	0	0
Never heard of/had test <sup>7</sup> . . . . .	91	85	89	97	89	92	93	92	88

See footnotes at end of table.

**Table 2. Provisional estimates of the percent of white non-Hispanic persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990—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	Age			Sex		Education			
	Total	18-29 years	30-49 years	50 years and over	Male	Female	Less than 12 years	12 years	More than 12 years
	Percent distribution								
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	5	7	6	2	5	4	3	4	6
Once	4	7	5	1	5	3	3	4	5
Twice	0	1	1	0	1	0	0	0	1
Three times or more	0	0	0	0	0	0	0	0	0
Don't know	0	0	0	0	0	0	0	0	0
Never heard of had test	91	85	88	97	89	92	93	92	88
20a. Were the blood tests, including those you had before the past 12 months, required or did you go for them voluntarily, or were there some of each? <sup>a</sup>									
All required	52	55	51	47	55	48	51	50	54
All volunteered	43	41	44	48	40	47	46	45	41
Some of each	4	3	4	2	4	3	2	4	4
Don't know	1	0	1	3	1	1	1	1	1
20b. Were any of the blood tests required for: <sup>a</sup>									
Hospitalization or a surgical procedure?	12	11	10	22	9	16	22	13	10
Health insurance?	4	2	6	2	5	2	3	3	5
Life insurance?	10	6	14	8	13	6	4	6	14
Employment?	7	8	7	5	7	6	4	6	8
Military induction or military service?	11	19	7	5	18	3	3	13	12
Immigration?	1	1	2	1	1	2	2	1	2
Other	13	16	13	8	9	18	18	14	11
Don't know	-	-	-	-	-	-	-	-	-
21. When was your last blood test for the AIDS virus infection? <sup>a</sup>									
1990	28	28	29	27	29	28	32	30	27
1989	35	38	33	31	35	34	30	34	36
1988	17	18	16	16	16	18	18	16	17
1987	10	8	11	11	10	10	8	11	10
1986	4	3	4	4	4	4	4	4	4
1985	2	1	2	2	2	2	1	2	2
Don't know	3	2	2	6	3	3	4	2	3
22a. Was your last test required or did you go for it voluntarily? <sup>a</sup>									
Required	54	57	53	48	57	50	52	52	56
Voluntary	44	42	46	48	41	48	46	47	43
Don't know	1	0	1	3	1	1	1	1	1
22b. Was the test required for: <sup>a</sup>									
Hospitalization or a surgical procedure?	12	11	10	21	8	16	21	13	9
Health insurance?	4	2	6	2	5	3	2	3	5
Life insurance?	10	5	13	7	13	6	4	6	13
Employment?	6	7	6	5	7	6	4	6	7
Military induction or military service?	11	18	7	5	17	3	3	13	11
Immigration?	1	1	2	1	1	2	2	1	2
Other	12	14	11	8	8	16	17	13	10
Don't know	-	-	-	-	-	-	-	-	-
23. Not including a blood donation, where was your last blood test for the AIDS virus done? <sup>a</sup>									
AIDS clinic/counseling/testing site	3	3	3	4	3	3	3	2	4
Clinic run by employer	3	2	4	2	4	3	2	3	4
Doctor/HMO	31	29	32	34	27	35	30	29	33
Public health department	6	7	5	3	5	7	9	6	5
Hospital/emergency room/outpatient clinic	26	23	25	36	21	31	37	29	21
STD clinic	0	0	0	-	0	0	0	0	0
Family planning clinic	1	1	1	-	1	1	1	1	1
Prenatal clinic	0	1	0	-	0	1	2	0	-
Tuberculosis clinic	-	-	-	-	-	-	-	-	-
Other clinic	5	5	5	4	5	5	3	4	6
Drug treatment facility	0	0	0	-	0	0	0	0	0
Military induction/service site	11	18	7	6	18	3	3	14	11
Immigration site	0	0	0	0	0	1	1	0	0
Other	13	9	16	10	16	9	10	11	15
Don't know	0	0	-	-	0	-	-	-	0
24. Before your last blood test for the AIDS virus infection, were you counseled about the AIDS virus and the meaning of the test? <sup>a</sup>									
Yes	38	40	41	24	40	36	34	39	39
No	60	59	58	75	59	63	64	61	59
Don't know	1	1	1	1	1	1	1	1	1
25. Did you get the results of your last test? <sup>a</sup>									
Yes	75	76	75	73	74	77	73	76	75
No	24	23	24	26	25	22	26	24	24
Don't know	1	1	0	0	1	0	-	0	1

See footnotes at end of table.

**Table 2. Provisional estimates of the percent of white non-Hispanic persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990—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	Age			Sex		Education			
	Total	18-29 years	30-49 years	50 years and over	Male	Female	Less than 12 years	12 years	More than 12 years
Percent distribution									
26. Did you want the results of your last test? <sup>9</sup>									
Yes . . . . .	33	36	34	19	34	30	42	27	34
No . . . . .	64	60	63	74	62	66	53	71	52
Don't know . . . . .	4	4	3	7	4	4	5	3	4
27. When you received the results of your last test, did you receive counseling or talk with a health professional about how to lower your chances of becoming infected with the AIDS virus or how to avoid passing it on to another person? <sup>10</sup>									
Yes . . . . .	24	30	23	13	23	25	27	26	22
No . . . . .	75	70	77	86	76	74	72	74	77
Don't know . . . . .	1	1	1	0	1	1	2	0	1
28. Were the results given in person, by telephone, by mail, or in some other way? <sup>10</sup>									
In person . . . . .	58	60	53	66	57	58	71	62	52
By telephone . . . . .	19	17	21	16	17	21	13	17	21
By mail . . . . .	16	15	18	13	18	14	10	15	18
Other . . . . .	7	9	7	4	8	6	4	6	9
Don't know . . . . .	1	0	1	2	1	0	1	0	1
29. Do you feel your last test for the AIDS virus infection was handled properly in terms of the confidentiality of your test results? <sup>8</sup>									
Yes . . . . .	91	93	90	91	90	93	90	92	91
No . . . . .	3	3	3	2	3	3	3	3	3
Don't know . . . . .	5	4	6	6	6	4	6	5	5
30. Do you expect to have a blood test for the AIDS virus infection in the next 12 months?									
Yes . . . . .	5	10	5	2	6	4	5	5	6
No . . . . .	73	73	81	65	73	74	56	72	82
Don't know . . . . .	3	4	3	2	3	3	3	3	3
Never heard of test <sup>5</sup> . . . . .	19	13	11	31	18	20	36	20	10
31. Tell me which of these statements explain why you will have the blood test: <sup>11</sup>									
Voluntarily, because you personally want to know if you are infected . . . . .	58	64	55	43	54	63	67	63	51
As part of a blood donation . . . . .	28	27	28	30	30	25	24	27	30
As part of a hospitalization or surgical procedure . . . . .	10	9	10	18	9	13	13	12	9
As a requirement for health insurance . . . . .	8	9	8	8	9	8	11	10	6
As a requirement for life insurance . . . . .	7	7	7	9	8	6	9	7	7
As a requirement for a job, other than military . . . . .	13	12	14	9	12	13	11	13	12
As a requirement for the military . . . . .	11	14	10	5	15	5	10	11	12
As a requirement for immigration . . . . .	2	2	1	1	2	1	2	2	1
As a required part of some other activity that includes a blood sample and automatic AIDS testing . . . . .	15	17	13	11	14	15	15	14	15
32. Where will you go to have a blood test for the AIDS virus infection? <sup>11</sup>									
AIDS clinic/counseling/testing site . . . . .	1	1	1	0	1	1	1	1	1
Clinic run by employer . . . . .	3	2	4	3	4	1	1	3	3
Doctor/HMO . . . . .	38	40	35	41	37	39	35	44	34
Hospital/emergency room/outpatient clinic . . . . .	19	18	20	18	16	23	27	18	18
Other clinic . . . . .	5	7	4	3	4	7	6	4	6
Public health department . . . . .	6	8	5	4	5	8	12	7	4
Red Cross blood bank . . . . .	12	7	15	18	14	9	6	10	15
Other . . . . .	11	11	12	9	14	7	6	9	14
Don't know . . . . .	4	5	3	3	4	4	5	4	4
33. Did you have a blood transfusion at any time between 1977 and 1985?									
Yes . . . . .	6	3	5	8	6	6	7	5	5
No . . . . .	93	97	94	90	93	93	91	94	94
Don't know . . . . .	1	1	1	2	1	1	2	1	1
34. Do you think the present supply of blood is safe for transfusions?									
Yes . . . . .	50	58	53	41	54	46	36	47	58
No . . . . .	28	26	28	30	25	31	33	31	25
Don't know . . . . .	22	16	19	28	20	23	31	22	18
35. How effective do you think the use of a condom is to prevent getting the AIDS virus through sexual activity?									
Very effective . . . . .	27	33	30	20	30	24	17	25	33
Somewhat effective . . . . .	54	57	57	50	54	55	46	55	57
Not at all effective . . . . .	4	4	4	4	3	5	6	4	3
Don't know how effective . . . . .	13	6	8	22	11	15	25	13	7
Don't know method . . . . .	2	1	1	4	2	2	5	2	1
36. What are your chances of having the AIDS virus?									
High . . . . .	0	0	0	0	0	0	0	0	0
Medium . . . . .	2	3	2	1	2	2	2	2	2
Low . . . . .	16	24	18	9	18	14	10	14	21
None . . . . .	81	72	79	88	78	82	85	83	77
Don't know . . . . .	1	1	1	2	1	1	3	1	0

See footnotes at end of table.

**Table 2. Provisional estimates of the percent of white non-Hispanic persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990—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	Age			Sex		Education			
	Total	18-29 years	30-49 years	50 years and over	Male	Female	Less than 12 years	12 years	More than 12 years
	Percent distribution								
37. What are your chances of getting the AIDS virus?									
High . . . . .	0	1	0	0	0	0	0	0	0
Medium . . . . .	3	4	3	2	3	2	3	3	3
Low . . . . .	22	31	26	13	25	20	12	19	30
None . . . . .	73	63	69	82	70	75	81	76	66
Don't know . . . . .	2	1	1	2	2	1	4	1	1
N/A—High chance of already having the AIDS virus . . . . .	0	0	0	0	0	0	0	0	0
38. Have you ever personally known anyone with AIDS or the AIDS virus?									
Yes . . . . .	15	14	19	11	14	16	7	11	21
No . . . . .	84	84	80	88	84	83	91	87	77
Don't know . . . . .	2	1	2	2	2	1	2	1	2
39. Are any of these statements true for you?									
a. You have hemophilia and have received clotting factor concentrates since 1977.									
b. You are a native of Haiti or Central or East Africa who has entered the United States since 1977.									
c. 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.									
e. Since 1977, you are or have been the sex partner of any person who would answer yes to any of the items above (39 a-d).									
f. You have had sex for money or drugs at any time since 1977.									
Yes to at least 1 statement . . . . .	2	4	2	1	3	2	2	2	2
No to all statements . . . . .	98	96	97	99	97	98	98	98	98
Don't know . . . . .	0	0	0	0	0	0	0	0	0

<sup>1</sup>Multiple responses may sum to more than 100.<sup>2</sup>Based on persons answering yes to question 6, "Do you have any children aged 10 through 17?" Question 7 was "How many do you have?"<sup>3</sup>Persons answering no or don't know to question 10 or 11a.<sup>4</sup>Persons answering no or don't know to question 10, 11a, or 11b.<sup>5</sup>Persons answering no or don't know to question 14.<sup>6</sup>Based on persons answering yes to question 11a.<sup>7</sup>Persons answering no or don't know to questions 14 or 17.<sup>8</sup>Based on persons answering yes to question 17.<sup>9</sup>Persons answering no or don't know to question 25.<sup>10</sup>Based on persons answering yes to question 25.<sup>11</sup>Based on persons answering yes to question 30.

## 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 1990 National Health Interview Survey of AIDS Knowledge and Attitudes is asked of one randomly chosen adult 18 years of age or over in each family. The estimates in this report are based on completed interviews with 5,293 non-Hispanic black and 30,996 non-Hispanic white individuals, about 87 percent of eligible respondents.

Table I contains the estimated population size of each of the demographic subgroups included in tables 1 and 2 to allow readers to derive provisional estimates of the number of people in the United States with a given characteristic, for example, the number of non-Hispanic black women who have had their blood tested for HIV. The population figures in table I are based on 1989 data from the NHIS; they are not official population estimates. Tables II and III show approximate standard errors for most of the estimates presented in tables 1 and 2. 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). Both the estimates in tables 1 and 2 and the standard errors in tables II and III are provisional. They may differ slightly from estimates

made using the final 1990 data file because they were calculated using a simplified weighting procedure that does not adjust for all the factors used in weighting the final data file. A final data file covering the entire 1990 data collection period will be available at the end of 1991.

Table I. Non-Hispanic black and non-Hispanic white sample sizes for the 1990 National Health Interview Survey of AIDS Knowledge and Attitudes and estimated non-Hispanic black and non-Hispanic white adult populations 18 years of age and over, by selected characteristics: United States, 1990.

Characteristic	Sample size		Estimated population in thousands	
	Non-Hispanic black	Non-Hispanic white	Non-Hispanic Black	Non-Hispanic White
All adults . . . . .	5,293	30,996	19,656	140,451
Age				
18-29 years . . . . .	1,318	6,666	6,075	32,918
30-49 years . . . . .	2,158	12,159	7,849	55,521
50 years and over . . . . .	1,817	12,171	5,732	52,012
Sex				
Male . . . . .	1,844	13,292	8,749	67,116
Female . . . . .	3,449	17,704	10,906	73,336
Education				
Less than 12 years . . . . .	1,736	5,545	6,071	24,319
12 years . . . . .	2,069	12,055	7,913	56,256
More than 12 years . . . . .	1,461	13,318	5,570	59,498

Table II. Standard errors, expressed in percentage points, of estimated percents for non-Hispanic black adults from the 1990 National Health Interview Survey of AIDS Knowledge and Attitudes, by selected characteristics: United States, 1990.

Estimated percent	Total	Age			Sex		Education		
		18-29 years	30-49 years	50 years and over	Male	Female	Less than 12 years	12 years	More than 12 years
5 or 95 . . . . .	0.4	0.8	0.6	0.7	0.7	0.5	0.7	0.6	0.7
10 or 90 . . . . .	0.5	1.1	0.8	0.9	0.9	0.7	0.9	0.8	1.0
15 or 85 . . . . .	0.6	1.3	1.0	1.1	1.1	0.8	1.1	1.0	1.2
20 or 80 . . . . .	0.7	1.4	1.1	1.2	1.2	0.9	1.2	1.1	1.3
25 or 75 . . . . .	0.8	1.5	1.2	1.3	1.3	0.9	1.3	1.2	1.5
30 or 70 . . . . .	0.8	1.6	1.3	1.4	1.4	1.0	1.4	1.3	1.5
35 or 65 . . . . .	0.8	1.7	1.3	1.4	1.4	1.0	1.5	1.3	1.6
40 or 60 . . . . .	0.9	1.7	1.4	1.5	1.5	1.1	1.5	1.4	1.6
45 or 55 . . . . .	0.9	1.8	1.4	1.5	1.5	1.1	1.5	1.4	1.7
50 . . . . .	0.9	1.8	1.4	1.5	1.5	1.1	1.5	1.4	1.7

Table III. Standard errors, expressed in percentage points, of estimated percents for non-Hispanic white adults from the 1990 National Health Interview Survey of AIDS Knowledge and Attitudes, by selected characteristics: United States, 1990.

<i>Estimated percent</i>	<i>Total</i>	<i>Age</i>			<i>Sex</i>		<i>Education</i>		
		<i>18-29 years</i>	<i>30-49 years</i>	<i>50 years and over</i>	<i>Male</i>	<i>Female</i>	<i>Less than 12 years</i>	<i>12 years</i>	<i>More than 12 years</i>
5 or 95 . . . . .	0.2	0.3	0.3	0.3	0.2	0.2	0.4	0.3	0.2
10 or 90 . . . . .	0.2	0.5	0.4	0.3	0.3	0.3	0.5	0.4	0.3
15 or 85 . . . . .	0.3	0.6	0.4	0.4	0.4	0.3	0.6	0.4	0.4
20 or 80 . . . . .	0.3	0.6	0.5	0.5	0.4	0.4	0.7	0.5	0.4
25 or 75 . . . . .	0.3	0.7	0.5	0.5	0.5	0.4	0.7	0.5	0.5
30 or 70 . . . . .	0.3	0.7	0.5	0.5	0.5	0.4	0.8	0.5	0.5
35 or 65 . . . . .	0.3	0.8	0.6	0.6	0.5	0.5	0.8	0.6	0.5
40 or 60 . . . . .	0.4	0.8	0.6	0.6	0.5	0.5	0.8	0.6	0.5
45 or 55 . . . . .	0.4	0.8	0.6	0.6	0.6	0.5	0.9	0.6	0.6
50 . . . . .	0.4	0.8	0.6	0.6	0.6	0.5	0.9	0.6	0.6



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**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 (estimate has relative standard error of more than 30 percent)
  - # Figure suppressed to comply with confidentiality requirements
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**Suggested citation**

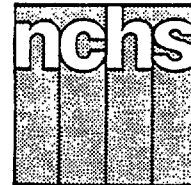
Hardy AM, Biddlecom AE. AIDS knowledge and attitudes of black Americans: United States, 1990. Advance data from vital and health statistics; no 206. Hyattsville, Maryland: National Center for Health Statistics. 1991.

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# Advance Data



From Vital and Health Statistics of the National Center for Health Statistics

## AIDS Knowledge and Attitudes of Hispanic Americans: United States, 1990

### Provisional Data From the National Health Interview Survey

by Ann E. Biddlecom, M.A., and Ann M. Hardy, Dr.P.H., Division of Health Interview Statistics

#### Introduction

This report is one of two special reports examining awareness of acquired immunodeficiency syndrome (AIDS) and the human immunodeficiency virus (HIV) among racial and ethnic minority groups of the U.S. population. Based on data collected in the 1990 National Health Interview Survey (NHIS), this report describes various aspects of AIDS-related knowledge and HIV antibody testing experience for Hispanic adults 18 years of age and over. It presents differentials by age, sex, education, and specific Hispanic ancestry for the Hispanic population residing in the United States and compares selected measures with the non-Hispanic white population. The first of these special reports (Advanced Data From Vital and Health Statistics No. 206) presents data for non-Hispanic black adults.

The National Center for Health Statistics (NCHS) has included

questions about AIDS in the NHIS since 1987. Data concerning the adult population's knowledge about AIDS and transmission of HIV are collected to assist in the planning and monitoring AIDS educational programs. Since the initiation of the NHIS AIDS survey, its scope has widened to include more questions on HIV testing and blood donation experience and a general risk behavior question similar to that asked by the American Red Cross of potential blood donors. Detailed information on the NHIS AIDS survey sample is contained in the Technical notes at the end of this report.

The first AIDS Knowledge and Attitudes Survey was in the field from August–December 1987. Provisional results of that survey were published monthly in Advanced Data From Vital and Health Statistics (Nos. 146, 148, 150, 151, and 153). In 1988 the NHIS AIDS questionnaire was revised and this version of the survey entered the field in May 1988.

Provisional findings for the remainder of 1988 were published periodically (*Advance Data From Vital and Health Statistics* Nos. 160, 161, 163, 164, 167, and 175). Although data on Hispanic adults have been included in all reports, two special reports focused in detail on minority populations and were published using 1988 data (*Advance Data From Vital and Health Statistics* Nos. 165 and 166).

The 1988 AIDS questionnaire was used without modification throughout 1989 and results were published on a quarterly basis (Advanced Data From Vital and Health Statistics Nos. 176, 179, 183, and 186). For 1990 the AIDS questionnaire was revised again, with added emphasis on HIV testing procedures and on the distinction between HIV testing in connection with blood donation and testing for other reasons. Provisional findings have been published quarterly in *Advance Data From Vital and*



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service

Centers for Disease Control

National Center for Health Statistics

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



*Health Statistics* Nos. 193, 195, 198, and 204.

The NHIS AIDS questionnaires have been developed by NCHS and an Interagency Task Force created by the Public Health Service Data Policy Committee. The Task Force included representatives from the Centers for Disease Control; Office of the Assistant Secretary for Health; National AIDS Program Office; National Institutes of Health; Alcohol, Drug Abuse and Mental Health Administration; Food and Drug Administration; and Health Resources and Services Administration.

This report presents provisional data for 1990 for most items included in the AIDS questionnaire. Tables 1 and 2, for Hispanic and non-Hispanic white adults, respectively, show percent distributions by response categories according to age, sex, and education. In most cases, the actual questions asked are reproduced verbatim in the tables along with the response categories. A few questions and responses have been rephrased or combined for more concise presentation of results. 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.

The population subgroups in this report reflect the respondents' characterizations of both race and ethnic origin. For each member of a household, the household respondent for the main NHIS interview was asked, "What is the number of the group [on this card] that represents [name of sample person]'s race?" The choices on the response card were Aleut, Eskimo, or American Indian; Asian or Pacific Islander; black; white; and another group not listed. The household respondent was then asked "Are any of these groups [name of sample person]'s national origin or ancestry?" The choices on

the list were Puerto Rican, Cuban, Mexican/Mexicano, Mexican American, Chicano, other Latin American, and other Spanish. The "Puerto Rican" category in table 1 includes only persons classified as Puerto Rican and the "Mexican" category in table 1 includes persons classified as Mexican/Mexicano, Mexican American, or Chicano. The "other Hispanic" category includes all the other diverse Hispanic groups listed above, none of which was sufficiently large to analyze individually. Hispanic persons for whom the specific group of origin was unknown were not included in any of these categories but were included in the Hispanic total and breakdowns by age, sex, and education. Persons for whom it was not known whether they were of Hispanic origin were excluded from the analysis and do not appear in either table 1 or table 2. It should be noted that for those respondents speaking only Spanish, interviews were conducted by a bilingual interviewer or through other household members.

While the population subgroup highlighted in this report is the same as that in the 1988 report on Hispanic Americans, the comparison groups differ. In 1988 the comparison group of non-Hispanics included all races. In this report, the comparison group is restricted to non-Hispanic white persons. It is important to note that persons classified as Hispanic may be white, black, or other race. Three Hispanic subgroups (Puerto Ricans, Mexicans, and other Hispanics) are featured in this report as a result of the increasing need for information about specific Hispanic subpopulations. It should be noted that the Puerto Rican subgroup in this report includes only Puerto Rican adults residing in the United States and not those residing in Puerto Rico or other U.S. territories. In addition, some of the AIDS survey questions were revised in actual wording or in context and location between 1988 and 1990. For these reasons, comparisons between this report and the 1988 report must be made cautiously. Several of the more

dramatic changes across time will be highlighted in this analysis.

## Selected findings

Patterns of knowledge and attitudes about AIDS and HIV were similar within the Hispanic population and the U.S. population as a whole, with the greatest levels of knowledge occurring among the young and the well-educated. There are exceptions, though, especially in the area of general knowledge about AIDS. The following highlights describe various aspects of AIDS knowledge and attitudes from the NHIS data for 1990, focusing on differences within the Hispanic population and differences between Hispanic and non-Hispanic white adults. Unless otherwise noted, all differences cited in the text are statistically significant at the .05 level (see tables II and III for approximate standard errors of estimates).

*Sources of information and communication about AIDS and HIV*—During 1990, 88 percent of Hispanic adults reported having received information about AIDS from any source in the month preceding the NHIS. Of those who did receive information, television was not only the most frequently cited source (77 percent) but also the source which varied little among sociodemographic groups. Written sources were the next most reported sources of AIDS information: 43 percent read about AIDS in newspapers and 37 percent received AIDS information in magazines. A noticeable difference emerged between Hispanic and non-Hispanic white individuals in the proportion who had read about AIDS in newspapers (43 percent compared with 56 percent) and in magazines (37 percent compared with 44 percent). Almost one-third (32 percent) of Hispanic adults received information about AIDS on the radio—a figure comparable to that within the non-Hispanic white population.

Differences in mediums of information about AIDS among Hispanic subpopulations were also

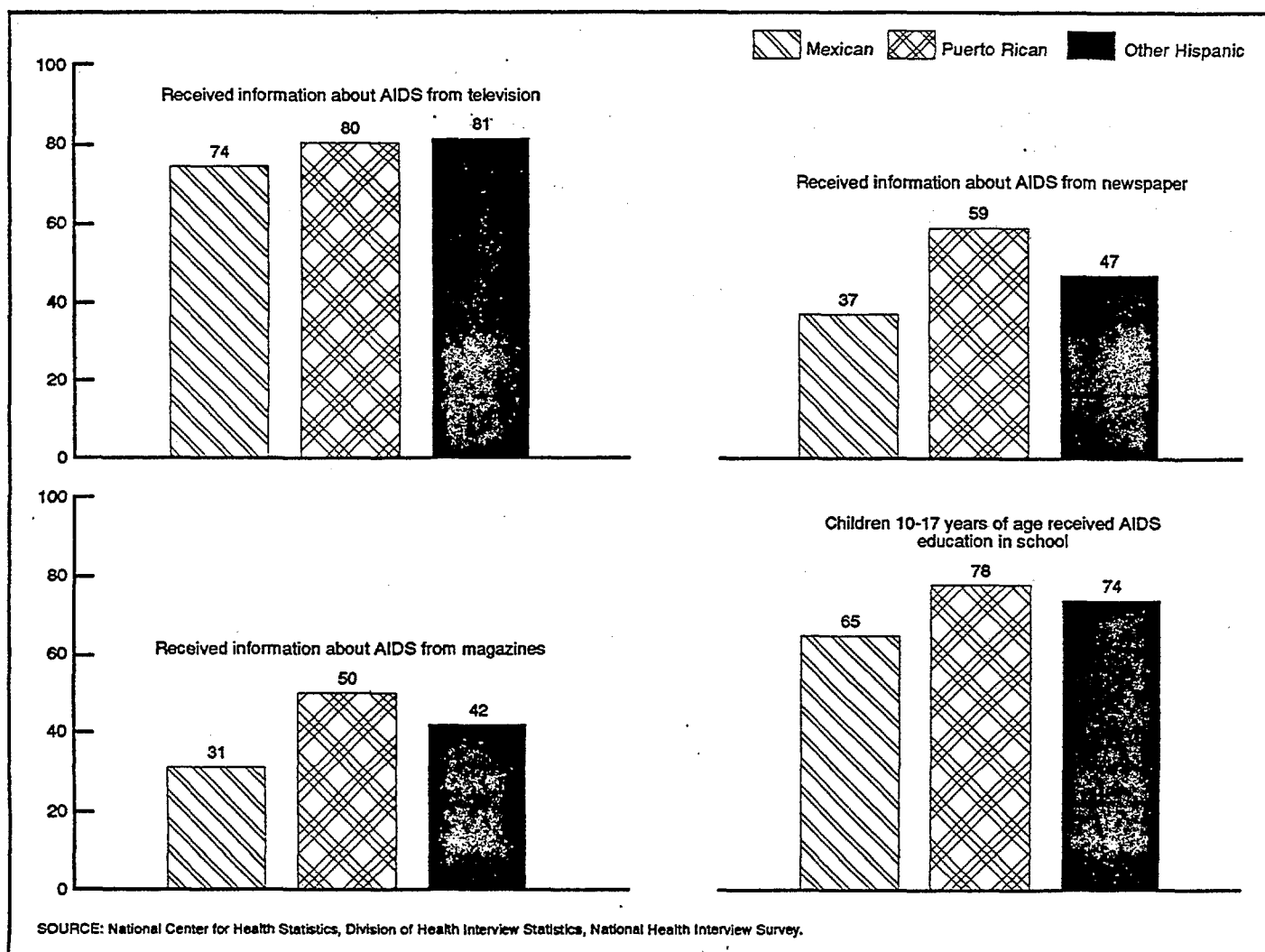


Figure 1: Provisional estimates of percent of Hispanic adults exposed to selected sources of AIDS information, by Hispanic subgroup: United States, 1990.

evident, especially for written sources (see figure 1). For example, Mexican-origin adults were the least likely and Puerto Rican adults were the most likely to have read about AIDS in a newspaper (37 percent compared to 59 percent). This was also true for those who read about AIDS in a magazine. Puerto Rican and other Hispanic adults were equally likely to receive information about AIDS via television, but Mexican-origin adults had the lowest percentage of hearing about AIDS through this medium.

Overall, some of the most noticeable differences in sources of AIDS information were by education level, especially for written sources. For example, the proportion of individuals who had ever read about AIDS in a magazine increased from one quarter (25 percent) of Hispanic adults with less than 12 years of

school to more than half (55 percent) of those adults with more than 12 years of school. There were no significant differences by education level for either radio or television.

Only 57 percent of Hispanic parents with children between the ages of 10 and 17 years reported that they had ever discussed AIDS with their children, compared with almost 70 percent of their non-Hispanic white counterparts. Mexican-origin parents were much less likely to have ever discussed AIDS with their children (50 percent) relative to other Hispanic adults (64 percent) and Puerto Rican parents (74 percent). There was a strong positive association between the proportion of Hispanic parents who ever discussed AIDS with their children and parental education. Gender differences were also substantial

among Hispanic adults: two-thirds (66 percent) of women compared with less than half (45 percent) of men had ever discussed AIDS with their children. Hispanic parents were also less likely than non-Hispanic white parents to report that their children had received AIDS education in school (69 percent compared with 74 percent).

When asked if they have ever personally known anyone with AIDS or the AIDS virus, 15 percent of Hispanic adults responded that they had—the same proportion as for non-Hispanic white adults. Yet there were particularly striking differences among Hispanic subpopulations. Almost one-third (30 percent) of Puerto Rican individuals had ever known someone with AIDS compared with 19 percent of other Hispanic persons and just 10 percent of

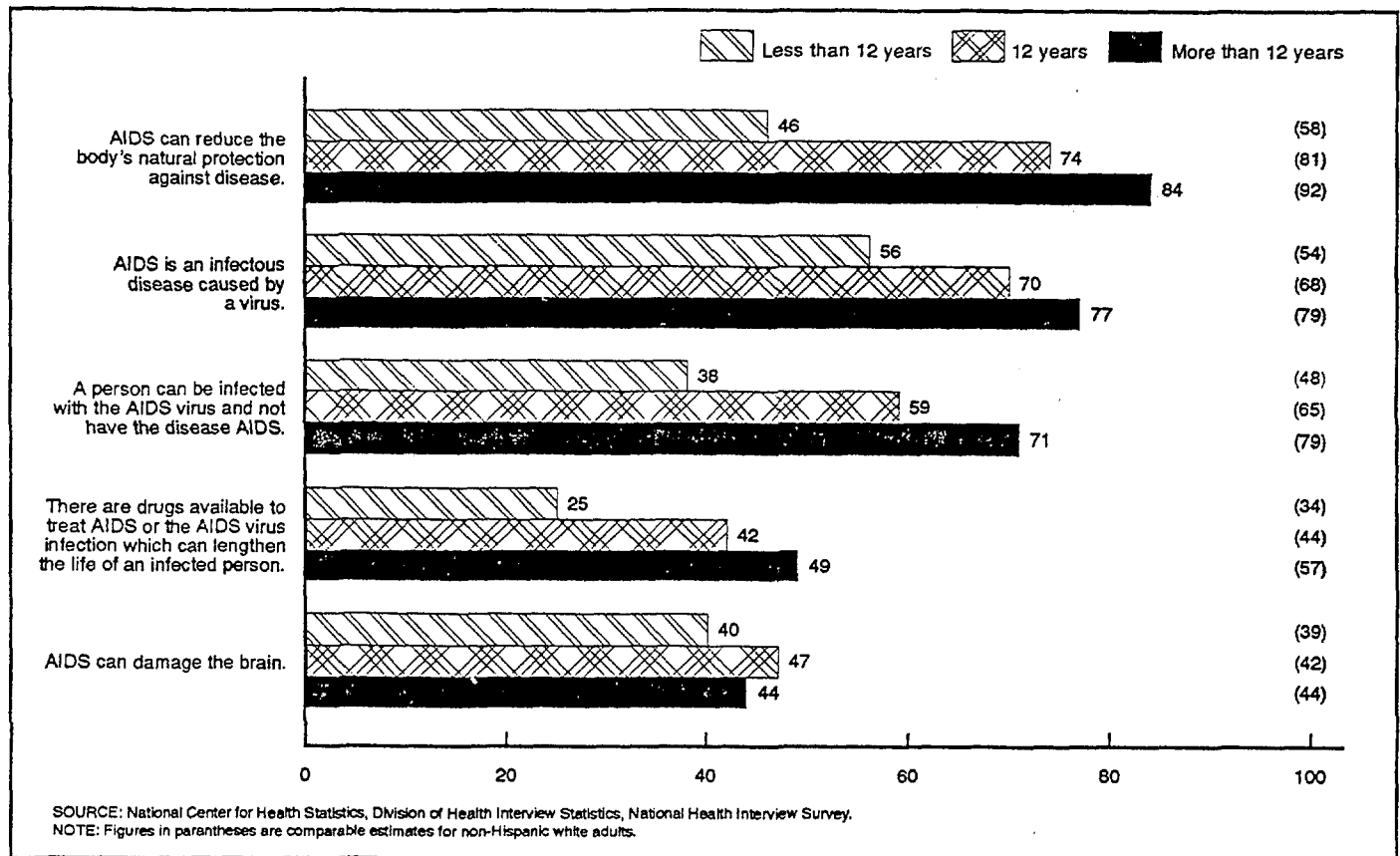


Figure 2. Provisional estimates of percent of Hispanic adults who thought selected statements about AIDS definitely true, by years of education: United States, 1990.

persons of Mexican origin. Hispanic adults with more than 12 years of education were much more likely to have known someone with AIDS or the AIDS virus than those persons with less than 12 years of education (26 percent compared with 9 percent).

**General AIDS knowledge**—In terms of self-assessed knowledge about AIDS, 19 percent of Hispanic adults stated that they knew a lot about AIDS, 38 percent some, 29 percent a little, and 14 percent nothing. Of those Hispanic adults with less than 12 years of education, 38 percent felt they knew a lot or some about AIDS compared with 80 percent of those with over 12 years of education. A significant difference in self-assessed knowledge about AIDS by Hispanic subpopulation was also evident: 49 percent of Mexican-origin adults thought they knew a lot or some compared with 66 and 67 percent of other Hispanic and Puerto Rican adults, respectively. In comparison, non-Hispanic white adults were as likely to feel that they

knew a lot about AIDS (19 percent), more likely to know some (49 percent), and less likely to feel that they knew little or nothing (23 and 9 percent).

The proportion of Hispanic adults who correctly identified the major modes of AIDS transmission (sexual intercourse, perinatal contact, and shared needles for drug use) was relatively high for all socio-demographic groups, although persons of Mexican origin were least likely to correctly identify these routes of transmission compared with Puerto Rican or other Hispanic adults. For other facts about AIDS, education differentials were evident, regardless of Hispanic origin. Adults 50 years of age and over were also less likely to identify correctly selected statements about AIDS and the AIDS virus as definitely true or false.

Figure 2 illustrates the variations in objective measures of general knowledge about AIDS by education level within the Hispanic population (comparable percentages for the

non-Hispanic white population are in parentheses). In general, adults with less than 12 years of school were less knowledgeable about the basic facts about AIDS than were those adults with 12 or more years school. For example, the proportion of Hispanic adults who knew that a person can be infected with the AIDS virus and not have the disease AIDS varied from 38 percent of individuals with less than 12 years of education to 71 percent of those with more than 12 years of education. Furthermore, less than half (46 percent) of Hispanic adults with under 12 years of school knew that AIDS can reduce the body's natural protection against disease compared with 84 percent of those adults with more than 12 years of education.

From 1988–90, there were several noticeable increases in the proportion of Hispanic adults who correctly identified the facts about AIDS and the AIDS virus. The largest change occurred in the proportion of Hispanic adults who knew that AIDS

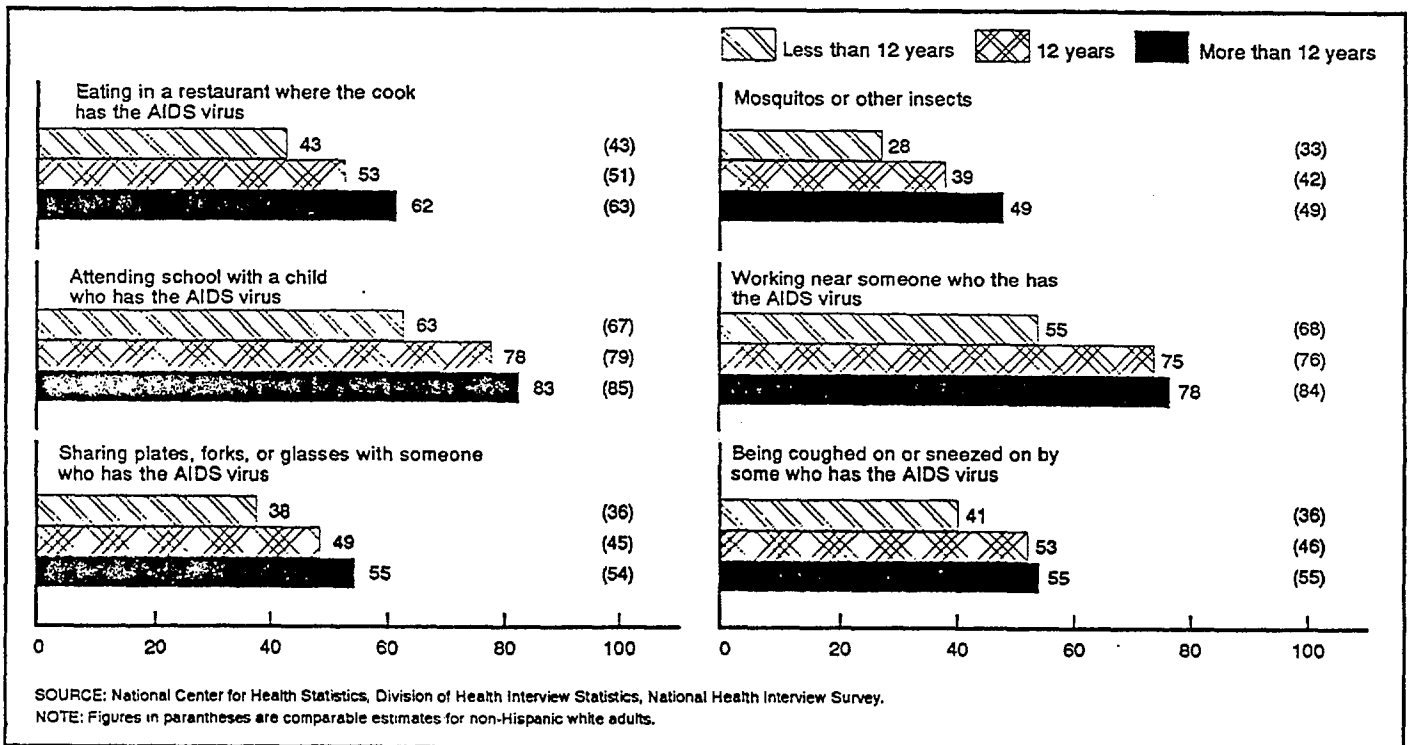


Figure 3. Provisional estimates of percent of Hispanic adults who thought it very unlikely or definitely not possible to become infected with the AIDS virus in selected ways, by years of education: United States, 1990.

can damage the brain: only one-quarter (25 percent) correctly identified this statement as true in 1988 compared with 43 percent of Hispanic adults in 1990. A further substantial increase in AIDS knowledge over time occurred for the statement concerning individuals who have the AIDS virus and who do not have the disease AIDS—correct responses rose from 41 percent to 52 percent of Hispanic adults from 1988–90.

A new questionnaire item was added to the general AIDS knowledge section in the 1990 survey to ascertain responses to the statement that there are drugs available that can extend the life of an HIV-infected person. Hispanic persons were less likely than non-Hispanic white persons to state that this was true, 36 percent compared with 48 percent. As illustrated in figure 2, the percent correctly responding to this statement significantly increased as education level increased for both groups.

*Misperceptions about HIV transmission*—The NHIS AIDS questionnaire asked respondents to estimate the risk of HIV transmission

associated with several forms of casual contact with HIV-infected or potentially infected individuals, such as working near someone who has AIDS or using public toilets. Of the five response options for the likelihood of transmission, both “very unlikely” and “definitely not possible” were interpreted as correct responses, even for forms of contact where our current understanding of the virus indicates that there is definitely no possibility of transmission. The decision to accept “very unlikely” as correct was based on the large numbers of respondents who chose that option, seemingly unwilling to commit themselves to the concept of a zero probability.

Despite the generally high levels of understanding about the three major modes of transmission of AIDS, misperceptions about the likelihood of transmission through casual contact persisted, with particularly striking differences between Hispanic and non-Hispanic white adults. In contrast to other areas of AIDS knowledge and attitudes, differences between Hispanic subpopulations with regard to misperceptions of AIDS

transmission were small and almost always insignificant. Figure 3 shows the proportions of Hispanic adults and non-Hispanic white adults by education level who correctly identified the low or nonexistent risks associated with various forms of casual contact with HIV-infected persons. In general, as the level of education rises, the proportion of adults with misperceptions about HIV transmission declines. For example, 55 percent of Hispanic adults with less than 12 years of education thought it very unlikely or definitely not possible to become infected with the AIDS virus from “working near someone with the AIDS virus” compared with 78 percent of Hispanic adults with more than 12 years of education.

The forms of contact perceived as most threatening by both Hispanic adults and non-Hispanic white adults were those that involved potential exchange of saliva or blood. Even among the most educated, under half (49 percent) of Hispanic adults with more than 12 years of education thought it very unlikely or definitely not possible to get AIDS or the AIDS virus from mosquitoes or other

insects; for non-Hispanic white adults, the comparable proportion was 55 percent. Hispanic and non-Hispanic white adults with more than 12 years of school were about equally likely to correctly identify the low to non-existent risk of becoming infected with the AIDS virus for most of the casual contact questions.

#### *Blood donation and HIV*

*testing*—Approximately one-quarter of Hispanic adults reported that they had ever donated blood. Hispanic males were more likely than Hispanic females to have been past blood donors (32 percent compared with 21 percent); the proportion who reported ever donating also increased by years of education. Non-Hispanic white adults were more likely than Hispanic adults to have reported ever donating blood (43 percent). The demographic patterns of blood donation noted among the Hispanic population were also seen in the non-Hispanic white population.

Eleven percent of Hispanic adults indicated they had donated blood since March 1985 when routine screening of donated blood for HIV antibodies began. Of these, 5 percent had donated only once and the remaining 6 percent donated on two or more occasions. Again, blood donations increased with education. By comparison, 17 percent of non-Hispanic white adults donated blood since March 1985. Four percent of Hispanic adults and 7 percent of non-Hispanic white adults donated blood in the past year. For each group, most had donated only once and the same pattern of increased donations by education was noted.

More than two-thirds (69 percent) of Hispanic adults had heard of the blood test to detect HIV antibodies. This figure is not statistically different from the 65 percent who had heard of the test in 1988. The percent who were aware of the test in 1990 varied by age, education, and Hispanic origin. Only 58 percent of Hispanic persons 50 years of age and over had heard of the test compared with 76 percent of Hispanic adults 30–49 years of age. The proportion who had heard of the test ranged from 57 percent of those

with less than 12 years of education to 85 percent of those with more than 12 years. By ethnic group, Puerto Rican adults were the most knowledgeable about the test (78 percent aware), and Mexican Americans were the least aware (65 percent). Awareness of the antibody test was higher among non-Hispanic white adults (81 percent). The same patterns of awareness by age and education were also noted among non-Hispanic white persons, but within all sociodemographic categories, awareness was higher among non-Hispanic white adults than among Hispanic adults.

Slightly more than half (55 percent) of Hispanic adults knew that blood donations are routinely tested for HIV infection. This figure is similar to that reported in 1988 (51 percent). Again, the proportion of Hispanic adults who believed blood donations are tested varied widely by years of education, from 43 percent of those with less than 12 years to 71 percent of those with more than 12 years of education. Overall, a higher proportion of non-Hispanic white adults (71 percent) knew that blood donations are screened. Some of this difference is due to the lower percentage of Hispanic adults who knew of the HIV antibody test compared to non-Hispanic white adults. However, even among those aware of the HIV test, Hispanic persons were still less aware than non-Hispanic white persons that donations are tested.

In the 1990 survey, a new question assessed what percentage of those who had donated blood since HIV screening began in 1985, did so, at least in part, to be tested for AIDS. For Hispanic adults who had donated during that time, the figure was 2 percent, essentially the same as that reported for non-Hispanic white donors. In both groups, no differences were noted by other sociodemographic characteristics.

Excluding testing performed as part of blood donation, 16 percent of Hispanic adults reported that they had been tested for antibodies to HIV. For non-Hispanic white adults

the figure was lower, 9 percent. The difference between these two racial and ethnic groups is even more striking when one considers that fewer Hispanic adults were aware of HIV testing. Almost one-quarter (23 percent) of Hispanic persons who were aware of the antibody test have been tested compared with 11 percent of knowledgeable non-Hispanic white adults. In both groups, testing increased with years of education and was highest among those 18–29 years of age compared with older adults. If testing through blood donation is also included, then a total of 25 percent of Hispanic adults and 24 percent of non-Hispanic white adults have been tested for antibodies to HIV. These figures are higher than those seen in 1988; 14 percent overall for Hispanic adults and 17 percent for non-Hispanic white adults.

The remainder of this section deals only with HIV antibody testing exclusive of testing done in conjunction with blood donation. For both Hispanic and non-Hispanic white adults, the majority (69 percent and 67 percent, respectively) who had been tested, had been tested only once. Overall, for both Hispanic and non-Hispanic white adults, HIV antibody tests were more likely to be required than voluntary. However the proportion required for Hispanic adults was higher than for non-Hispanic white adults (61 percent compared with 52 percent of tests required). Within the Hispanic population, 70 percent of the tests done for Mexican Americans were required, while for Puerto Ricans the proportion of required tests was much smaller, 21 percent. Examination of the reasons for required testing provides some insight into these differences. For Hispanic individuals in general, the most commonly cited reason for required testing was immigration (mentioned as the reason for testing by 39 percent of all Hispanic adults tested). For Mexican Americans, immigration accounted for 55 percent of all nonblood donation-related HIV antibody tests. Since Puerto Rican adults are not immigrants, they were not tested for this reason. Employment was



mentioned as the reason for testing by 6 percent of Hispanic adults tested and hospitalization or surgery was reported by 5 percent. For non-Hispanic white adults, the reasons were somewhat different. Hospitalization or surgery was cited most often (12 percent), military induction was next (11 percent), followed by life insurance (10 percent) and employment (7 percent). Immigration accounted for only 1 percent of those tested. Similar figures were noted for the proportion of tests required and the reasons mentioned for required testing when only the last HIV antibody test was focused on.

Despite the differences in the reasons for testing between Hispanic adults and non-Hispanic white adults, the two most frequently reported places for the last antibody test for both groups were doctor's office or HMO (listed by 45 percent of Hispanic adults and 31 percent of non-Hispanic white adults), and hospital, emergency room, or outpatient clinic (mentioned by 13 percent and 26 percent, respectively). The third most common site among Hispanic persons tested was a public health department (mentioned by 10 percent), while among non-Hispanic white adults it was a military induction site reported by 11 percent.

Of Hispanic adults who were tested, 39 percent reported also receiving pretest counseling about AIDS and the meaning of the test. This figure was similar for non-Hispanic white adults tested (38 percent). The majority of both Hispanic adults and non-Hispanic white adults who were tested got their results (83 percent and 75 percent, respectively). Those who did not get their results may include some individuals whose results were not yet available at the time of interview. For both groups, about one-third of those who had not gotten their results reportedly wanted them. Only about one-third (35 percent) of Hispanic adults who got their results also indicated that they received posttest counseling about risk reduction and/or prevention of HIV

transmission. For non-Hispanic white persons who were tested and got their results, the percentage who also received posttest counseling was even lower at 24 percent. Hispanic persons were more likely to have received their results in person (87 percent) when compared with non-Hispanic white persons (58 percent), while non-Hispanic white persons were more likely to have received their results in the mail (16 percent compared with 5 percent) or by telephone (19 percent compared with 5 percent). This larger proportion of Hispanic adults who got their results in person may help explain in part the somewhat larger proportion who also received posttest counseling. Over 90 percent of both Hispanic adults and non-Hispanic white adults who were tested felt their results were handled properly in terms of confidentiality.

Ten percent of Hispanic adults reported that they plan to be tested for HIV infection in the next year. This figure was somewhat higher for those 18–29 years of age compared with those 50 years and over (12 percent compared with 5 percent). No other sociodemographic differences were noted. Only 5 percent of non-Hispanic white adults reported that they planned to be tested.

Among Hispanic persons with plans to be tested, 81 percent said they would do so voluntarily because they personally wanted to know if they were infected. Twenty-three percent indicated the reason would be for blood donation and 16 percent said they would be tested as a requirement for a nonmilitary job (note: percentages sum to more than 100 percent because respondents may choose more than one reason for being tested). Among non-Hispanic white individuals with plans to be tested, the top three reasons cited were the same: 58 percent indicated it would be voluntary because they wanted to know their infection status, 28 percent listed blood donation as the reason for their future test, and 13 percent stated it would be a requirement for a nonmilitary job. As with HIV testing that has already

been done, a private doctor or HMO was mentioned most often as the site for future HIV testing followed by hospital, emergency room, or outpatient clinic by both non-Hispanic white and Hispanic adults.

*Prevention and perceived risk of HIV infection*—The 1990 NHIS again asked respondents about their perception of the efficacy of condoms as a means of preventing the sexual transmission of the AIDS virus. Hispanic adults were less likely than non-Hispanic white adults to state that condoms were “very effective” or “somewhat effective” (71 percent compared with 81 percent). An even larger difference in response occurred among Hispanic subgroups: 32 percent of Puerto Rican adults rated condoms as “very effective” compared with only 22 percent of Mexican or other Hispanic persons. Differences in response to the question of perceived effectiveness of condoms were not evident among sociodemographic groups, except by education level where the proportion who rated condoms as “very effective” or “somewhat effective” increased as years of school increased. Furthermore, the gender difference noted in the non-Hispanic white population in the proportion perceiving condoms as “very effective” was not evident in the Hispanic population.

Four percent of Hispanic individuals reported that they had received a blood transfusion between 1977 and 1985, the period before the blood supply was screened for HIV. This figure is similar across all sociodemographic and Hispanic subgroups.

Overall, 73 percent of Hispanic adults felt there was no chance of their becoming infected with HIV, and 17 percent assessed their chance of infection as low. Three percent felt their risk was medium, and only 1 percent reported a high risk. Another 1 percent of Hispanic adults felt that there was a high chance that they were already infected with HIV. The proportion of Hispanic adults who believed that there was no chance of their getting HIV was much greater among women than among

men (78 percent compared with 67 percent). Perceived risk of infection increased with education and decreased with age for Hispanic adults, yet there were no discernible differences by specific Hispanic origin.

Only 2 percent of Hispanic persons reported being in any of the behavior categories highly associated with an increased risk of HIV infection and AIDS, a figure comparable to previous estimates in 1988 for Hispanic adults. The same percentage of non-Hispanic white persons identified themselves as belonging to at least one of the behavior categories. This proportion was relatively similar across various sociodemographic categories for both non-Hispanic white and Hispanic populations.

**Table 1. Provisional estimates of the percent of Hispanic persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990**

[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		Hispanic origin			Education		
		18-29 years	30-49 years	50 years and over	Male	Female	Puerto Rican	Other Mexican Hispanic	Less than 12 years	12 years	More than 12 years	
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	19	20	21	13	17	21	28	14	25	10	21	34
Some	38	41	39	30	38	37	39	35	41	28	45	46
A little	29	28	29	28	29	29	27	32	23	35	26	19
Nothing	14	11	10	28	16	13	6	18	11	27	7	1
Don't know	0	0	0	0	1	-	0	0	0	1	-	-
2. In the past month, have you received information about AIDS from any of these sources?												
Television	77	76	78	77	75	78	80	74	81	74	76	82
Radio	32	30	35	28	34	29	45	28	34	29	33	36
Magazines	37	39	38	32	35	39	50	31	42	25	40	55
Newspapers	43	39	46	44	46	40	59	37	47	33	46	57
Street signs/billboards	14	16	14	10	15	13	19	13	12	11	15	18
Store displays/store distributed brochures	8	9	10	4	9	8	12	8	8	7	9	10
Bus/streetcar/subway displays	7	7	7	4	8	6	16	5	7	5	8	9
Health department brochures	19	21	20	12	14	22	31	17	18	12	24	24
Workplace distributed brochures	12	10	15	9	12	12	18	11	12	7	13	20
School distributed brochures	11	14	12	4	10	12	15	10	11	9	11	15
Church distributed brochures	7	7	9	4	7	7	9	6	8	7	7	7
Community organization	6	5	7	4	5	7	10	5	6	4	6	9
Friend/acquaintance	15	17	15	9	16	14	18	14	15	11	18	18
Other	3	3	3	2	2	3	4	2	4	1	3	5
Don't know	1	1	0	1	1	1	1	1	1	1	0	-
Received no AIDS information in past month	12	11	11	14	13	11	7	14	8	15	12	7
3. Have you heard the AIDS virus called HIV?												
Yes	50	52	52	42	48	52	63	44	55	29	60	76
No	47	44	45	56	49	45	33	52	42	66	38	22
Don't know	3	4	3	3	3	3	3	3	3	5	2	2
4a. AIDS can reduce the body's natural protection against disease.												
Definitely true	64	64	67	56	62	65	72	58	72	46	74	84
Probably true	19	18	19	20	20	18	13	21	16	26	14	11
Probably false	2	2	2	3	2	2	1	2	2	3	2	1
Definitely false	3	3	3	2	3	3	3	4	1	4	3	2
Don't know	13	12	9	19	13	12	10	15	8	21	7	2
4b. AIDS can damage the brain.												
Definitely true	43	39	45	46	42	44	54	38	49	40	47	44
Probably true	27	28	26	26	28	26	24	29	24	27	25	29
Probably false	8	9	7	5	8	8	5	8	8	6	9	10
Definitely false	4	5	5	3	3	5	2	5	5	4	5	5
Don't know	18	19	16	21	19	18	14	20	15	24	14	11
4c. AIDS is an infectious disease caused by a virus.												
Definitely true	65	67	67	58	64	66	80	61	68	56	70	77
Probably true	19	19	20	20	21	18	12	21	18	21	19	17
Probably false	1	2	1	1	1	2	1	1	2	1	1	2
Definitely false	2	1	2	1	1	2	1	2	2	1	2	1
Don't know	12	11	10	20	13	12	6	14	11	20	8	3
4d. A person can be infected with the AIDS virus and not have the disease AIDS.												
Definitely true	52	52	55	48	49	55	64	45	61	38	59	71
Probably true	20	19	20	19	21	18	16	21	19	21	19	18
Probably false	4	4	3	5	4	4	3	4	3	5	4	2
Definitely false	4	6	4	2	5	4	5	5	3	5	6	2
Don't know	20	19	17	26	21	19	12	24	15	32	12	6
4e. ANY person with the AIDS virus can pass it on to someone else through sexual intercourse.												
Definitely true	82	83	83	77	77	85	90	77	86	74	88	88
Probably true	13	12	13	14	17	10	8	16	10	17	9	11
Probably false	1	0	0	1	1	0	-	1	0	1	1	0
Definitely false	1	1	0	1	0	1	0	0	1	0	1	0
Don't know	4	4	3	7	4	4	1	5	3	8	2	1
4f. A pregnant woman who has the AIDS virus can give it to her baby.												
Definitely true	79	81	79	73	74	83	88	75	81	69	86	86
Probably true	15	13	15	18	18	13	10	17	14	20	10	13
Probably false	0	0	0	1	1	0	0	0	0	1	0	0
Definitely false	0	0	0	0	0	0	1	0	0	0	0	-
Don't know	6	5	5	8	7	4	1	7	4	10	3	1

See footnotes at end of table.

**Table 1. Provisional estimates of the percent of Hispanic persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990—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	Age			Sex		Hispanic origin			Education			
	Total	18-29	30-49	Male	Female	Puerto Rican	Mexican	Other Hispanic	Less than 12 years	12 years	More than 12 years	
		years	years									50 years and over
Percent distribution												
4g. There are drugs available to treat AIDS or the AIDS virus which can lengthen the life of an infected person.												
Definitely true . . . . .	36	35	39	30	34	37	39	31	44	25	42	49
Probably true . . . . .	27	29	25	26	26	27	27	27	25	25	26	30
Probably false . . . . .	6	5	5	6	6	5	9	6	4	5	7	5
Definitely false . . . . .	9	9	9	9	9	9	8	10	7	10	10	6
Don't know . . . . .	23	22	21	30	24	22	17	26	20	35	15	11
4h. There is a vaccine available to the public that protects a person from getting the AIDS virus.												
Definitely true . . . . .	5	5	5	6	4	6	7	4	6	6	6	3
Probably true . . . . .	8	8	6	10	8	8	9	8	6	11	6	4
Probably false . . . . .	11	13	9	11	11	11	11	11	11	9	11	13
Definitely false . . . . .	51	51	56	44	49	53	52	49	55	36	62	67
Don't know . . . . .	25	24	24	29	28	23	21	28	22	37	15	14
4i. There is no cure for AIDS at present.												
Definitely true . . . . .	77	76	79	75	74	79	81	74	82	67	85	87
Probably true . . . . .	7	8	7	8	8	7	7	8	7	9	6	7
Probably false . . . . .	2	2	1	2	2	2	4	1	2	2	2	2
Definitely false . . . . .	3	3	3	2	3	2	4	3	2	4	2	1
Don't know . . . . .	11	11	10	13	13	10	4	14	7	19	6	4
5. How likely do you think it is that a person will get AIDS or the AIDS virus infection from—												
5a. Working near someone with the AIDS virus?												
Very likely . . . . .	4	3	5	3	5	3	5	3	4	6	2	2
Somewhat likely . . . . .	9	8	10	11	10	8	9	10	8	12	7	6
Somewhat unlikely . . . . .	12	13	13	9	12	13	12	13	11	13	10	12
Very unlikely . . . . .	29	27	30	29	29	28	26	27	32	22	32	36
Definitely not possible . . . . .	38	42	36	33	34	41	41	37	39	33	43	42
Don't know . . . . .	8	7	7	14	10	7	7	10	7	14	5	2
5b. Eating in a restaurant where the cook has the AIDS virus?												
Very likely . . . . .	7	6	7	8	7	6	7	7	7	7	8	5
Somewhat likely . . . . .	19	15	20	22	19	19	18	18	19	21	17	16
Somewhat unlikely . . . . .	13	17	12	9	14	13	17	14	10	14	12	13
Very unlikely . . . . .	25	24	25	25	25	24	21	24	28	19	28	33
Definitely not possible . . . . .	25	29	25	20	23	28	27	25	26	24	25	29
Don't know . . . . .	11	9	11	16	12	11	11	12	10	16	10	5
5c. Sharing plates, forks, or glasses with someone who has the AIDS virus?												
Very likely . . . . .	10	9	10	13	10	10	13	10	9	10	12	8
Somewhat likely . . . . .	21	18	21	27	23	20	19	21	23	24	20	18
Somewhat unlikely . . . . .	13	14	12	12	13	13	11	13	12	12	12	14
Very unlikely . . . . .	22	22	25	18	21	23	23	21	24	17	24	31
Definitely not possible . . . . .	23	28	21	17	21	25	25	23	23	21	25	24
Don't know . . . . .	11	9	11	15	12	10	8	12	9	17	7	5
5d. Using public toilets?												
Very likely . . . . .	9	7	10	12	9	9	10	10	8	12	10	4
Somewhat likely . . . . .	19	17	19	25	21	18	16	20	20	25	13	15
Somewhat unlikely . . . . .	11	11	10	10	11	10	11	10	10	10	11	11
Very unlikely . . . . .	24	22	28	19	23	24	23	22	27	16	27	34
Definitely not possible . . . . .	26	32	25	17	24	28	30	25	26	21	31	31
Don't know . . . . .	11	11	8	17	12	10	9	12	9	16	9	4
5e. Sharing needles for drug use with someone who has the AIDS virus?												
Very likely . . . . .	93	94	94	91	92	95	94	93	95	89	97	97
Somewhat likely . . . . .	2	2	2	3	2	2	3	2	2	4	1	1
Somewhat unlikely . . . . .	0	0	0	—	0	0	1	0	0	0	0	0
Very unlikely . . . . .	0	0	1	—	1	0	—	1	1	0	0	1
Definitely not possible . . . . .	1	1	1	—	1	1	0	1	0	1	0	0
Don't know . . . . .	3	3	2	6	4	2	1	4	2	6	1	0
5f. Being coughed or sneezed on by someone who has the AIDS virus?												
Very likely . . . . .	8	6	8	12	8	9	9	9	7	9	9	5
Somewhat likely . . . . .	18	14	19	22	19	17	16	18	19	19	16	17
Somewhat unlikely . . . . .	13	14	13	12	13	14	17	13	13	13	11	16
Very unlikely . . . . .	24	26	26	18	26	23	22	24	26	20	27	30
Definitely not possible . . . . .	23	30	21	16	21	25	25	22	25	21	26	25
Don't know . . . . .	13	11	12	19	13	13	10	14	11	18	11	7

See footnotes at end of table.

**Table 1. Provisional estimates of the percent of Hispanic persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990—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	Age			Sex		Hispanic origin			Education			
	Total	18-29	30-49	Male	Female	Puerto Rican	Other Mexican	Hispanic	Less than 12 years	12 years	More than 12 years	
		years	years									50 years and over
Percent distribution												
5g. Attending school with a child who has the AIDS virus?												
Very likely . . . . .	2	2	1	5	2	3	4	2	2	3	2	1
Somewhat likely . . . . .	8	6	8	12	9	7	5	7	10	11	5	6
Somewhat unlikely . . . . .	8	8	9	8	9	7	12	8	7	9	9	7
Very unlikely . . . . .	30	29	33	28	32	30	30	30	31	25	34	36
Definitely not possible . . . . .	42	48	41	34	37	46	42	41	43	38	44	47
Don't know . . . . .	9	8	9	13	11	8	7	10	7	15	6	3
5h. Mosquitoes or other insects?												
Very likely . . . . .	15	15	15	17	15	15	13	16	14	18	15	10
Somewhat likely . . . . .	24	24	22	27	25	22	19	24	24	27	23	20
Somewhat unlikely . . . . .	7	8	6	4	6	7	9	6	6	6	7	8
Very unlikely . . . . .	17	15	19	18	18	17	17	16	20	12	19	25
Definitely not possible . . . . .	19	22	18	15	17	20	24	18	19	16	20	24
Don't know . . . . .	18	17	19	19	18	18	18	19	16	21	17	14
8. Have you ever discussed AIDS with any of your children aged 10-17? <sup>2</sup>												
Yes . . . . .	57	57	58	49	45	66	74	50	64	46	64	70
No . . . . .	43	43	42	51	55	34	26	50	36	54	36	30
Don't know . . . . .	-	-	-	-	-	-	-	-	-	-	-	-
9. Have any or all of your children aged 10-17 had instruction at school about AIDS? <sup>2</sup>												
Yes . . . . .	69	70	70	66	67	71	78	65	74	62	74	77
No . . . . .	10	12	11	7	8	12	8	12	8	14	6	8
Don't know . . . . .	20	18	20	26	25	17	14	23	17	24	20	15
10. Have you ever donated blood?												
Yes . . . . .	26	19	29	33	32	21	29	25	27	16	29	41
No . . . . .	74	81	70	67	68	79	71	75	73	84	70	59
Don't know . . . . .	0	0	0	0	1	-	-	0	0	0	0	-
11a. Have you donated blood since March 1985?												
Yes . . . . .	11	12	12	5	12	10	14	10	10	4	13	21
No . . . . .	89	87	87	95	88	90	86	89	89	95	87	79
Don't know . . . . .	0	0	0	0	1	0	-	0	0	0	0	0
11b. Have you donated blood in the past 12 months?												
Yes . . . . .	4	4	5	2	4	4	4	4	4	1	5	8
No . . . . .	96	95	95	98	95	96	96	95	96	98	95	91
Don't know . . . . .	0	1	0	0	1	0	-	0	0	0	0	1
12. How many times have you donated blood since March 1985?												
Once . . . . .	5	6	4	2	4	5	4	5	4	2	5	8
Twice . . . . .	2	2	2	1	3	1	3	2	2	1	2	4
Three times or more . . . . .	4	4	6	2	4	4	7	4	4	1	6	8
Don't know . . . . .	0	-	0	0	0	0	0	0	-	0	-	0
Did not donate blood since March 1985 <sup>3</sup> . . . . .	89	88	88	95	88	90	86	90	90	96	87	79
13. How many times have you donated blood in the past 12 months?												
Once . . . . .	3	3	3	1	3	3	3	3	2	1	3	5
Twice . . . . .	1	1	1	1	1	1	0	1	1	0	1	2
Three times or more . . . . .	1	1	1	0	1	0	-	0	1	-	1	1
Don't know . . . . .	0	0	0	-	0	0	-	0	-	-	-	0
Did not donate blood in the past 12 months <sup>4</sup> . . . . .	96	95	95	98	96	96	96	96	96	99	95	92
14. Have you ever heard of a blood test that can detect the AIDS virus infection?												
Yes . . . . .	69	67	76	58	67	70	78	65	73	57	73	85
No . . . . .	29	31	23	38	30	28	20	33	25	39	25	14
Don't know . . . . .	2	2	2	4	3	2	2	3	1	4	2	1
15. To the best of your knowledge, are blood donations routinely tested for the AIDS virus infection?												
Yes . . . . .	55	55	60	43	53	56	58	54	54	43	58	71
No . . . . .	5	4	6	6	5	5	7	4	8	4	7	6
Don't know . . . . .	9	7	10	9	9	9	13	7	11	10	8	8
Never heard of test <sup>5</sup> . . . . .	31	33	24	42	33	30	22	35	27	43	27	15
16. Was one of your reasons for donating blood because you wanted to be tested for the AIDS virus infection? <sup>6</sup>												
Yes . . . . .	2	1	4	-	3	2	3	2	3	1	3	2
No . . . . .	75	78	73	68	71	78	73	71	83	69	66	83
Don't know . . . . .	1	2	-	-	1	0	-	0	2	-	2	0
Never heard of test <sup>5</sup> . . . . .	14	9	15	27	14	13	13	16	10	22	18	8
17. Except for blood donations since 1985, have you had your blood tested for the AIDS virus infection?												
Yes . . . . .	16	15	21	6	18	14	14	16	16	17	13	16
No . . . . .	50	50	52	48	47	54	60	48	53	38	58	65
Don't know . . . . .	3	1	3	4	3	2	4	1	4	2	2	4
Never heard of test <sup>5</sup> . . . . .	31	33	24	42	33	30	22	35	27	43	27	15

See footnotes at end of table.

**Table 1. Provisional estimates of the percent of Hispanic persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990—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	Age			Sex		Hispanic origin			Education			
	18-29	30-49	50 years	Total	Male	Female	Puerto Rican	Other Mexican	Hispanic	Less than 12 years	12 years	More than 12 years
	years	years	and over									
Percent distribution												
18. How many times have you had your blood tested for the AIDS virus infection, not including blood donations?												
Once	11	11	16	4	13	10	9	12	11	13	10	11
Twice	3	3	3	0	4	2	4	2	3	3	2	3
Three times or more	1	1	1	1	2	1	2	1	2	1	1	2
Don't know	0	0	0	—	0	0	0	0	0	0	—	0
Never heard of/had test	84	85	79	94	82	86	86	84	84	83	87	84
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	7	7	9	3	8	6	5	7	7	8	4	8
Once	8	8	10	3	9	6	7	7	8	8	8	6
Twice	1	1	1	1	1	1	2	1	1	1	1	1
Three times or more	0	0	0	0	0	0	0	0	0	0	0	0
Don't know	0	—	0	—	0	0	—	0	0	0	—	0
Never heard of/had test	84	85	79	94	82	86	86	84	84	83	87	84
20a. Were the blood tests, including those you had before the past 12 months, required or did you go for them voluntarily, or were there some of each? <sup>b</sup>												
All required	61	63	59	64	62	60	21	70	56	70	55	49
All volunteered	37	33	40	36	35	38	77	27	42	27	43	49
Some of each	2	4	0	—	2	1	1	1	2	2	1	2
Don't know	1	1	1	—	—	1	—	1	0	0	1	0
20b. Were any of the blood tests required for: <sup>b</sup>												
Hospitalization or a surgical procedure?	5	8	3	11	2	9	5	5	7	4	6	7
Health insurance?	1	1	2	4	1	2	4	—	3	0	—	5
Life insurance?	1	2	1	—	2	1	1	0	4	1	0	4
Employment?	6	5	4	19	5	6	8	3	10	5	4	10
Military induction or military service?	2	3	2	—	4	1	5	2	2	—	2	7
Immigration?	39	33	45	23	45	32	—	55	21	54	31	14
Other	10	16	4	15	7	13	5	7	15	9	13	8
Don't know	—	—	—	—	—	—	—	—	—	—	—	—
21. When was your last blood test for the AIDS virus infection? <sup>b</sup>												
1990	27	24	27	39	23	31	38	22	32	23	35	25
1989	40	47	36	30	41	39	44	41	37	41	41	37
1988	20	20	20	16	18	22	6	22	19	22	12	23
1987	6	6	6	6	7	5	4	8	4	4	9	6
1986	2	2	3	—	4	1	3	3	2	3	1	3
1985	2	1	2	6	3	1	4	1	4	2	—	6
Don't know	1	1	2	—	1	1	—	1	1	2	—	—
22a. Was your last test required or did you go for it voluntarily? <sup>b</sup>												
Required	62	65	59	64	62	61	23	70	58	70	56	50
Voluntary	37	34	40	36	37	37	75	28	42	29	42	49
Don't know	1	1	1	—	—	1	—	1	0	0	1	0
22b. Was the test required for: <sup>b</sup>												
Hospitalization or a surgical procedure?	5	8	3	11	2	9	7	5	7	4	6	7
Health insurance?	1	1	2	4	1	2	4	0	2	0	0	4
Life insurance?	1	2	1	—	2	1	1	0	4	1	0	4
Employment?	5	4	4	19	4	6	8	2	10	4	4	9
Military induction or military service?	2	3	2	—	4	0	4	2	2	—	2	6
Immigration?	39	32	46	23	44	32	—	55	21	53	32	14
Other	9	15	3	15	6	11	1	6	15	9	10	7
Don't know	—	—	—	—	—	—	—	—	—	—	—	—
23. Not including a blood donation, where was your last blood test for the AIDS virus done? <sup>b</sup>												
AIDS clinic/counseling/testing site	4	2	4	4	2	6	—	5	3	4	4	3
Clinic run by employer	4	3	2	15	4	3	6	3	5	5	3	2
Doctor/HMO	45	40	52	30	47	44	38	53	34	44	46	48
Public health department	10	11	8	22	10	10	17	8	12	10	12	9
Hospital/emergency room/outpatient clinic	13	14	11	20	9	17	24	8	17	10	13	19
STD clinic	1	1	—	—	—	1	—	—	2	—	2	—
Family planning clinic	2	3	2	—	2	2	5	2	1	4	1	—
Prenatal clinic	0	1	—	—	—	1	—	1	—	1	—	—
Tuberculosis clinic	—	—	—	—	—	—	—	—	—	—	—	—
Other clinic	9	7	10	7	12	5	2	9	11	12	6	5
Drug treatment facility	0	0	—	—	0	—	—	—	0	0	—	—
Military induction/service site	3	4	2	—	5	1	4	3	3	—	5	7
Immigration site	5	5	6	2	6	4	—	7	4	7	5	—
Other	4	8	2	—	3	6	3	2	8	3	4	7
Don't know	—	—	—	—	—	—	—	—	—	—	—	—

See footnotes at end of table.

**Table 1. Provisional estimates of the percent of Hispanic persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990—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	Age			Sex		Hispanic origin			Education			
	Total	18-29	30-49	50 years	Male	Female	Puerto Rican	Mexican	Other Hispanic	Less than 12 years	12 years	More than 12 years
		years	years	and over								
Percent distribution												
24. Before your last blood test for the AIDS virus infection, were you counseled about the AIDS virus and the meaning of the test? <sup>8</sup>												
Yes	39	44	35	34	41	36	40	34	46	36	35	47
No	60	56	63	66	58	63	56	65	54	63	65	51
Don't know	1	-	1	-	1	0	3	1	-	1	-	1
25. Did you get the results of your last test? <sup>2</sup>												
Yes	83	85	82	78	86	79	70	84	84	86	82	77
No	16	14	16	22	12	20	26	14	16	12	17	23
Don't know	1	1	1	-	1	1	3	1	-	1	1	-
26. Did you want the results of your last test? <sup>9</sup>												
Yes	33	49	25	24	24	39	59	36	16	30	37	33
No	68	48	75	76	76	59	41	64	80	70	63	64
Don't know	1	4	-	-	-	2	-	-	4	-	-	4
27. When you received the results of your last test, did you receive counseling or talk with a health professional about how to lower your chances of becoming infected with the AIDS virus or how to avoid passing it on to another person? <sup>10</sup>												
Yes	35	38	31	48	41	27	45	30	41	36	29	37
No	65	62	69	52	59	73	55	70	59	64	71	63
Don't know	-	-	-	-	-	-	-	-	-	-	-	-
28. Were the results given in person, by telephone, by mail, or in some other way? <sup>10</sup>												
In person	87	85	86	100	90	82	72	90	83	91	82	81
By telephone	5	4	6	-	3	7	17	3	5	4	6	6
By mail	5	8	4	-	4	7	-	4	8	4	6	7
Other	3	2	4	-	2	3	8	2	2	0	5	6
Don't know	1	1	1	-	-	1	3	-	1	1	1	-
29. Do you feel your last test for the AIDS virus infection was handled properly in terms of the confidentiality of your test results? <sup>6</sup>												
Yes	91	93	90	92	93	90	94	91	91	89	92	95
No	4	3	4	5	3	5	4	3	5	4	3	4
Don't know	5	4	5	3	4	5	-	6	3	6	5	1
30. Do you expect to have a blood test for the AIDS virus infection in the next 12 months?												
Yes	10	12	10	5	11	9	15	9	9	11	9	8
No	52	49	58	45	49	54	53	50	55	40	58	67
Don't know	7	6	8	8	7	7	10	6	9	7	6	10
Never heard of test <sup>5</sup>	31	33	24	42	33	30	22	35	27	43	27	15
31. Tell me which of these statements explain why you will have the blood test: <sup>11</sup>												
Voluntarily, because you personally want to know if you are infected	81	79	86	73	84	78	88	82	77	91	69	75
As part of a blood donation	23	23	20	31	27	18	17	24	22	20	21	33
As part of a hospitalization or surgical procedure	10	13	4	19	8	12	8	11	7	9	13	6
As a requirement for health insurance	13	12	13	18	13	13	9	18	5	14	9	16
As a requirement for life insurance	9	9	8	16	10	9	1	13	5	10	5	15
As a requirement for a job, other than military	16	15	14	26	16	16	10	15	20	17	16	15
As a requirement for the military	7	15	1	-	9	6	5	11	1	5	15	4
As a requirement for immigration	7	6	7	9	6	7	-	7	9	7	4	9
As a required part of some other activity that includes a blood sample and automatic AIDS testing	13	16	7	21	12	14	9	15	10	14	15	8
32. Where will you go to have a blood test for the AIDS virus infection? <sup>11</sup>												
AIDS clinic/counseling/testing site	2	2	2	-	2	2	-	3	1	2	2	1
Clinic run by employer	6	6	4	16	4	9	6	4	11	6	8	5
Doctor/HMO	42	42	46	27	43	41	42	47	30	38	45	45
Hospital/emergency room/outpatient clinic	15	16	14	17	11	19	30	8	20	17	12	16
Other clinic	14	15	14	8	14	13	3	15	19	18	13	4
Public health department	8	7	8	14	10	7	9	8	9	10	4	9
Red Cross/blood bank	5	3	6	8	5	4	-	5	7	3	3	11
Other	2	4	2	-	3	2	-	5	-	1	7	1
Don't know	5	5	5	9	8	3	9	5	4	4	7	8

See footnotes at end of table.

**Table 1. Provisional estimates of the percent of Hispanic persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990—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	Age			Sex		Hispanic origin			Education			
	Total	18-29 years	30-49 years	50 years and over	Male	Female	Puerto Rican	Mexican	Other Hispanic	Less than 12 years	12 years	More than 12 years
33. Did you have a blood transfusion at any time between 1977 and 1985?	Percent distribution											
Yes	4	2	4	4	3	4	5	3	4	3	4	4
No	95	97	95	94	96	95	94	96	95	96	95	95
Don't know	1	0	1	2	1	1	1	1	1	1	1	1
34. Do you think the present supply of blood is safe for transfusions?												
Yes	35	40	33	30	37	33	35	33	40	28	40	41
No	40	39	41	39	37	42	39	43	35	41	40	38
Don't know	25	21	26	31	26	24	26	25	25	31	20	21
35. How effective do you think the use of a condom is to prevent getting the AIDS virus through sexual activity?												
Very effective	23	23	25	18	25	21	32	22	22	20	24	26
Somewhat effective	48	52	49	41	48	48	48	45	53	39	56	57
Not at all effective	6	5	6	7	5	7	8	6	6	8	5	4
Don't know how effective	15	14	13	22	14	17	9	18	13	20	12	10
Don't know method	7	6	7	11	7	7	4	9	6	13	3	3
36. What are your chances of having the AIDS virus?												
High	1	1	1	1	1	1	1	1	1	1	1	1
Medium	3	4	2	2	4	2	2	3	3	2	3	3
Low	10	10	13	5	10	10	12	9	11	8	12	13
None	82	81	80	88	79	84	80	82	82	83	81	81
Don't know	4	4	4	4	6	3	4	4	3	7	2	1
37. What are your chances of getting the AIDS virus?												
High	1	1	1	—	1	0	1	1	1	1	1	0
Medium	3	4	3	2	4	3	3	4	3	4	3	3
Low	17	18	19	10	19	15	15	16	19	13	19	22
None	73	69	71	81	67	78	76	73	72	74	72	71
Don't know	5	6	4	5	7	3	4	5	5	8	3	3
N/A—High chance of already having the AIDS virus	1	1	1	1	1	1	1	1	1	1	1	1
38. Have you ever personally known anyone with AIDS or the AIDS virus?												
Yes	15	13	18	13	13	16	30	10	19	9	15	26
No	83	85	81	86	85	82	67	89	79	89	84	73
Don't know	2	2	2	1	2	2	3	1	2	3	1	1
39. Are any of these statements true for you?												
a. You have hemophilia and have received clotting factor concentrates since 1977.												
b. You are a native of Haiti or Central or East Africa who has entered the United States since 1977.												
c. You are a man who has had sex with another man at some time since 1977, even 1 time.												
d. You have taken illegal drugs by needle 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 (39 a-d).												
f. You have had sex for money or drugs at any time since 1977.												
Yes to at least 1 statement	2	4	2	1	3	2	4	2	3	2	2	3
No to all statements	97	96	98	99	97	98	96	98	97	97	98	97
Don't know	0	0	0	0	0	0	—	0	—	1	—	—

<sup>1</sup>Multiple responses may sum to more than 100.<sup>2</sup>Based on persons answering yes to question 6, "Do you have any children aged 10 through 17?" Question 7 was "How many do you have?"<sup>3</sup>Persons answering no or don't know to question 10 or 11a.<sup>4</sup>Persons answering no or don't know to question 10, 11a, or 11b.<sup>5</sup>Persons answering no or don't know to question 14.<sup>6</sup>Based on persons answering yes to question 11a.<sup>7</sup>Persons answering no or don't know to questions 14 or 17.<sup>8</sup>Based on persons answering yes to question 17.<sup>9</sup>Persons answering no or don't know to question 25.<sup>10</sup>Based on persons answering yes to question 25.<sup>11</sup>Based on persons answering yes to question 30.



**Table 2. Provisional estimates of the percent of white non-Hispanic persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990**

[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	Age				Sex		Education		
	Total	18-29 years	30-49 years	50 years and over	Male	Female	Less than 12 years	12 years	More than 12 years
Percent distribution									
Total	100	100	100	100	100	100	100	100	100
1. How much would you say you know about AIDS?									
A lot	19	23	23	13	18	19	9	14	28
Some	49	57	56	36	48	50	31	51	55
A little	23	18	19	31	24	22	32	28	15
Nothing	9	2	2	20	9	9	28	7	2
Don't know	0	0	0	0	0	0	0	0	0
2. In the past month, have you received information about AIDS from any of these sources? <sup>1</sup>									
Television	78	79	78	77	79	77	74	78	79
Radio	31	37	34	23	35	27	21	29	37
Magazines	44	48	48	37	42	46	27	41	54
Newspapers	56	51	59	55	57	54	39	54	65
Street signs/billboards	11	16	12	6	12	9	6	9	14
Store displays/store distributed brochures	6	10	6	4	7	6	4	6	7
Bus/streetcar/subway displays	3	5	4	2	4	3	2	2	5
Health department brochures	17	24	17	11	16	18	11	16	20
Workplace distributed brochures	11	12	16	6	11	11	4	10	16
School distributed brochures	8	14	9	3	7	9	5	6	11
Church distributed brochures	4	3	4	3	4	3	2	3	4
Community organization	4	5	5	3	4	4	2	4	6
Friend/acquaintance	12	19	13	7	12	12	9	11	14
Other	3	4	4	2	3	3	1	2	5
Don't know	1	0	0	1	1	1	1	1	0
Received no AIDS information in past month	11	9	10	14	11	12	17	11	8
3. Have you heard the AIDS virus called HIV?									
Yes	76	82	83	63	75	76	52	73	88
No	22	17	15	33	23	21	44	25	11
Don't know	2	1	1	4	2	2	5	2	1
4a. AIDS can reduce the body's natural protection against disease.									
Definitely true	82	87	89	70	82	81	58	81	92
Probably true	9	8	7	13	9	9	16	11	5
Probably false	1	1	1	2	1	1	2	1	0
Definitely false	1	1	1	2	1	2	3	2	0
Don't know	7	3	2	13	6	7	20	6	2
4b. AIDS can damage the brain.									
Definitely true	42	40	44	42	43	42	39	42	44
Probably true	26	27	25	26	26	26	28	28	23
Probably false	8	11	9	5	8	8	4	7	10
Definitely false	4	6	5	2	5	4	3	3	6
Don't know	19	16	16	25	18	21	27	20	16
4c. AIDS is an infectious disease caused by a virus.									
Definitely true	70	80	78	56	72	68	54	68	79
Probably true	15	12	12	19	14	15	19	16	12
Probably false	2	2	2	3	2	2	2	3	2
Definitely false	3	2	3	3	3	3	3	3	3
Don't know	10	4	5	19	9	11	21	10	5
4d. A person can be infected with the AIDS virus and not have the disease AIDS.									
Definitely true	68	74	76	55	67	68	48	65	79
Probably true	16	14	14	20	17	16	20	18	13
Probably false	3	3	2	3	3	2	4	3	2
Definitely false	3	4	2	2	3	2	3	3	2
Don't know	11	6	6	20	11	11	26	11	5
4e. ANY person with the AIDS virus can pass it on to someone else through sexual intercourse.									
Definitely true	88	93	91	82	87	89	82	88	90
Probably true	9	6	7	12	10	8	10	9	8
Probably false	1	1	1	0	1	0	0	0	1
Definitely false	0	0	0	0	1	0	0	0	0
Don't know	3	1	1	5	3	3	7	2	1
4f. A pregnant women who has the AIDS virus can give it to her baby.									
Definitely true	86	90	89	80	84	88	77	86	90
Probably true	10	8	8	13	12	8	14	10	8
Probably false	0	0	0	0	0	0	0	0	0
Definitely false	0	0	0	0	0	0	0	0	0
Don't know	4	2	2	6	4	3	8	3	2

See footnotes a: end of table.

**Table 2. Provisional estimates of the percent of white non-Hispanic persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990—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	Age			Sex		Education			
	Total	18-29 years	30-49 years	50 years and over	Male	Female	Less than 12 years	12 years	More than 12 years
4g. There are drugs available to treat AIDS or the AIDS virus which can lengthen the life of an infected person.	Percent distribution								
Definitely true . . . . .	48	51	53	40	48	47	34	44	57
Probably true . . . . .	27	26	27	29	27	27	25	30	26
Probably false . . . . .	6	7	5	5	6	5	6	6	5
Definitely false . . . . .	5	7	5	4	6	4	6	5	4
Don't know . . . . .	14	10	9	22	13	15	30	15	7
4h. There is a vaccine available to the public that protects a person from getting the AIDS virus.									
Definitely true . . . . .	2	2	2	2	2	2	3	2	2
Probably true . . . . .	3	3	2	3	3	3	5	3	2
Probably false . . . . .	10	10	9	11	10	10	11	11	9
Definitely false . . . . .	72	76	79	61	74	70	54	70	81
Don't know . . . . .	14	9	8	23	12	16	28	15	7
4i. There is no cure for AIDS at present.									
Definitely true . . . . .	87	90	91	82	87	87	78	87	92
Probably true . . . . .	6	5	5	8	6	6	8	7	5
Probably false . . . . .	1	1	1	1	1	1	1	1	1
Definitely false . . . . .	2	2	1	2	2	2	2	2	1
Don't know . . . . .	4	2	2	7	4	4	10	4	2
5. How likely do you think it is that a person will get AIDS or the AIDS virus infection from—									
5a. Working near someone with the AIDS virus?									
Very likely . . . . .	2	1	2	3	2	2	3	2	1
Somewhat likely . . . . .	6	5	5	6	6	5	7	6	4
Somewhat unlikely . . . . .	9	9	9	9	9	9	9	10	8
Very unlikely . . . . .	42	42	43	41	43	41	38	41	44
Definitely not possible . . . . .	36	41	39	31	35	38	30	35	40
Don't know . . . . .	5	2	3	10	5	5	13	5	2
5b. Eating in a restaurant where the cook has the AIDS virus?									
Very likely . . . . .	5	4	5	6	5	5	8	6	3
Somewhat likely . . . . .	18	18	17	18	18	17	20	20	15
Somewhat unlikely . . . . .	13	15	14	12	14	13	11	13	14
Very unlikely . . . . .	34	36	37	30	34	34	26	32	39
Definitely not possible . . . . .	21	23	22	18	20	21	17	19	24
Don't know . . . . .	9	4	6	16	8	10	19	10	5
5c. Sharing plates, forks, or glasses with someone who has the AIDS virus?									
Very likely . . . . .	10	8	10	11	10	10	13	11	7
Somewhat likely . . . . .	21	19	21	22	22	20	23	22	19
Somewhat unlikely . . . . .	14	16	14	13	14	13	11	14	15
Very unlikely . . . . .	29	32	31	25	30	29	22	28	34
Definitely not possible . . . . .	18	22	19	14	17	19	14	17	20
Don't know . . . . .	8	4	5	14	8	9	17	8	5
5d. Using public toilets?									
Very likely . . . . .	5	4	4	6	4	5	8	5	3
Somewhat likely . . . . .	12	11	11	15	12	13	17	14	9
Somewhat unlikely . . . . .	12	13	12	11	12	12	10	13	12
Very unlikely . . . . .	37	37	40	34	39	36	28	36	42
Definitely not possible . . . . .	26	30	29	20	26	26	19	24	31
Don't know . . . . .	7	4	4	13	7	8	16	7	4
5e. Sharing needles for drug use with someone who has the AIDS virus?									
Very likely . . . . .	96	98	98	93	96	96	91	97	98
Somewhat likely . . . . .	2	1	1	3	2	2	3	2	1
Somewhat unlikely . . . . .	0	0	0	0	0	0	0	0	0
Very unlikely . . . . .	0	0	0	0	0	0	0	0	0
Definitely not possible . . . . .	0	0	0	0	0	0	0	0	0
Don't know . . . . .	2	0	0	4	1	2	5	1	1
5f. Being coughed or sneezed on by someone who has the AIDS virus?									
Very likely . . . . .	8	6	7	10	7	8	11	8	6
Somewhat likely . . . . .	20	17	19	23	20	20	21	21	18
Somewhat unlikely . . . . .	15	16	16	13	15	14	12	14	16
Very unlikely . . . . .	31	35	34	26	32	30	23	30	36
Definitely not possible . . . . .	17	21	18	12	16	17	13	16	19
Don't know . . . . .	10	5	6	17	9	11	19	10	5
5g. Attending school with a child who has the AIDS virus?									
Very likely . . . . .	1	1	1	2	1	1	3	1	1
Somewhat likely . . . . .	5	4	4	6	5	4	7	5	4
Somewhat unlikely . . . . .	9	9	9	9	9	9	9	9	8
Very unlikely . . . . .	43	43	45	42	44	42	37	43	46
Definitely not possible . . . . .	36	43	38	30	35	37	30	36	39
Don't know . . . . .	6	1	3	12	5	6	15	5	2

See footnotes at end of table.

Table 2. Provisional estimates of the percent of white non-Hispanic persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990—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	Age			Sex		Education			
	Total	18-29 years	30-49 years	50 years and over	Male	Female	Less than 12 years	12 years	More than 12 years
Percent distribution									
5h. Mosquitoes or other insects?									
Very likely . . . . .	9	10	8	8	10	8	12	10	6
Somewhat likely . . . . .	18	21	17	16	19	17	20	20	15
Somewhat unlikely . . . . .	8	10	9	7	9	8	6	8	10
Very unlikely . . . . .	26	26	28	24	27	25	20	24	31
Definitely not possible . . . . .	20	20	22	18	19	21	13	18	24
Don't know . . . . .	19	13	15	26	17	21	28	20	14
8. Have you ever discussed AIDS with any of your children aged 10-17? <sup>2</sup>									
Yes . . . . .	69	58	71	62	58	80	58	66	76
No . . . . .	31	41	29	37	42	20	42	34	24
Don't know . . . . .	0	1	0	0	0	0	1	0	0
9. Have any or all of your children aged 10-17 had instruction at school about AIDS? <sup>2</sup>									
Yes . . . . .	74	60	74	74	70	77	66	73	76
No . . . . .	9	19	9	7	8	10	13	10	8
Don't know . . . . .	17	21	17	18	22	13	21	17	16
10. Have you ever donated blood?									
Yes . . . . .	43	36	46	43	54	32	31	38	52
No . . . . .	57	64	54	56	45	68	69	62	48
Don't know . . . . .	0	0	0	0	0	0	0	0	0
11a. Have you donated blood since March 1985?									
Yes . . . . .	17	26	21	8	21	13	7	15	24
No . . . . .	82	74	79	92	78	86	92	85	76
Don't know . . . . .	1	0	0	1	1	0	1	0	1
11b. Have you donated blood in the past 12 months?									
Yes . . . . .	7	11	9	3	9	5	3	6	10
No . . . . .	92	89	90	96	90	94	97	93	89
Don't know . . . . .	1	0	1	1	1	0	1	0	1
12. How many times have you donated blood since March 1985?									
Once . . . . .	5	10	5	2	5	5	3	5	6
Twice . . . . .	3	5	4	1	4	2	1	3	4
Three times or more . . . . .	9	11	12	4	11	6	3	7	13
Don't know . . . . .	0	0	0	0	0	0	0	0	0
Did not donate blood since March 1985 <sup>3</sup> . . . . .	83	74	79	92	79	87	93	85	76
13. How many times have you donated blood in the past 12 months?									
Once . . . . .	4	7	5	2	5	3	2	4	5
Twice . . . . .	2	2	2	1	2	1	0	1	3
Three times or more . . . . .	1	2	2	1	2	1	1	1	2
Don't know . . . . .	0	0	0	0	0	0	0	0	0
Did not donate blood in the past 12 months <sup>4</sup> . . . . .	93	89	91	97	91	94	97	94	90
14. Have you ever heard of a blood test that can detect the AIDS virus infection?									
Yes . . . . .	81	87	89	69	82	80	64	80	90
No . . . . .	16	12	9	26	16	17	32	17	9
Don't know . . . . .	2	1	1	5	2	3	4	3	1
15. To the best of your knowledge, are blood donations routinely tested for the AIDS virus infection?									
Yes . . . . .	71	80	79	57	72	71	52	69	81
No . . . . .	4	3	5	4	4	4	4	4	4
Don't know . . . . .	6	5	5	8	6	6	8	7	5
Never heard of test <sup>5</sup> . . . . .	19	13	11	31	18	20	36	20	10
16. Was one of your reasons for donating blood because you wanted to be tested for the AIDS virus infection? <sup>6</sup>									
Yes . . . . .	2	3	2	1	2	1	3	2	2
No . . . . .	84	84	86	78	83	86	73	80	87
Don't know . . . . .	0	—	0	—	0	0	—	0	0
Never heard of test <sup>5</sup> . . . . .	8	8	6	14	8	8	18	11	5
17. Except for blood donations since 1985, have you had your blood tested for the AIDS virus infection?									
Yes . . . . .	9	15	12	3	11	8	7	8	12
No . . . . .	70	70	75	63	69	70	55	70	76
Don't know . . . . .	2	2	2	3	2	2	2	2	3
Never heard of test <sup>5</sup> . . . . .	19	13	11	31	18	20	36	20	10
18. How many times have you had your blood tested for the AIDS virus infection, not including blood donations?									
Once . . . . .	6	10	8	2	7	6	4	5	8
Twice . . . . .	2	3	2	1	2	1	1	1	2
Three times or more . . . . .	1	2	2	0	2	1	1	1	2
Don't know . . . . .	0	0	0	0	0	0	0	0	0
Never heard of/had test <sup>5</sup> . . . . .	91	85	89	97	89	92	93	92	88

See footnotes at end of table.

**Table 2. Provisional estimates of the percent of white non-Hispanic persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990—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		Education		
		18-29 years	30-49 years	50 years and over	Male	Female	Less than 12 years	12 years	More than 12 years
19. How many times in the past 12 months have you had your blood tested for the AIDS virus infection, not including blood donations?	Percent distribution								
None . . . . .	5	7	6	2	5	4	3	4	6
Once . . . . .	4	7	5	1	5	3	3	4	5
Twice . . . . .	0	1	1	0	1	0	0	0	1
Three times or more . . . . .	0	0	0	0	0	0	0	0	0
Don't know . . . . .	0	0	0	0	0	0	0	0	0
Never heard of/had test <sup>7</sup> . . . . .	91	85	88	97	89	92	93	92	88
20a. Were the blood tests, including those you had before the past 12 months, required or did you go for them voluntarily, or were there some of each? <sup>5</sup>									
All required . . . . .	52	55	51	47	55	48	51	50	54
All volunteered . . . . .	43	41	44	48	40	47	46	45	41
Some of each . . . . .	4	3	4	2	4	3	2	4	4
Don't know . . . . .	1	0	1	3	1	1	1	1	1
20b. Were any of the blood tests required for: <sup>8</sup>									
Hospitalization or a surgical procedure? . . . . .	12	11	10	22	9	16	22	13	10
Health insurance? . . . . .	4	2	6	2	5	2	3	3	5
Life insurance? . . . . .	10	6	14	8	13	6	4	6	14
Employment? . . . . .	7	8	7	5	7	6	4	6	8
Military induction or military service? . . . . .	11	19	7	5	18	3	3	13	12
Immigration? . . . . .	1	1	2	1	1	2	2	1	2
Other . . . . .	13	16	13	8	9	18	18	14	11
Don't know . . . . .	-	-	-	-	-	-	-	-	-
21. When was your last blood test for the AIDS virus infection? <sup>8</sup>									
1990 . . . . .	28	28	29	27	29	28	32	30	27
1989 . . . . .	35	38	33	31	35	34	30	34	36
1988 . . . . .	17	18	16	16	16	18	18	16	17
1987 . . . . .	10	8	11	11	10	10	8	11	10
1986 . . . . .	4	3	4	4	4	4	4	4	4
1985 . . . . .	2	1	2	2	2	2	1	2	2
Don't know . . . . .	3	2	2	6	3	3	4	2	3
22a. Was your last test required or did you go for it voluntarily? <sup>8</sup>									
Required . . . . .	54	57	53	48	57	50	52	52	56
Voluntary . . . . .	44	42	46	48	41	48	46	47	43
Don't know . . . . .	1	0	1	3	1	1	1	1	1
22b. Was the test required for: <sup>8</sup>									
Hospitalization or a surgical procedure? . . . . .	12	11	10	21	8	16	21	13	9
Health insurance? . . . . .	4	2	6	2	5	3	2	3	5
Life insurance? . . . . .	10	5	13	7	13	6	4	6	13
Employment? . . . . .	6	7	6	5	7	6	4	6	7
Military induction or military service? . . . . .	11	18	7	5	17	3	3	13	11
Immigration? . . . . .	1	1	2	1	1	2	2	1	2
Other . . . . .	12	14	11	8	8	16	17	13	10
Don't know . . . . .	-	-	-	-	-	-	-	-	-
23. Not including a blood donation, where was your last blood test for the AIDS virus done? <sup>6</sup>									
AIDS clinic/counseling/testing site . . . . .	3	3	3	4	3	3	3	2	4
Clinic run by employer . . . . .	3	2	4	2	4	3	2	3	4
Doctor/HMO . . . . .	31	29	32	34	27	35	30	29	33
Public health department . . . . .	6	7	5	3	5	7	9	6	5
Hospital/emergency room/outpatient clinic . . . . .	26	23	25	36	21	31	37	29	21
STD clinic . . . . .	0	0	0	-	0	0	0	0	0
Family planning clinic . . . . .	1	1	1	-	1	1	1	1	1
Prenatal clinic . . . . .	0	1	0	-	0	1	2	0	-
Tuberculosis clinic . . . . .	-	-	-	-	-	-	-	-	-
Other clinic . . . . .	5	5	5	4	5	5	3	4	6
Drug treatment facility . . . . .	0	0	0	-	0	0	0	0	0
Military induction/service site . . . . .	11	18	7	6	18	3	3	14	11
Immigration site . . . . .	0	0	0	0	0	1	1	0	0
Other . . . . .	13	9	16	10	16	9	10	11	15
Don't know . . . . .	0	0	-	-	0	-	-	-	0
24. Before your last blood test for the AIDS virus infection, were you counseled about the AIDS virus and the meaning of the test? <sup>6</sup>									
Yes . . . . .	38	40	41	24	40	36	34	39	39
No . . . . .	60	59	58	75	59	63	64	61	59
Don't know . . . . .	1	1	1	1	1	1	1	1	1
25. Did you get the results of your last test? <sup>6</sup>									
Yes . . . . .	75	76	75	73	74	77	73	76	75
No . . . . .	24	23	24	26	25	22	26	24	24
Don't know . . . . .	1	1	0	0	1	0	-	0	1

See footnotes at end of table.

Table 2. Provisional estimates of the percent of white non-Hispanic persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990—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		Education		
		18-29 years	30-49 years	50 years and over	Male	Female	Less than 12 years	12 years	More than 12 years
Percent distribution									
26. Did you want the results of your last test? <sup>9</sup>									
Yes . . . . .	33	36	34	19	34	30	42	27	34
No . . . . .	64	60	63	74	62	66	53	71	62
Don't know . . . . .	4	4	3	7	4	4	5	3	4
27. When you received the results of your last test, did you receive counseling or talk with a health professional about how to lower your chances of becoming infected with the AIDS virus or how to avoid passing it on to another person? <sup>10</sup>									
Yes . . . . .	24	30	23	13	23	25	27	26	22
No . . . . .	75	70	77	86	76	74	72	74	77
Don't know . . . . .	1	1	1	0	1	1	2	0	1
28. Were the results given in person, by telephone, by mail, or in some other way? <sup>10</sup>									
In person . . . . .	58	60	53	66	57	58	71	62	52
By telephone . . . . .	19	17	21	16	17	21	13	17	21
By mail . . . . .	16	15	18	13	18	14	10	15	18
Other . . . . .	7	9	7	4	8	6	4	6	3
Don't know . . . . .	1	0	1	2	1	0	1	0	1
29. Do you feel your last test for the AIDS virus infection was handled properly in terms of the confidentiality of your test results? <sup>8</sup>									
Yes . . . . .	91	93	90	91	90	93	90	92	91
No . . . . .	3	3	3	2	3	3	3	3	3
Don't know . . . . .	5	4	6	6	6	4	6	5	5
30. Do you expect to have a blood test for the AIDS virus infection in the next 12 months?									
Yes . . . . .	5	10	5	2	6	4	5	5	6
No . . . . .	73	73	81	65	73	74	56	72	82
Don't know . . . . .	3	4	3	2	3	3	3	3	3
Never heard of test <sup>5</sup> . . . . .	19	13	11	31	18	20	36	20	10
31. Tell me which of these statements explain why you will have the blood test: <sup>11</sup>									
Voluntarily, because you personally want to know if you are infected . . . . .	58	64	55	43	54	63	67	63	51
As part of a blood donation . . . . .	28	27	28	30	30	25	24	27	30
As part of a hospitalization or surgical procedure . . . . .	10	9	10	18	9	13	13	12	9
As a requirement for health insurance . . . . .	8	9	8	8	9	8	11	10	6
As a requirement for life insurance . . . . .	7	7	7	9	8	6	9	7	7
As a requirement for a job, other than military . . . . .	13	12	14	9	12	13	11	13	12
As a requirement for the military . . . . .	11	14	10	5	15	5	10	11	12
As a requirement for immigration . . . . .	2	2	1	1	2	1	2	2	1
As a required part of some other activity that includes a blood sample and automatic AIDS testing . . . . .	15	17	13	11	14	15	15	14	15
32. Where will you go to have a blood test for the AIDS virus infection? <sup>11</sup>									
AIDS clinic/counseling/testing site . . . . .	1	1	1	0	1	1	1	1	1
Clinic run by employer . . . . .	3	2	4	3	4	1	1	3	3
Doctor/HMO . . . . .	38	40	35	41	37	39	35	44	34
Hospital/emergency room/outpatient clinic . . . . .	19	18	20	18	16	23	27	18	18
Other clinic . . . . .	5	7	4	3	4	7	6	4	6
Public health department . . . . .	6	8	5	4	5	8	12	7	4
Red Cross/blood bank . . . . .	12	7	15	18	14	9	6	10	15
Other . . . . .	11	11	12	9	14	7	6	9	14
Don't know . . . . .	4	5	3	3	4	4	5	4	4
33. Did you have a blood transfusion at any time between 1977 and 1985?									
Yes . . . . .	6	3	5	8	6	6	7	5	5
No . . . . .	93	97	94	90	93	93	91	94	94
Don't know . . . . .	1	1	1	2	1	1	2	1	1
34. Do you think the present supply of blood is safe for transfusions?									
Yes . . . . .	50	58	53	41	54	46	36	47	58
No . . . . .	28	26	28	30	25	31	33	31	25
Don't know . . . . .	22	16	19	28	20	23	31	22	18
35. How effective do you think the use of a condom is to prevent getting the AIDS virus through sexual activity?									
Very effective . . . . .	27	33	30	20	30	24	17	25	33
Somewhat effective . . . . .	54	57	57	50	54	55	46	55	57
Not at all effective . . . . .	4	4	4	4	3	5	6	4	3
Don't know how effective . . . . .	13	6	8	22	11	15	25	13	7
Don't know method . . . . .	2	1	1	4	2	2	5	2	1
36. What are your chances of having the AIDS virus?									
High . . . . .	0	0	0	0	0	0	0	0	0
Medium . . . . .	2	3	2	1	2	2	2	2	2
Low . . . . .	16	24	18	9	18	14	10	14	21
None . . . . .	81	72	79	88	78	82	85	83	77
Don't know . . . . .	1	1	1	2	1	1	3	1	0

See footnotes at end of table.

**Table 2. Provisional estimates of the percent of white non-Hispanic persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, 1990—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	Age			Sex		Education			
	Total	18-29 years	30-49 years	50 years and over	Male	Female	Less than 12 years	12 years	More than 12 years
37. What are your chances of getting the AIDS virus?	Percent distribution								
High . . . . .	0	1	0	0	0	0	0	0	0
Medium . . . . .	3	4	3	2	3	2	3	3	3
Low . . . . .	22	31	26	13	25	20	12	19	30
None . . . . .	73	63	69	82	70	75	81	76	66
Don't know . . . . .	2	1	1	2	2	1	4	1	1
N/A—High chance of already having the AIDS virus . . . . .	0	0	0	0	0	0	0	0	0
38. Have you ever personally known anyone with AIDS or the AIDS virus?									
Yes . . . . .	15	14	19	11	14	16	7	11	21
No . . . . .	84	84	80	88	84	83	91	87	77
Don't know . . . . .	2	1	2	2	2	1	2	1	2
39. Are any of these statements true for you?									
a. You have hemophilia and have received clotting factor concentrates since 1977.									
b. You are a native of Haiti or Central or East Africa who has entered the United States since 1977.									
c. You are a man who has had sex with another man at some time since 1977, even 1 time.									
d. You have taken illegal drugs by needle 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 (39 a-d).									
f. You have had sex for money or drugs at any time since 1977.									
Yes to at least 1 statement . . . . .	2	4	2	1	3	2	2	2	2
No to all statements . . . . .	98	96	97	99	97	98	98	98	98
Don't know . . . . .	0	0	0	0	0	0	0	0	0

<sup>1</sup>Multiple responses may sum to more than 100.<sup>2</sup>Based on persons answering yes to question 6. "Do you have any children aged 10 through 17?" Question 7 was "How many do you have?"<sup>3</sup>Persons answering no or don't know to question 10 or 11a.<sup>4</sup>Persons answering no or don't know to question 10, 11a, or 11b.<sup>5</sup>Persons answering no or don't know to question 14.<sup>6</sup>Based on persons answering yes to question 11a.<sup>7</sup>Persons answering no or don't know to questions 14 or 17.<sup>8</sup>Based on persons answering yes to question 17.<sup>9</sup>Persons answering no or don't know to question 25.<sup>10</sup>Based on persons answering yes to question 25.<sup>11</sup>Based on persons answering yes to question 30.

## 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 1990 National Health Interview Survey of AIDS Knowledge and Attitudes is asked of one randomly chosen adult 18 years of age or over in each family. The estimates in this report are based on completed interviews with 2,501

Hispanic and 30,996 non-Hispanic white individuals, about 87 percent of eligible respondents.

Table I contains the estimated population size of each of the demographic subgroups included in tables 1 and 2 to allow readers to derive provisional estimates of the number of people in the United States with a given characteristic, for example, the number of Hispanic women who have had their blood tested for HIV. The population figures in table I are based on 1989 data from the NHIS; they are not official population estimates. Tables II and III show approximate standard errors for most of the estimates presented in tables 1 and 2. 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). Both the estimates in tables 1 and 2 and the standard errors in tables II and III are provisional. They may differ slightly from estimates made using the final 1990 data file because they were calculated using a simplified weighting procedure that does not adjust for all the factors used in weighting the final data file. A final data file covering the entire 1990 data collection period will be available at the end of 1991.

Table I. Hispanic and non-Hispanic white sample sizes for the 1990 National Health Interview Survey of AIDS Knowledge and Attitudes and estimated Hispanic and non-Hispanic white adult populations 18 years of age and over, by selected characteristics: United States, 1990

Characteristic	Sample size		Estimated population in thousands	
	Hispanic	Non-Hispanic White	Hispanic	Non-Hispanic White
All adults . . . . .	2,501	30,996	13,361	140,451
Age				
18-29 years . . . . .	851	6,666	5,154	32,918
30-49 years . . . . .	1,138	12,159	5,424	55,521
50 years and over . . . . .	512	12,171	2,782	52,012
Sex				
Male . . . . .	1,026	13,292	6,106	67,116
Female . . . . .	1,475	17,704	7,254	73,336
Education				
Less than 12 years . . . . .	1,101	5,545	6,085	24,319
12 years . . . . .	751	12,055	3,979	56,256
More than 12 years . . . . .	640	13,318	3,249	59,498
Hispanic origin				
Puerto Rican . . . . .	326	---	1,465	---
Mexican . . . . .	1,375	---	7,730	---
Other Hispanic . . . . .	789	---	4,117	---

Table II. Standard errors, expressed in percentage points, of estimated percents for Hispanic adults from the 1990 National Health Interview Survey of AIDS Knowledge and Attitudes, by selected characteristics: United States, 1990.

Estimated percent	Age			Sex		Education			Hispanic origin			
	Total	18-29 years	30-49 years	50 years and over	Male	Female	Less than 12 years	12 years	More than 12 years	Puerto Rican	Mexican	Other Hispanic
5 or 95 . . . . .	0.6	1.0	0.8	1.2	0.9	0.7	0.8	1.0	1.1	1.6	0.8	1.0
10 or 90 . . . . .	0.8	1.3	1.1	1.7	1.2	1.0	1.2	1.4	1.5	2.1	1.0	1.4
15 or 85 . . . . .	0.9	1.6	1.4	2.0	1.4	1.2	1.4	1.7	1.8	2.5	1.2	1.6
20 or 80 . . . . .	1.0	1.8	1.5	2.3	1.6	1.3	1.6	1.9	2.0	2.9	1.4	1.8
25 or 75 . . . . .	1.1	1.9	1.7	2.5	1.7	1.5	1.7	2.0	2.2	3.1	1.5	2.0
30 or 70 . . . . .	1.2	2.0	1.7	2.6	1.8	1.5	1.8	2.2	2.3	3.3	1.6	2.1
35 or 65 . . . . .	1.2	2.1	1.8	2.7	1.9	1.6	1.8	2.2	2.4	3.4	1.7	2.2
40 or 60 . . . . .	1.3	2.2	1.9	2.8	2.0	1.6	1.9	2.3	2.5	3.5	1.7	2.2
45 or 55 . . . . .	1.3	2.2	1.9	2.8	2.0	1.7	1.9	2.3	2.5	3.5	1.7	2.3
50 . . . . .	1.3	2.2	1.9	2.8	2.0	1.7	1.9	2.3	2.5	3.6	1.7	2.3

Table III. Standard errors, expressed in percentage points, of estimated percents for non-Hispanic white adults from the 1990 National Health Interview Survey of AIDS Knowledge and Attitudes, by selected characteristics: United States, 1990

<i>Estimated percent</i>	<i>Age</i>			<i>Sex</i>		<i>Education</i>			
	<i>Total</i>	<i>18-29 years</i>	<i>30-49 years</i>	<i>50 years and over</i>	<i>Male</i>	<i>Female</i>	<i>Less than 12 years</i>	<i>12 years</i>	<i>More than 12 years</i>
5 or 95 . . . . .	0.2	0.3	0.3	0.3	0.2	0.2	0.4	0.3	0.2
10 or 90 . . . . .	0.2	0.5	0.4	0.3	0.3	0.3	0.5	0.4	0.3
15 or 85 . . . . .	0.3	0.6	0.4	0.4	0.4	0.3	0.6	0.4	0.4
20 or 80 . . . . .	0.3	0.6	0.5	0.5	0.4	0.4	0.7	0.5	0.4
25 or 75 . . . . .	0.3	0.7	0.5	0.5	0.5	0.4	0.7	0.5	0.5
30 or 70 . . . . .	0.3	0.7	0.5	0.5	0.5	0.4	0.8	0.5	0.5
35 or 65 . . . . .	0.3	0.8	0.6	0.6	0.5	0.5	0.8	0.6	0.5
40 or 60 . . . . .	0.4	0.8	0.6	0.6	0.5	0.5	0.8	0.6	0.5
45 or 55 . . . . .	0.4	0.8	0.6	0.6	0.6	0.5	0.9	0.6	0.6
50 . . . . .	0.4	0.8	0.6	0.6	0.6	0.5	0.9	0.6	0.6



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**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
-

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**Suggested citation**

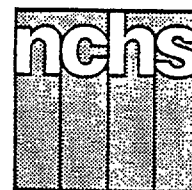
Biddlecom AE, Hardy AM. AIDS knowledge and attitudes of Hispanic Americans: United States, 1990. Advance data from vital and health statistics; no 207. Hyattsville, Maryland: National Center for Health Statistics. 1991.

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# Advance Data



From Vital and Health Statistics of the National Center for Health Statistics

## Office Visits to Pediatric Specialists, 1989

by David Woodwell, Division of Health Care Statistics

This report examines data concerning visits made to pediatricians sampled in the 1989 National Ambulatory Medical Care Survey (NAMCS). This survey is a year-long probability sample survey of office-based non-Federal physicians practicing in the United States and excludes visits that took place at emergency rooms or hospital outpatient departments. The NAMCS was conducted annually from 1973 to 1981, in 1985, and annually again in 1989 by the Division of Health Care Statistics, National Center for Health Statistics, Centers for Disease Control.

The figures presented in this report are estimated from a sample, not the entire universe of visits to ambulatory physicians, and therefore are subject to sampling variability. The technical notes at the end of the report provide guidelines for judging the precision of the estimates. The patient record form used for data collection is shown in figure 1, which will serve useful while reading the survey results.

During the 12-month period from March 1989 to March 1990, visits to pediatricians accounted for an estimated 87.4 million, or 12.6 percent, of the 692.7 million ambulatory care office visits made to physicians in the United States. Data from the 1989 NAMCS indicate that of the 13 largest specialties, pediatrics was the only specialty to show a significant increase in percentage of office visits received between 1985 (1) and 1989, from 11.4 percent to 12.6 percent. Visits made by patients aged 21 years and younger were mostly divided between two specialties, pediatricians and general/family practitioners, representing 74.0 percent of the total visits in this age group compared to a total of 70.2 percent in 1985. Five specialties (pediatricians, general/family practitioners, otolaryngologists, dermatologists, and orthopedic surgeons) have higher percentages of visits in the 21 and under age group than the other largest 13 specialties. Within this 21 and under age group, pediatricians

treat the largest percentage of patients aged 5 years old and under (69.4 percent) with dermatologists treating the largest percentage of patients aged 15–21 years (12.1 percent) (table 1).

### Patient characteristics

In 1989, white persons aged 21 years and younger accounted for an estimated 79.4 percent of all visits to pediatricians whereas black persons aged 21 years and younger accounted for 10.9 percent of the visits; visit rates were 108 and 77 visits per 100 persons per year, respectively (table 2).

A negative relationship exists between the age of the patient and the number of office visits to pediatricians. As shown in figure 2, the number of visits decreased with each successive age group from about 60 million visits in the 5 years and under age group to about 4 million visits in the 15–21 age group. This difference is further demonstrated by the percentage of visits in the 11–14



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



Assurance of Confidentiality—All information which would permit identification of an individual, a practice, or an establishment will be held confidential, will be used only by persons engaged in and for the purposes of the survey and will not be disclosed or released to other persons or used for any other purpose.		Department of Health and Human Services Centers for Disease Control Public Health Service National Center for Health Statistics		<b>A</b>																																			
<b>1. DATE OF VISIT</b> _____ / _____ / _____ <small>Month Day Year</small>		<b>PATIENT RECORD</b> <b>NATIONAL AMBULATORY MEDICAL CARE SURVEY</b>				OMB No. 0920-0234 Expires 8-31-89 (PHS) 6105A																																	
<b>2. ZIP CODE</b> _____	<b>4. SEX</b> 1 <input type="checkbox"/> FEMALE 2 <input type="checkbox"/> MALE	<b>5. COLOR OR RACE</b> 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	<b>6. ETHNICITY</b> 1 <input type="checkbox"/> HISPANIC ORIGIN 2 <input type="checkbox"/> NOT HISPANIC	<b>7. EXPECTED SOURCE(S) OF PAYMENT</b> <i>[Check all that apply]</i> 1 <input type="checkbox"/> SELF-PAY    4 <input type="checkbox"/> BLUE CROSS/BLUE SHIELD    7 <input type="checkbox"/> NO CHARGE 2 <input type="checkbox"/> MEDICARE    5 <input type="checkbox"/> OTHER COMMERCIAL INSURANCE    8 <input type="checkbox"/> OTHER <i>[Specify]</i> 3 <input type="checkbox"/> MEDICAID    6 <input type="checkbox"/> PRE-PAID PLAN HMO/PA/PPO																																			
<b>3. DATE OF BIRTH</b> _____ / _____ / _____ <small>Month Day Year</small>		<b>8. WAS PATIENT REFERRED FOR THIS VISIT BY ANOTHER PHYSICIAN?</b> 1 <input type="checkbox"/> YES    2 <input type="checkbox"/> NO			<b>11. HAVE YOU SEEN PATIENT BEFORE?</b>  1 <input type="checkbox"/> YES    2 <input type="checkbox"/> NO ↓ IF YES, FOR THE CONDITION IN ITEM 10a?  1 <input type="checkbox"/> YES    2 <input type="checkbox"/> NO																																		
<b>9. PATIENT'S COMPLAINT(S), SYMPTOM(S), OR OTHER REASON(S) FOR THIS VISIT</b> <i>[In patient's own words]</i>  a. MOST IMPORTANT _____  b. OTHER _____			<b>10. PHYSICIAN'S DIAGNOSES</b>  a. PRINCIPAL DIAGNOSIS/PROBLEM ASSOCIATED WITH ITEM 9a. _____  b. OTHER SIGNIFICANT CURRENT DIAGNOSES _____																																				
<b>12. DIAGNOSTIC/SCREENING SERVICES THIS VISIT</b> <i>[Check all ordered or provided]</i> 1 <input type="checkbox"/> NONE    7 <input type="checkbox"/> BLOOD PRESSURE CHECK    13 <input type="checkbox"/> ORAL GLUCOSE TOL. 2 <input type="checkbox"/> PAP TEST    8 <input type="checkbox"/> URINALYSIS    14 <input type="checkbox"/> CHOLESTEROL MEASURE 3 <input type="checkbox"/> PELVIC EXAM    9 <input type="checkbox"/> CHEST X-RAY    15 <input type="checkbox"/> HIV SEROLOGY 4 <input type="checkbox"/> BREAST PALPATION    10 <input type="checkbox"/> DIGITAL RECTAL EXAM    16 <input type="checkbox"/> OTHER BLOOD TEST 5 <input type="checkbox"/> MAMMOGRAM    11 <input type="checkbox"/> PROCT/SIGMOIDOSCOPY    17 <input type="checkbox"/> OTHER <i>[Specify]</i> 6 <input type="checkbox"/> VISUAL ACUITY    12 <input type="checkbox"/> STOOL BLOOD EXAM			<b>13. COUNSELING/ADVICE</b> <i>[Check all ordered or provided]</i> 1 <input type="checkbox"/> NONE 2 <input type="checkbox"/> WEIGHT REDUCTION 3 <input type="checkbox"/> CHOLESTEROL REDUCTION 4 <input type="checkbox"/> SMOKING CESSATION 5 <input type="checkbox"/> HIV TRANSMISSION 6 <input type="checkbox"/> BREAST SELF-EXAM 7 <input type="checkbox"/> OTHER																																				
<b>14. NON-MEDICATION THERAPY</b> <i>[Check all ordered or provided]</i> 1 <input type="checkbox"/> NONE 2 <input type="checkbox"/> PSYCHOTHERAPY 3 <input type="checkbox"/> CORRECTIVE LENSES 4 <input type="checkbox"/> AMBULATORY SURGERY 5 <input type="checkbox"/> PHYSIOTHERAPY 6 <input type="checkbox"/> OTHER <i>[Specify]</i>			<b>15. MEDICATION THERAPY</b> <i>[Record all new or continued medications ordered or provided at this visit. Use the same brand name or generic name entered on any Rx or office medical record. Include immunizing and desensitizing agents.]</i>  IF NONE, CHECK HERE <input type="checkbox"/> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">a. NEW MEDICATION?</th> <th colspan="2">b. FOR DX IN ITEM 10a?</th> </tr> <tr> <th>YES</th> <th>NO</th> <th>YES</th> <th>NO</th> </tr> </thead> <tbody> <tr> <td>1. _____</td> <td>1 <input type="checkbox"/></td> <td>2 <input type="checkbox"/></td> <td>1 <input type="checkbox"/></td> <td>2 <input type="checkbox"/></td> </tr> <tr> <td>2. _____</td> <td>1 <input type="checkbox"/></td> <td>2 <input type="checkbox"/></td> <td>1 <input type="checkbox"/></td> <td>2 <input type="checkbox"/></td> </tr> <tr> <td>3. _____</td> <td>1 <input type="checkbox"/></td> <td>2 <input type="checkbox"/></td> <td>1 <input type="checkbox"/></td> <td>2 <input type="checkbox"/></td> </tr> <tr> <td>4. _____</td> <td>1 <input type="checkbox"/></td> <td>2 <input type="checkbox"/></td> <td>1 <input type="checkbox"/></td> <td>2 <input type="checkbox"/></td> </tr> <tr> <td>5. _____</td> <td>1 <input type="checkbox"/></td> <td>2 <input type="checkbox"/></td> <td>1 <input type="checkbox"/></td> <td>2 <input type="checkbox"/></td> </tr> </tbody> </table>				a. NEW MEDICATION?		b. FOR DX IN ITEM 10a?		YES	NO	YES	NO	1. _____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	2. _____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3. _____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	4. _____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	5. _____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>
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<b>16. DISPOSITION THIS VISIT</b> <i>[Check all that apply]</i> 1 <input type="checkbox"/> NO FOLLOW-UP PLANNED 2 <input type="checkbox"/> RETURN AT SPECIFIED TIME 3 <input type="checkbox"/> RETURN IF NEEDED, P.R.N. 4 <input type="checkbox"/> TELEPHONE FOLLOW-UP PLANNED 5 <input type="checkbox"/> REFERRED TO OTHER PHYSICIAN 6 <input type="checkbox"/> RETURNED TO REFERRING PHYSICIAN 7 <input type="checkbox"/> ADMIT TO HOSPITAL 8 <input type="checkbox"/> OTHER <i>[Specify]</i> _____			<b>17. DURATION OF THIS VISIT</b> <i>[Time actually spent with physician]</i>  _____ Minutes																																				

• U.S. GOVERNMENT PRINTING OFFICE:1989-226-197

Figure 1. Patient record form

and 15–21 years age groups, which make up 12.2 percent of the total visits whereas the 5 years and under and 6–10 age groups make up 86.0 percent, or just less than seven-eighths of all visits to pediatricians. Another indication of the decreasing number of visits with each successive age group is the visit rate. Patients aged 5 years old and under have a visit rate more than three times higher than the next older age group—272 per 100 persons for the 5 and under age group compared to 80

per 100 persons in the 6–10 age group (table 3).

When comparing the total number of visits to pediatricians by gender, more visits were made by males (52.4 percent) than females (47.6 percent). However, males had a higher percentage of visits only in the 5 years and under age group accounting for 54.6 percent of visits in that group. In all other age groups, the percent of female visits was about the same as that of males. Therefore, the difference between gender is

completely accounted for by the 5 and under age group (table 3).

Examining the sources of payment (item 7 on the patient record form) for visits to pediatricians reveals that most of the visits were paid for one or more of three ways: self-payment, prepaid plan/HMO/PA/PPO, or by “other” commercial insurance. Medicaid is the source of payment in an estimated 13.2 percent of the visits (table 4).

**Table 1. Number of office visits and percent distribution of selected specialties by age: United States, 1989**

Selected specialties	All ages	5 years and under	6-10 years	11-14 years	15-21 years	22 years and over
Number in thousands						
All visits . . . . .	692,702	87,410	29,337	20,755	44,124	511,076
Percent distribution						
Pediatrics . . . . .	100.0	69.4	16.6	7.5	4.7	1.7
General/family practice . . . . .	100.0	8.6	3.9	3.4	7.7	76.5
Otolaryngology . . . . .	100.0	10.5	7.3	2.6	6.6	73.0
Dermatology . . . . .	100.0	2.0	2.6	4.3	12.1	78.9
Orthopedic surgery . . . . .	100.0	3.2	2.6	3.9	10.2	80.0

**Table 2. Number, percent distribution, and rate of office visits to pediatric specialists by race and sex for persons under 22 years of age: United States, 1989**

Race and sex	Number of visits in thousands	Percent distribution	Rate per 100 persons
Total . . . . .	85,922	100.0	109
Black . . . . .	9,325	10.9	77
Male . . . . .	4,784	5.6	79
Female . . . . .	4,541	5.3	75
White . . . . .	68,237	79.4	108
Male . . . . .	36,329	42.3	113
Female . . . . .	31,908	37.1	102
All other <sup>1</sup> . . . . .	3,510	4.1	113
Male . . . . .	1,934	2.3	125
Female . . . . .	1,576	1.8	102

<sup>1</sup>Includes: Asian/Pacific Islander and American Indian/Eskimo/Aleut.

NOTE: Detail does not equal total because the unspecified category, 4,850,000 visits, is included in total.

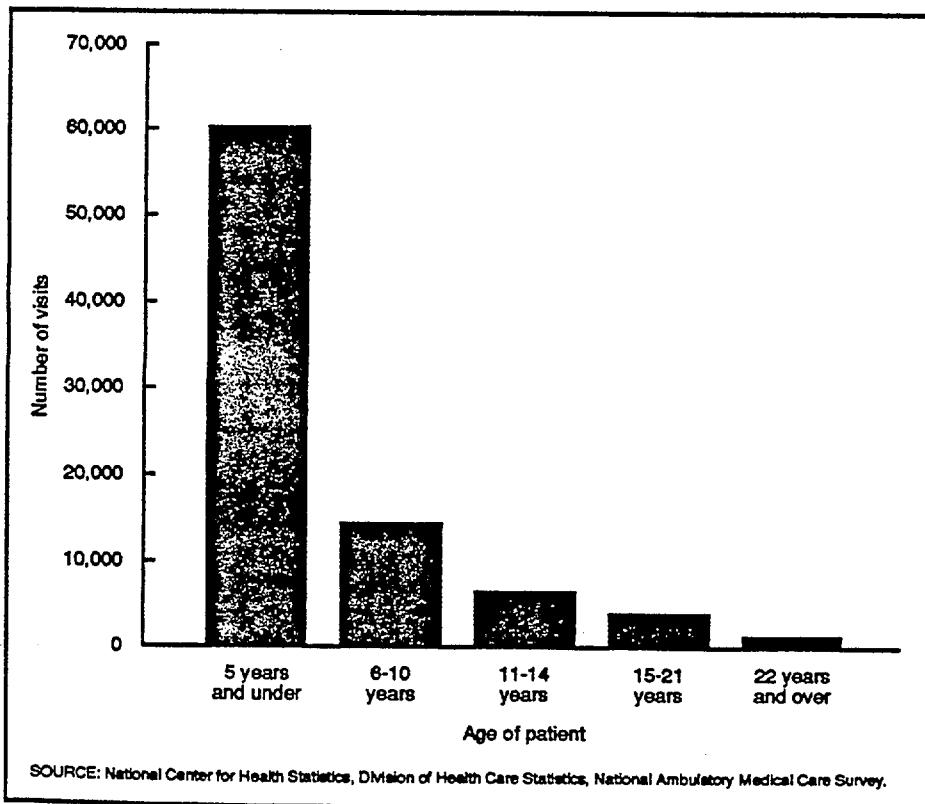


Figure 2. Office visits to pediatricians by age of patient: United States, 1989

**Patient's reason for visit**

The primary reason for visit to the pediatrician as expressed by the patient or patient's guardian is shown in tables 5 and 6. The principal reason for visit is the problem, complaint, or reason listed in item 9A of the patient record form. These data have been classified and coded according to the Reason for Visit Classification for Ambulatory Care (RVC) (2).

The RVC is divided into eight modules (or groups of reasons) as detailed in table 5. The symptoms module was most frequently cited, 64.0 percent, followed by the diagnostic, screening, and preventive module, 22.1 percent (i.e., general and special exams, diagnostic tests, screening and preventive procedures, and family planning).

The 15 most common reasons for visit are listed in table 6 and account for 71.5 percent of all visits to the pediatrician. Visits for the well-baby exam (13.5 percent), the most frequently reported reason, and physical exam (5.7 percent) accounted for approximately 19 percent of all visits to pediatricians. Cough, the second primary reason for visit, accounted for 11.1 percent in 1989, an increase from 7.7 percent in 1985. Fever accounted for 8.0 percent in 1989 and did not statistically differ from the 1985 percentage of 7.6. The reasons for visit have changed very little from the 1985 NAMCS. Of the top 15 reasons in 1989, 14 appeared in 1985 with the only exception being general symptoms of an infant, which did not appear in 1989.

**Physician's diagnoses**

Tables 7 and 8 present data on the principal diagnoses rendered by the pediatrician. This diagnosis is the first listed in item 10 of the patient record form. These data were coded and classified according to the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM) (3).

Of the primary diagnoses, the V codes (or supplementary

**Table 3. Number, percent distribution, and rate of office visits to pediatric specialists by sex and age: United States, 1989**

Sex and age	Number of visits in thousands	Percent distribution	Rate per 100 persons
Both sexes . . . . .	87,411	100.0	36
5 years and under . . . . .	60,696	69.4	272
6-10 years . . . . .	14,487	16.6	80
11-14 years . . . . .	6,598	7.5	49
15-21 years . . . . .	4,141	4.7	17
22 years and over . . . . .	1,489	1.7	1
Male . . . . .	45,818	52.4	38
5 years and under . . . . .	33,111	37.9	289
6-10 years . . . . .	7,004	8.0	77
11-14 years . . . . .	3,154	3.6	46
15-21 years . . . . .	2,029	2.3	17
22 years and over . . . . .	519	0.6	0
Female . . . . .	41,593	47.6	32
5 years and under . . . . .	27,585	31.6	253
6-10 years . . . . .	7,483	8.6	84
11-14 years . . . . .	3,444	3.9	53
15-21 years . . . . .	2,112	2.4	17
22 years and over . . . . .	970	1.1	1

**Table 4. Percent distribution of office visits to pediatricians by age and expected source of payment: United States, 1989**

Source of payment	All ages	5 years and under	6-10 years	11-14 years	15-21 years
	Percent distribution				
All visits . . . . .	100.0	100.0	100.0	100.0	100.0
Self-pay . . . . .	39.6	40.6	39.0	32.1	33.1
Medicare . . . . .	0.2	0.2	-	-	0.6
Medicaid . . . . .	13.2	13.9	11.0	11.0	11.1
Blue Cross/Blue Shield . . . . .	8.0	7.7	10.6	5.3	9.3
Other commercial . . . . .	19.0	18.9	19.1	21.0	19.0
Prepaid plan/HMO/IPA/PPO . . . . .	22.9	21.5	24.5	32.7	30.1
No charge . . . . .	0.9	0.7	1.5	0.2	1.0
Other . . . . .	3.5	3.8	2.5	2.9	3.4
Unknown . . . . .	1.6	1.5	2.3	1.7	1.7

NOTE: Detail does not add to total because more than one source of payment was possible per visit.

**Table 5. Number and percent distribution of office visits to pediatric specialists, by principal reason for visit module: United States, 1989**

Principal reason for visit module and RVC code <sup>1</sup>	Number of visits in thousands	Percent distribution
All principal reasons for visit modules . . . . .	87,411	100.0
Symptom module . . . . . S001-S999	55,981	64.0
Symptoms referable to respiratory system . . . . . S400-S499	20,182	23.0
Symptoms referable to eyes and ears . . . . . S300-S399	11,423	13.0
General symptoms . . . . . S001-S099	9,060	10.4
Symptoms referable to digestive system . . . . . S500-S639	5,258	6.0
Symptoms referable to skin, nails, and hair . . . . . S830-S899	4,866	5.6
Disease module . . . . . D001-D999	5,719	6.5
Diagnostic, screening, and preventive module . . . . . X100-X599	19,291	22.1
General medical exam . . . . . X100	5,003	5.7
Well-baby exam . . . . . X105	11,819	13.5
Treatment module . . . . . T100-T899	2,530	2.9
Injury and adverse effects module . . . . . J001-J999	1,992	2.3
All other modules <sup>2</sup> . . . . .	1,818	2.2

<sup>1</sup>Based on "A Reason for Visit Classification for Ambulatory Care" (2).

<sup>2</sup>Includes test results and administrative modules and uncodeable and blank entries.

classification) and diseases of the respiratory system were the two most common classes of principal diagnoses rendered by the pediatrician, each representing approximately one-quarter of all primary diagnoses (table 7). The supplementary classification contains categories for diagnoses other than diseases and injuries such as general medical, well-child, and normal pregnancy exams. Because the most common reason for visit was the well-baby exam, it is no surprise that the most common diagnosis is the health supervision of infant or child, which explains 14.5 percent of all the principal diagnoses. The second and third most common principal diagnoses were suppurative and unspecified otitis media and acute upper respiratory infection with percentages of 13.9 percent and 5.2 percent, respectively (table 8). Data from the 1989 NAMCS reveal similar diagnoses in comparison to the 1985 NAMCS with minimal differences.

### Diagnostic services and nonmedication therapy

One-third (32.3 percent) of the patients who visited pediatricians received one or more diagnostic tests. Of those diagnostic tests listed in item 12 of the patient record form, "other" was chosen most often with a percentage of 21.4 followed by other blood test with a percentage of 7.4 and blood pressure with a percentage of 7.0 (table 9). The "other" category was selected frequently because the specific diagnostic test categories listed on the patient record form are generally associated with adult visits and are often not appropriate for the types of problems and resulting services offered by the pediatrician. Similarly, the lists in items 13 and 14 of the patient record form are generally not appropriate to the pediatrician's practice resulting in relatively high percentages in the "other" category.

**Table 6. Number and percent distribution of office visits to pediatric specialists by most common principal reason for visit: United States, 1989**

Most common principal reason for visit and RVC code <sup>1</sup>	Number of visits in thousands	Percent distribution
All principal reasons for visit . . . . .	87,411	100.0
Well-baby exam . . . . .X105	11,819	13.5
Cough . . . . .S440	9,725	11.1
Fever . . . . .S010	7,016	8.0
Earache or other infection . . . . .S355	6,411	7.3
General medical exam . . . . .X100	5,003	5.7
Symptoms referable to throat . . . . .S455	3,803	4.4
Other symptoms referable to the ears . . . . .S365	3,225	3.7
Skin rash . . . . .S860	2,860	3.3
Nasal congestion . . . . .S400	2,719	3.1
Head cold, upper respiratory infection . . . . .S445	2,384	2.7
Otitis media . . . . .D450	2,202	2.5
Diarrhea . . . . .S595	1,716	2.0
Vomiting . . . . .S530	1,430	1.6
Prophylactic inoculations . . . . .X400	1,199	1.4
Physical examination required for employment . . . . .A100	848	1.0

<sup>1</sup>Based on "A Reason for Visit Classification for Ambulatory Care" (2).

**Table 7. Number and percent distribution of office visits to pediatric specialists by major International Classification of Diseases, 9th Revision, Clinical Modification class: United States, 1989**

Principal diagnoses and ICD-9-CM code	Number of visits in thousands	Percent distribution
All principal diagnoses . . . . .	87,411	100.0
Infectious and parasitic diseases . . . . .001-139	6,914	7.9
Mental disorders . . . . .290-319	1,055	1.2
Nervous system and sense organs . . . . .320-389	15,254	17.5
Respiratory system . . . . .460-519	21,886	25.0
Digestive system . . . . .520-579	3,553	4.1
Genitourinary system . . . . .580-629	1,253	1.4
Skin and subcutaneous tissue . . . . .680-709	3,857	4.4
Symptoms, signs, and ill-defined conditions . . . . .780-799	3,992	4.6
Injury and poisoning . . . . .800-999	3,328	3.8
Supplementary classifications . . . . .V codes	22,262	25.5
All other diagnoses <sup>1</sup> . . . . .	2,983	3.4
Unknown or blank . . . . .	1,074	1.2

<sup>1</sup>Includes: Neoplasms; endocrine, nutritional and metabolic diseases and immunity disorders; diseases of the circulatory system; diseases of musculoskeletal system and connective tissue.

**Table 8. Number and percent distribution of office visits to pediatric specialists by principal diagnoses most frequently rendered by the physician: United States, 1989**

Most common principal diagnosis and ICD-9-CM code <sup>1</sup>	Number of visits in thousands	Percent distribution
All principal diagnoses . . . . .	87,411	100.0
Health supervision of infant or child . . . . .V020	12,679	14.5
Suppurative and unspecified otitis media . . . . .382	12,151	13.9
Acute upper respiratory infection . . . . .465	4,723	5.2
Unspecified general medical exam . . . . .V070	4,470	5.1
Acute pharyngitis . . . . .462	3,861	4.4
Disorders of nervous system and sense organs . . . . .V012	2,721	3.1
Bronchitis not specified as acute or chronic . . . . .490	2,599	3.0
Other and unspecified noninfectious gastroenteritis and colitis . . . . .558	2,096	2.4
Acute tonsillitis . . . . .463	1,915	2.2
Unspecified viral infection . . . . .079	1,877	2.1
Chronic sinusitis . . . . .473	1,718	2.0
Streptococcal sore throat . . . . .034	1,398	1.6
Other ill-defined and unknown causes of morbidity and mortality . . . . .799	1,291	1.5
Acute laryngotracheitis . . . . .464	1,136	1.3
Pneumonia . . . . .486	1,123	1.3
All other diagnoses . . . . .	31,653	36.2

<sup>1</sup>Based on the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM).

## Medication therapy

Pediatricians administered or prescribed medication including immunizations, during an estimated 67.1 percent of their patient visits in 1989, accounting for 14.0 percent of all medication prescribed or administered in ambulatory office practices. Of those pediatric patients who received medication, 44.3 percent received only one drug, while 17.5 percent received two drugs (table 10). Pediatric patients, due to their age and commonly diagnosed bacterial infections, mainly utilized 3 of the 20 therapeutic classes of drugs. (This classification is adopted from the therapeutic categories of the National Drug Code, 1985 (4).) It should be noted that some drugs may have application in more than one therapeutic category. In that event, each drug was assigned to the category for which it is most frequently prescribed. Antimicrobial agents were most often prescribed, 33.1 percent of the time, with respiratory tract drugs and immunologic agents following with percentages of 23.6 and 16.0, respectively (table 11). Amoxicillin, erythromycin, and immunizing agents, for example, diphtheria-tetanus-pertussis and polio, head the list of the most utilized generic ingredients administered or prescribed by pediatricians (table 12).

## Disposition and duration of visit

The average time spent with the pediatrician per visit was 12.6 minutes. This figure represents time actually spent in face-to-face contact between the physician and patient; it does not include visits of zero minutes. Zero minutes were recorded if the patient was seen only by someone other than the physician. Whereas many of the patients, 38.5 percent, were seen between 6 and 10 minutes, no time (zero minutes) with the physician was recorded for 0.3 percent of the patients, down from 1.9 percent in

**Table 9. Number and percent distribution of office visits to pediatric specialists by number and type of diagnostic service: United States, 1989**

Diagnostic service	Number of visits in thousands	Percent distribution
All visits . . . . .	87,411	100.0
Number of diagnostic services		
None . . . . .	58,694	67.1
1 . . . . .	19,989	22.9
2 . . . . .	4,632	5.3
3 . . . . .	2,742	3.1
4 . . . . .	854	1.0
Diagnostic test		
Blood test <sup>1</sup> . . . . .	6,427	7.4
Blood pressure . . . . .	6,090	7.0
Urinalysis . . . . .	5,837	6.7
Visual acuity . . . . .	3,305	3.8
Chest x ray . . . . .	1,038	1.2
All other . . . . .	6,019	6.9

<sup>1</sup>Other than cholesterol and HIV tests.

NOTE: Detail may not add to total because more than one diagnostic service was possible during the patient visit.

**Table 10. Number and percent distribution of office visits to pediatric specialists by type of visit and number of medications prescribed or ordered: United States, 1989**

Type of visit and number of medications	Number of visits in thousands	Percent distribution
All visits . . . . .	87,411	100.0
Type of visit		
Nondrug visit (0 medications) . . . . .	28,738	32.9
Drug visit . . . . .	58,673	67.1
Number of medications		
1 . . . . .	38,697	44.3
2 . . . . .	15,310	17.5
3 . . . . .	3,603	4.1
4 or more . . . . .	1,063	1.2

**Table 11. Number of drug mentions in office visits to pediatric specialists by age and percent distribution of the therapeutic category according to age: United States, 1989**

Therapeutic category <sup>1</sup>	5 years and under	6-10 years	11-21 years
Number in thousands			
All categories . . . . .	87,882	18,755	12,474
Percent distribution			
Total . . . . .	100.0	100.0	100.0
Antimicrobial agents . . . . .	33.1	37.3	24.9
Penicillins . . . . .	12.7	17.5	11.2
Cephalosporins . . . . .	3.8	4.3	3.0
Erythromycins and lincosamides . . . . .	10.0	9.7	6.4
Sulfonamides and trimethoprim . . . . .	6.0	5.0	2.5
Psychopharmacologic drugs . . . . .	0.3	2.2	3.3
Gastrointestinal agents . . . . .	1.7	6.8	0.4
Metabolic and nutrient agents . . . . .	5.7	1.4	0.4
Hormones and agents affecting hormonal mechanisms . . . . .	0.6	1.3	4.5
Immunologic agents . . . . .	16.0	2.3	11.1
Skin/mucous membrane . . . . .	6.9	9.1	12.6
Ophthalmic drugs . . . . .	2.7	2.3	3.6
Otologic drugs . . . . .	0.9	1.7	
Drugs for relief of pain . . . . .	3.3	3.0	6.7
Respiratory tract drugs . . . . .	23.6	28.9	24.1
Bronchodilators and antiasthmatics . . . . .	3.6	7.6	5.2
Nasal decongestants . . . . .	9.0	9.6	10.3
Antitussives, expectorants, and mucolytics . . . . .	9.6	9.9	5.5
All other <sup>2</sup> . . . . .	5.2	3.7	8.4

<sup>1</sup>Therapeutic class based on the standard drug classification used in the *National Drug Code Directory*, 1985 Edition.

<sup>2</sup>Includes: Anesthetic drugs, antidotes, hematologic agents, cardiovascular-renal drugs, radiopharmaceuticals/contrast media, oncology, antiparasitic agents, unclassified/miscellaneous.

1985. The most common disposition of the office visit was for the patient of a pediatrician to return at a specific time, 42.7 percent, with the second most common disposition having the patient return only if needed, 32.5 percent (table 13).

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Table 12. Number and percent distribution of the top 15 generic ingredients most utilized by pediatric specialists: United States, 1989

Rank	Generic ingredient	Number of mentions <sup>1</sup> in thousands	Percent distribution
	All drugs . . . . .	121,780	100.0
1	Amoxicillin . . . . .	15,232	12.5
2	Erythromycin . . . . .	5,553	4.6
3	Diphtheria-tetanus-pertussis vaccine . . . . .	5,049	4.1
4	Polio vaccine . . . . .	4,225	3.5
5	Phenylephrine . . . . .	3,646	3.0
6	Cefaclor . . . . .	3,548	2.9
7	Phenylpropanolamine . . . . .	3,522	2.9
8	Trimethoprim . . . . .	3,149	2.6
9	Sulfamethoxazole . . . . .	3,128	2.6
10	Acetaminophen . . . . .	2,929	2.4
11	Sulfisoxazole . . . . .	2,820	2.3
12	Chlorpheniramine . . . . .	2,595	2.1
13	Albuterol . . . . .	2,455	2.0
14	Pentoxifylline . . . . .	2,135	1.8
15	Dextromethorphan . . . . .	2,004	1.6

<sup>1</sup>Frequency of mention combines single-ingredient agents with mentions of the agents as an ingredient in a combined drug.

Table 13. Number and percent distribution of office visits to pediatric specialists by duration and disposition: United States, 1989

Duration and disposition of visit	Number of visits in thousands	Percent distribution
All visits . . . . .	87,411	100.0
Duration of visit <sup>1</sup>		
Zero minutes . . . . .	*239	0.3
1-5 minutes . . . . .	13,150	15.0
6-10 minutes . . . . .	33,680	38.5
11-15 minutes . . . . .	25,235	28.9
16-30 minutes . . . . .	13,774	15.8
31-60 minutes . . . . .	1,248	1.4
61 minutes or more . . . . .	*84	0.1
Disposition of visit		
No followup planned . . . . .	17,013	19.5
Return at specified time . . . . .	37,326	42.7
Return if needed . . . . .	28,431	32.5
Telephone followup planned . . . . .	4,023	4.6
Referred to other physician . . . . .	1,647	1.9
Returned to referring physician . . . . .	*314	0.4
Admit to hospital . . . . .	283	0.3

<sup>1</sup>Mean duration of visit 12.6 minutes.

## Technical notes

### Sources of data and sample design

The information presented in this report is based on data collected by means of the National Ambulatory Medical Care Survey from March 20, 1989, through March 18, 1990. The target universe of NAMCS includes office visits made in the United States by ambulatory patients to nonfederally employed physicians who are principally engaged in office practice, but not in the specialties of anesthesiology, pathology, or radiology. Telephone contacts and nonoffice visits are excluded.

A multistage probability sample design is used in NAMCS, involving samples of primary units (PSU's), physician practices within PSU's, and patient visits within physician practices. For 1989, a sample of 2,535 non-Federal office-based physicians was selected from master files maintained by the American Medical Association and American Osteopathic Association (the sample included 166 pediatricians of which 120 were eligible for the survey). The physician response rate for the 1989 NAMCS was 74 percent (81 percent for pediatricians). Sample physicians was asked to complete patient records (see figure 1) for a systematic random sample of office visits occurring during a randomly assigned 1-week reporting period. Responding physicians completed 38,384 patient records (3,732 patient records were filled out by pediatricians). Characteristics of the physician's practice, such as primary specialty and type of practice, were obtained from the physicians during an induction interview. The U.S. Bureau of the Census, Housing Surveys Branch, was responsible for the survey's data collection. Processing operations and medical coding were performed by the National Center for Health Statistics, Hospital Discharge and Ambulatory Care Survey 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 relative standard error of an estimate is obtained by dividing the standard error by the estimate itself; the result is then expressed as a percent of the estimate. Approximate relative standard errors of selected aggregate statistics are shown in table I, and the relative standard errors of estimated number of drug mentions are shown in table II. The standard errors for estimated percent of visits are shown in table III.

### Adjustments for nonresponse

Estimates from NAMCS data were adjusted to account for sample physicians who were in scope but did not participate in the study. This adjustment was calculated to minimize the impact of response on final estimates by imputing to nonresponding physicians data from similar visits to similar physicians. For this purpose physicians were judged similar if they had the same specialty designation and practiced in the same PSU.

**Table I. Relative standard errors of estimated numbers of office visits for the National Ambulatory Medical Care Survey: United States, 1989**

Estimated number of office visits in thousands	All specialties		Pediatrics
	Relative standard error (RSE) in percent		
100	69.7	50.5	
200	49.4	36.6	
300	40.4	30.6	
400	35.0	27.1	
500	31.4	24.7	
700	26.6	21.8	
1,000	22.4	19.2	
2,000	16.1	15.8	
5,000	10.6	13.3	
10,000	8.0	12.4	
50,000	5.1	11.5	
100,000	4.6	11.4	
690,000	4.1	...	

NOTE: Pediatric 30% RSE = 313,000; all specialties 30% RSE = 547,000.

Example of use of table: An aggregate estimate of 2 million visits to a pediatrician has a relative standard estimate of 15.8 percent or a standard error of 316 thousand visits (15.8 percent of 2 million).

**Table II. Relative standard errors of estimated numbers of drug mentions for the National Ambulatory Medical Care Survey: United States, 1989**

Estimated number of drug mentions in thousands	All specialties		Pediatrics
	Relative standard error (RSE) in percent		
100	89.6	50.1	
200	63.4	37.1	
300	51.9	31.5	
400	45.0	28.4	
500	40.3	26.3	
700	34.2	23.7	
1,000	28.7	21.5	
2,000	20.6	18.7	
5,000	13.6	16.8	
10,000	10.3	16.1	
50,000	6.5	15.5	
100,000	5.8	15.4	
200,000	5.5	15.4	
700,000	5.2	...	

NOTE: Pediatric 30% RSE = 343,000; all specialties 30% RSE = 912,000.

Example of use of table: An aggregate estimate of 2 million drug mentions by a pediatrician has a relative standard estimate of 18.7 percent or a standard error of 374 thousand drug mentions (18.7 percent of 2 million).

### Test of significance and rounding

In this report, the determination of statistical significance is based on a two-sided *t*-test with a critical value of 1.96 (0.05 level of confidence). Terms relating to differences such as "greater than" or "less than" indicate that the difference is statistically significant. In the tables, estimates of office visits have been rounded to the nearest thousand. Consequently, estimates will not always add to totals. Rates and percent were calculated from original unrounded figures and do not necessarily agree with percents calculated from rounded data.

### Definition of terms

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

**Physician** — A physician is a duly licensed doctor of medicine (M.D.) or doctor of osteopathy (D.O.) who is currently in office-based practice and who spends some time caring for ambulatory patients. Excluded from the NAMCS are physicians who are

Table III. Standard errors for percents of estimated numbers of office visits for the National Ambulatory Medical Care Survey: United States, 1989

Base of percent (visits in thousands)	Estimated percent					
	1 or 99	5 or 95	10 or 90	20 or 80	30 or 70	50
	Standard error in percentage points					
200. . . . .	4.9	10.7	14.8	19.7	22.6	24.6
500. . . . .	3.1	6.8	9.3	12.5	14.3	15.6
1,000 . . . . .	2.2	4.8	6.6	8.8	10.1	11.0
2,000 . . . . .	1.6	3.4	4.7	6.2	7.1	7.8
5,000 . . . . .	1.0	2.2	3.0	3.9	4.5	4.9
10,000 . . . . .	0.7	1.5	2.1	2.8	3.2	3.5
13,000 . . . . .	0.6	1.3	1.8	2.4	2.8	3.1
20,000 . . . . .	0.5	1.1	1.5	2.0	2.3	2.5
50,000 . . . . .	0.3	0.7	0.9	1.3	1.4	1.6
100,000 . . . . .	0.2	0.5	0.7	0.9	1.0	1.1
600,000 . . . . .	0.1	0.2	0.3	0.4	0.4	0.5

Example of use of table: An estimate of 30 percent based on an aggregate estimate of 13 million visits has a standard error of 2.8 percent or a relative standard error of 9.3 percent (2.8 percent divided by 30 percent).

hospital based; who specialize in anesthesiology, pathology, or radiology; who are federally employed; who treat only institutionalized patients; who are employed full time by an institution; and who spend no time seeing ambulatory patients.

*Office*—Offices are the premises physicians identify as locations for their ambulatory practice. These customarily include consultation, examination, or treatment spaces the patients associate with the particular physician.

*Visit*—A visit is a direct personal exchange between an ambulatory patient and a physician or a staff member working under the physician's supervision, for the purpose of seeking care and rendering personal health services.

*Drug mention*—A drug mention is the physician's entry of a pharmaceutical agent—by any route of administration—for prevention, diagnoses, or treatment. Generic as well as brand-name drugs are included, as are nonprescription and prescription drugs. Along with all new drugs, the physician also records continued medications if the patient was specifically instructed during the visit to continue the medication.

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

### Symbols

- ... Category not applicable
- Quantity zero
- \* Figure does not meet standards of reliability or precision (see Technical notes)

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**Suggested citation**

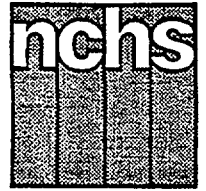
Woodwell D. Office visits to pediatric specialists, 1989. Advance data from vital and health statistics; no 208. Hyattsville, Maryland: National Center for Health Statistics. 1992.

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# Advance Data



From Vital and Health Statistics of the National Center for Health Statistics

## Office Visits to Internists, 1989

by David A. Woodwell, Division of Health Care Statistics

According to data from the 1989 National Ambulatory Medical Care Survey (NAMCS), an estimated 692.7 million visits were made to office-based ambulatory care physicians in the United States. Of this total, an estimated 78.8 million, or 11.4 percent, were to physicians specializing in internal medicine.

The NAMCS is a year-long probability sample survey of office-based non-Federal physicians practicing in the United States. The NAMCS was conducted annually from 1973 to 1981, again in 1985, and resumed being annual in 1989 by the Division of Health Care Statistics, National Center for Health Statistics, Center for Disease Control. The survey sample is selected from visits to doctors of medicine and osteopathy who are engaged in office-based ambulatory care, the location where most Americans seek their health care. The NAMCS excludes both physicians who specialize in anesthesiology, pathology, or radiology and physicians who are principally engaged in teaching, research, or administration. The survey excludes visits made to

hospital emergency rooms or hospital outpatient departments.

The figures presented in this report are estimated from a sample, not the entire universe of visits to physicians' offices, and therefore are subject to sampling variability. The technical notes at the end of the report provide guidelines for judging the precision of the estimates. A copy of the patient record form used for the data collection is shown in figure 1, which will serve useful while reading the results. Definitions used in the survey are also included and can be found in the technical notes section.

Internists included in the NAMCS are sampled from those physicians designated as such in the American Medical Association (AMA) and the American Osteopathic Association (AOA) master files. These are self-classified internists whose specialty is then confirmed at the time of the NAMCS interview. About 70 percent of the internists in the NAMCS sample have indicated internal medicine as their only specialty, while the remaining 30 percent indicated a second

specialty in the AMA or AOA files. In addition, approximately two-thirds of the internists in the sample are board certified, usually in internal medicine, while the remaining one-third were not.

### Data highlights

Of the 13 largest specialties, internal medicine places third just behind pediatricians and just before obstetricians and gynecologists in the percent of visits made to ambulatory care physicians (table 1). During the 12-month period from March 1989 to March 1990, the percent of visits to internists (11.4 percent) was not statistically different from the percent of visits in 1985 (11.6 percent) (figure 2).

### Patient characteristics

The patients visiting internists tend to be older than average; the mean visit age for internists is 54.8 years while visits to all physicians is 39.9 years (table 2). About 92 percent of internists' visits are



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Public Health Service  
Centers for Disease Control  
National Center for Health Statistics  
Manning Feinleib, M.D., Dr. P.H., Director



Assurance of Confidentiality—All information which would permit identification of an individual, a practice, or an establishment will be held confidential, will be used only by persons engaged in and for the purposes of the survey and will not be disclosed or released to other persons or used for any other purpose.		Department of Health and Human Services Centers for Disease Control Public Health Service National Center for Health Statistics		<b>A</b>		
1. DATE OF VISIT <small>Month Day Year</small>		<b>PATIENT RECORD</b> <b>NATIONAL AMBULATORY MEDICAL CARE SURVEY</b>				OMB No. 0920-0234 Expires 8-31-89 (PHS) 6105A
2. ZIP CODE	4. SEX 1 <input type="checkbox"/> FEMALE 2 <input type="checkbox"/> MALE	5. COLOR OR 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	6. ETHNICITY 1 <input type="checkbox"/> HISPANIC ORIGIN 2 <input type="checkbox"/> NOT HISPANIC	7. EXPECTED SOURCE(S) OF PAYMENT <i>*[Check all that apply]</i> 1 <input type="checkbox"/> SELF-PAY    4 <input type="checkbox"/> BLUE CROSS/BLUE SHIELD    7 <input type="checkbox"/> NO CHARGE 2 <input type="checkbox"/> MEDICARE    5 <input type="checkbox"/> OTHER COMMERCIAL INSURANCE    8 <input type="checkbox"/> OTHER <i>[Specify]</i> 3 <input type="checkbox"/> MEDICAID    6 <input type="checkbox"/> PRE-PAID PLAN HMO/IPA/PPO		8. WAS PATIENT REFERRED FOR THIS VISIT BY ANOTHER PHYSICIAN? 1 <input type="checkbox"/> YES    2 <input type="checkbox"/> NO
3. DATE OF BIRTH <small>Month Day Year</small>		9. 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		10. PHYSICIAN'S DIAGNOSES  a. PRINCIPAL DIAGNOSIS/PROBLEM ASSOCIATED WITH ITEM 9a.   b. OTHER SIGNIFICANT CURRENT DIAGNOSES		11. HAVE YOU SEEN PATIENT BEFORE?  1 <input type="checkbox"/> YES    2 <input type="checkbox"/> NO ↓ IF YES, FOR THE CONDITION IN ITEM 10a?  1 <input type="checkbox"/> YES    2 <input type="checkbox"/> NO
12. DIAGNOSTIC/SCREENING SERVICES THIS VISIT <i>[Check all ordered or provided]</i> 1 <input type="checkbox"/> NONE    7 <input type="checkbox"/> BLOOD PRESSURE CHECK    13 <input type="checkbox"/> ORAL GLUCOSE TOL. 2 <input type="checkbox"/> PAP TEST    8 <input type="checkbox"/> URINALYSIS    14 <input type="checkbox"/> CHOLESTEROL MEASURE 3 <input type="checkbox"/> PELVIC EXAM    9 <input type="checkbox"/> CHEST X-RAY    15 <input type="checkbox"/> HIV SEROLOGY 4 <input type="checkbox"/> BREAST PALPATION    10 <input type="checkbox"/> DIGITAL RECTAL EXAM    16 <input type="checkbox"/> OTHER BLOOD TEST 5 <input type="checkbox"/> MAMMOGRAM    11 <input type="checkbox"/> PROCT/SIGMOIDOSCOPY    17 <input type="checkbox"/> OTHER <i>[Specify]</i> 6 <input type="checkbox"/> VISUAL ACUITY    12 <input type="checkbox"/> STOOL BLOOD EXAM			13. COUNSELING/ADVICE <i>[Check all ordered or provided]</i> 1 <input type="checkbox"/> NONE 2 <input type="checkbox"/> WEIGHT REDUCTION 3 <input type="checkbox"/> CHOLESTEROL REDUCTION 4 <input type="checkbox"/> SMOKING CESSATION 5 <input type="checkbox"/> HIV TRANSMISSION 6 <input type="checkbox"/> BREAST SELF-EXAM 7 <input type="checkbox"/> OTHER		14. NON-MEDICATION THERAPY <i>[Check all ordered or provided]</i> 1 <input type="checkbox"/> NONE 2 <input type="checkbox"/> PSYCHOTHERAPY 3 <input type="checkbox"/> CORRECTIVE LENSES 4 <input type="checkbox"/> AMBULATORY SURGERY 5 <input type="checkbox"/> PHYSIOTHERAPY 6 <input type="checkbox"/> OTHER <i>[Specify]</i>	
15. MEDICATION THERAPY <i>[Record all new or continued medications ordered or provided at this visit. Use the same brand name or generic name entered on any Rx or office medical record. Include immunizing and desensitizing agents.]</i>  IF NONE, CHECK HERE <input type="checkbox"/>				16. DISPOSITION THIS VISIT <i>[Check all that apply]</i> 1 <input type="checkbox"/> NO FOLLOW-UP PLANNED 2 <input type="checkbox"/> RETURN AT SPECIFIED TIME 3 <input type="checkbox"/> RETURN IF NEEDED, P.R.N. 4 <input type="checkbox"/> TELEPHONE FOLLOW-UP PLANNED 5 <input type="checkbox"/> REFERRED TO OTHER PHYSICIAN 6 <input type="checkbox"/> RETURNED TO REFERRING PHYSICIAN 7 <input type="checkbox"/> ADMIT TO HOSPITAL 8 <input type="checkbox"/> OTHER <i>[Specify]</i>		17. DURATION OF THIS VISIT <i>[Time actually spent with physician]</i>  Minutes
1. _____				a. NEW MEDICATION?    b. FOR DX IN ITEM 10a?		
2. _____				YES    NO    YES    NO		
3. _____				1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/>		
4. _____				1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/>		
5. _____				1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/>		

\* U.S. GOVERNMENT PRINTING OFFICE:1989-226-187

Figure 1. Patient record form

over 25 years of age, and nearly 40 percent of the visits are 65 years of age or older. The patient visit rate increases with age from a low of 2.3 visits per 100 persons for those patients under 15 years of age to about 128 visits per 100 persons 75 years of age and over. These relationships generally are true for both male and female visits. Although female patients account for the majority of internist visits (58 percent), the visit rate for females is not statistically different from that for males.

White persons accounted for most of the visits to internists (approximately 81 percent) as compared with black persons (approximately 13 percent). These percentages closely represent the general distribution of the population; hence, the similar visit rates. As shown in table 3, white and black persons have visit rates that are not statistically different—33.2 visits per 100 persons for blacks and 31.2 visits per 100 persons for whites. Between races there was no statistical difference by the gender of the

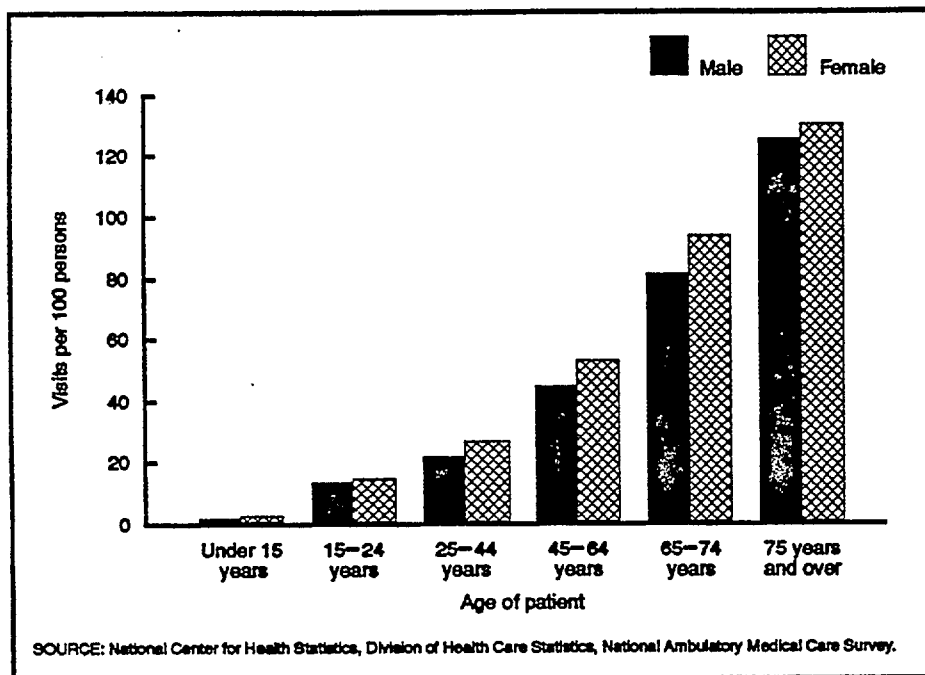
patient. The distribution of those visits again followed that of the general population.

**Expected sources of payment**

Patients' self-payment (including copayments and deductibles) was the expected source of payment in 31.7 percent of the visits to internists; Medicare was 30.3 percent; prepaid plans (HMO, IPA, or PPO) was 21.0; other commercial insurance was 20.1;

**Table 1. Number and percent distribution of office visits, by selected physician specialties: United States, 1989**

Selected specialty	Number of visits in thousands	Percent distribution
All visits . . . . .	692,702	100.0
General and family practice . . . . .	206,301	29.8
Pediatrics . . . . .	87,411	12.6
Internal medicine . . . . .	78,816	11.4
Obstetrics & gynecology . . . . .	58,381	8.4
Ophthalmology . . . . .	38,761	5.6



**Figure 2. Visit rate to internists by age and sex: United States, 1989**

**Table 2. Number, percent distribution, and rate of office visits to internists by sex and age: United States, 1989**

Sex and age	Number of visits in thousands	Percent distribution	Visits per 100 persons
All visits . . . . .	78,816	100.0	32.4
<b>Both sexes</b>			
Under 15 years . . . . .	1,253	1.6	2.3
15-24 years . . . . .	5,008	6.4	14.1
25-44 years . . . . .	19,352	24.6	24.6
45-64 years . . . . .	22,824	29.0	49.5
65-74 years . . . . .	15,758	20.0	88.4
75 years and over . . . . .	14,621	18.6	128.4
<b>Male</b>	33,142	42.1	28.1
Under 15 years . . . . .	*473	0.6	1.7
15-24 years . . . . .	2,410	3.1	13.7
25-44 years . . . . .	8,645	11.0	22.4
45-64 years . . . . .	9,877	12.5	44.8
65-74 years . . . . .	6,447	8.2	81.2
75 years and over . . . . .	5,290	6.7	125.7
<b>Female</b>	45,674	58.0	36.4
Under 15 years . . . . .	780	1.0	3.0
15-24 years . . . . .	2,598	3.3	14.5
25-44 years . . . . .	10,707	13.6	26.7
45-64 years . . . . .	12,947	16.4	53.8
65-74 years . . . . .	9,311	11.8	94.1
75 years and over . . . . .	9,331	11.8	130.0

and Blue Cross/Blue Shield was 10.1 percent. Medicaid was used least as a source of payment, 3.7 percent (table 4).

**Patient status**

Most of the patients who visited the internist in 1989, 96.6 percent, had not been referred by another physician; the remaining patients, 3.4 percent, had been referred for that particular visit. New patients represented an estimated 15.7 percent of the visits and old patients (patients previously seen) having new problems represented 25.0 percent of the visits. Most of the visits, however, were from patients that had preexisting or old problems, 59.4 percent (table 5).

**Patient's reason for visit**

The principal reason for visit to the internist, as expressed by the patient, is shown in tables 6 and 7. The principal reason for visit is the problem, complaint, or reason listed first in item 9A of the patient record form. These data have been classified and coded according to the Reason for Visit Classification for Ambulatory Care (RVC) (1).

The RVC is divided into seven modules (or groups of reasons) as detailed in table 6. The symptoms module was the most often cited, 57.2 percent of all the reasons for visit. Within the symptoms module, symptoms of the respiratory and musculoskeletal systems had the largest number of visits with 13.7 and 12.3 percent, respectively. The disease module, which consists largely of known chronic conditions, accounted for 14.1 percent, and the diagnostic, screening, and preventive module accounted for 12.4 percent.

Table 7 lists the 20 most common reasons for visit that accounted for approximately 47 percent of all visits to the internist. The general medical exam, 6.2 percent, was the most frequent principal reason for visit. Cough accounted for 4.7 percent of the visits, an increase from 3.1 percent in 1985. Compared with 1985, two additional symptoms

**Table 3. Number, percent distribution, and rate of office visits to internists by race and sex: United States, 1989**

Race and sex	Number of visits in thousands	Percent distribution	Visits per 100 persons
All visits <sup>1</sup>	78,816	100.0	32.4
Race and sex			
Black	9,924	12.6	33.2
Male	3,868	4.9	27.7
Female	6,056	7.7	38.0
White	64,022	81.2	31.2
Male	27,642	35.1	27.6
Female	36,380	46.2	34.5
Other <sup>2</sup>	2,913	3.7	35.0
Male	1,118	1.4	27.5
Female	1,795	2.3	42.1

<sup>1</sup>Detail does not add to total because unspecified category, 1,957,000 visits, is included in total.

<sup>2</sup>Includes Asian/Pacific Islander and American Indian/Eskimo/Aleut.

**Table 4. Number and percent distribution of the expected source of payment to office visits of internists: United States, 1989**

Source of payment	Number of visits in thousands	Percent distribution
All visits <sup>1</sup>	78,816	100.0
Self-pay	24,974	31.7
Medicare	23,902	30.3
Medicaid	2,920	3.7
Blue Cross/Blue Shield	7,949	10.1
Other commercial	15,834	20.1
Pre-paid plan, HMO/PA/PPO	16,536	21.0
Other <sup>2</sup>	4,449	5.6

<sup>1</sup>Will not add to 100 percent because more than one category could have been chosen.

<sup>2</sup>Includes no charge, other, and unknown.

**Table 5. Number and percent distribution of patient referral status and visit status: United States, 1989**

Referral and visit status	Number of visits in thousands	Percent distribution
All visits	78,816	100.0
Patient referred		
Yes	2,706	3.4
No	76,110	96.6
Visit status		
New patient	12,336	15.7
Old patient-new problem	19,700	25.0
Old patient-old problem	46,780	59.4

**Table 6. Number and percent distribution of office visits to internist by principal reason for visit module: United States, 1989**

Principal reason for visit module and RVC code <sup>1</sup>	Number of visits in thousands	Percent distribution
All principal reasons for visit	78,816	100.0
Symptom module	45,113	57.2
General symptoms	6,494	8.2
Symptoms referable to respiratory system	10,795	13.7
Symptoms referable to digestive system	6,208	7.9
Symptoms referable to the musculoskeletal system	9,699	12.3
Disease module	11,107	14.1
Diagnostic, screening, and preventive module	9,734	12.4
Treatment module	5,648	7.2
Injury and adverse effects module	2,012	2.6
All other modules <sup>2</sup>	5,201	6.6

<sup>1</sup>Based on "A Reason for Visit Classification for Ambulatory Care" (RVC) (1).

<sup>2</sup>Includes test results and administrative modules and uncodeable and blank entries.

appeared in 1989 in the 20 most common reasons for visit: physical examination required for employment and nasal congestion.

### Physician's diagnosis

Data on the principal diagnosis rendered by internists are shown in tables 8 and 9. The principal diagnosis is the first listed in item 10 of the patient record form. These data were coded and classified according to the *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM)* (2).

Table 8 categorizes the diagnoses by the major systems of the body as defined by the ICD-9-CM. The most frequent diagnoses were for diseases of the circulatory system, 19.6 percent of the visits, and for diseases of the respiratory system, 15.4 percent of the visits. The majority of the diagnoses made by internists were for diseases, with only 5.4 percent of the diagnoses contained in the supplementary classification. This is well below the percent for all physicians, 15.3 percent, in 1989 (3). Supplementary classifications contain categories for diagnoses other than diseases such as general medical exams, normal pregnancy exams, and personal history.

The 20 conditions most frequently diagnosed by internists are shown in table 9. Essential hypertension was the most commonly diagnosed condition and represented 9.6 percent of the visits, down from 11.2 percent in 1985, and was the most frequent diagnosis in 1989 for all visits to all physicians (3). Diabetes mellitus, the second most common diagnosis by internists, represented 4.8 percent of the visits. Within the top 20 diagnoses in 1989, there are many noteworthy changes when compared with 1985. There was a significant increase of disorders of lipid metabolism, 0.5 percent to 2.2 percent, and other and unspecified disorders of the back, 0.7 percent to 1.5 percent.

Allergic rhinitis and abdominal pain and other abdominal symptoms



**Table 7. Number, percent distribution, and cumulative percent, by the 20 most common principal reasons for visits to internists: United States, 1989**

Rank	Most common principal reason for visits and RVC code <sup>1</sup>	Number of visits in thousands	Percent distribution	Cumulative percent
	All principal reasons for visit . . . . .	78,816	100.0	---
1	General medical exam . . . . .X100	4,886	6.2	6.2
2	Cough . . . . .S440	3,674	4.7	10.9
3	Hypertension . . . . .D510	2,872	3.6	14.5
4	Stomach pain, cramps and spasms . . . . .S545	2,784	3.5	18.0
5	Blood pressure test . . . . .X320	2,301	2.9	20.9
6	Back symptoms . . . . .S905	2,228	2.8	23.7
7	Chest pain and related symptoms . . . . .S050	2,133	2.7	26.4
8	Symptoms referable to throat . . . . .S455	1,742	2.2	28.6
9	Headache, pain in head . . . . .S210	1,724	2.2	30.8
10	Shortness of breath . . . . .S415	1,430	1.8	32.6
11	Diabetes mellitus . . . . .D205	1,391	1.8	34.4
12	Tiredness, exhaustion . . . . .S015	1,260	1.6	36.0
13	Vertigo-dizziness . . . . .S225	1,227	1.6	37.6
14	Leg symptoms . . . . .S920	1,221	1.5	39.1
15	Physical exam required for employment . . . . .A100	1,145	1.5	40.6
16	Nasal congestion . . . . .S400	1,062	1.3	41.9
17	Knee symptoms . . . . .S925	996	1.3	43.2
18	Lower back symptoms . . . . .S910	968	1.2	44.4
19	Head cold, upper respiratory infection . . . . .S445	958	1.2	45.6
20	Arthritis . . . . .D900	917	1.2	46.8

<sup>1</sup>Based on "A Reason for Visit Classification for Ambulatory Care" (RVC) (1).

**Table 8. Number and percent distribution of office visits to internists by major International Classification of Diseases, 9th Revision, Clinical Modification class: United States, 1989**

Principal diagnoses and ICD-9-CM codes <sup>1</sup>	Number of visits in thousands	Percent distribution
All diagnoses . . . . .	78,816	100.0
Infectious and parasitic diseases . . . . .001-139	1,737	2.2
Neoplasms . . . . .140-239	1,955	2.5
Endocrine, nutritional, and metabolic diseases and immunity disorders . . . . .240-279	7,534	9.6
Mental disorders . . . . .290-319	1,951	2.5
Diseases of the nervous system and sense organs . . . . .320-389	2,797	3.5
Diseases of the circulatory system . . . . .390-459	15,470	19.6
Diseases of the respiratory system . . . . .460-519	12,155	15.4
Diseases of the digestive system . . . . .520-579	5,853	7.4
Diseases of the genitourinary system . . . . .580-629	3,062	3.9
Diseases of the skin and subcutaneous tissue . . . . .680-709	1,887	2.4
Diseases of the musculoskeletal system and connective tissue . . . . .710-739	8,083	10.3
Symptoms, signs and ill-defined conditions . . . . .780-799	5,143	6.5
Injury and poisoning . . . . .800-999	4,654	5.9
Supplementary classifications . . . . .V001-V082	4,258	5.4
All other diagnoses <sup>2</sup> . . . . .	654	0.8
Unknown diagnoses <sup>3</sup> . . . . .	1,623	2.1

<sup>1</sup>Based on *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM) (2).

<sup>2</sup>Includes diseases of the 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).

<sup>3</sup>Includes blank diagnoses, noncodable diagnoses, and illegible diagnoses.

also joined the top 20 diagnoses made by internists in 1989. Angina pectoris had a statistically significant fall from the top 20 diagnoses, from 1.3 percent in 1985 to 0.7 percent in 1989. Neurotic disorders also dropped from the list as well, from 1.4 percent in 1985 to 0.9 percent in 1989.

Still on the list of the top 20 diagnoses but having a statistically significant drop in the percent of visits since 1985 is chronic ischemic

heart disease except angina pectoris, which in 1985 made up 3.3 percent of the visits compared with 2.1 percent in 1989. The top 20 diagnoses represented 46.5 percent of all the visits to internists in 1989, an increase from 43.0 percent in 1985.

#### Diagnostic services and counseling

During 17.3 percent of the visits to internists, no diagnostic tests were

ordered or performed, up from 14.1 percent in 1985. About 64.2 percent of visits to internists included a blood pressure check and 25.4 percent included other blood tests. The use of these diagnostic services by internists is two to three times higher than the corresponding percents for all other physicians, probably reflecting the high percent of visits for circulatory diseases seen by internists (table 10).

On the patient record form, item 13 asks if the physician provided counseling, advice, or instructions to patients for any of the health conditions listed. In 1989 internists advised patients on weight reduction during 13.1 percent of the visits and on cholesterol reduction during 8.0 percent of the visits. For a smaller percent of visits the physician counseled the patient on smoking cessation, 3.2 percent, and breast self-exam, 2.1 percent. The physician counseled, advised, or educated patients during 21.1 percent of the visits on other topics not listed (table 11). These percentages are approximately equal to or higher than the corresponding figures for all other physicians in 1989 (3).

#### Medication therapy

Approximately three-quarters (75.4 percent) of the visits to internists in 1989 were "drug" visits, that is, visits in which the patient was administered or prescribed some type of medication. Overall, this represents about 14.3 percent of all medications prescribed or administered by office-based ambulatory care physicians in the United States. In about one-third (32.7 percent) of the patient visits, one drug was prescribed or administered and in approximately one-fifth (19.2 percent) of the visits two drugs were prescribed or administered, similar to the percents for internists in 1985 (table 12).

Of those drugs prescribed or administered, over 26.8 percent were cardiovascular-renal drugs, specifically including antihypertensive agents, 10 percent, and diuretics, 7.3 percent. Drugs used for the relief of pain accounted for 12.2 percent

**Table 9. Number, percent distribution, and cumulative percent of office visits to internists by the 20 most common principal diagnoses: United States, 1989**

Rank	Most common principal diagnoses and ICD-9-CM code <sup>1</sup>	Number of visits in thousands	Percent distribution	Cumulative percent
	All principal diagnoses . . . . .	78,816	100.0	---
1	Essential hypertension . . . . .401	7,583	9.6	9.6
2	Diabetes mellitus . . . . .250	3,797	4.8	14.4
3	Acute upper respiratory infections of multiple or unspecified sites . . . . .465	2,825	3.6	18.0
4	General medical exam. . . . .V70	2,392	3.0	21.0
5	Osteoarthritis and allied disorders. . . . .715	1,939	2.5	23.5
6	Disorders of lipid metabolism. . . . .272	1,751	2.2	25.7
7	Bronchitis, not specified acute or chronic . . . . .490	1,730	2.2	27.9
8	Other forms of chronic ischemic heart disease. . . . .414	1,665	2.1	30.0
9	Chronic sinusitis . . . . .473	1,350	1.7	31.7
10	Other and unspecified arthropathies. . . . .716	1,270	1.6	33.3
11	General symptoms . . . . .780	1,230	1.6	34.9
12	Cardiac dysrhythmias . . . . .427	1,216	1.5	36.4
13	Asthma . . . . .493	1,168	1.5	37.9
14	Other and unspecified disorders of the back. . . . .724	1,155	1.5	39.4
15	Chronic airway obstruction . . . . .496	1,036	1.3	40.7
16	Acute pharyngitis . . . . .462	1,000	1.3	42.0
17	Symptoms involving respiratory system and other chest symptoms. . . . .786	950	1.2	43.2
18	Heart failure . . . . .428	905	1.1	44.3
19	Allergic rhinitis. . . . .477	854	1.1	45.4
20	Other symptoms involving abdomen and pelvis . . . . .789	845	1.1	46.5

<sup>1</sup>Based on *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) (2)*.

**Table 10. Number and percent distribution of office visits to internists by type of diagnostic service ordered or provided: United States, 1989**

Type of diagnostic service(s) ordered or provided	Number of visits in thousands	Percent distribution
All visits <sup>1</sup> . . . . .	78,816	100.0
Other blood test . . . . .	20,015	25.4
Blood pressure check. . . . .	50,599	64.2
Urinalysis . . . . .	11,204	14.2
Cholesterol measure . . . . .	7,821	9.9
Chest X-ray . . . . .	5,129	6.5
Stool-blood exam . . . . .	4,131	5.2
Digital rectal exam . . . . .	3,675	4.7

<sup>1</sup>Detail may not add to total because more than one diagnostic service was possible during the patient visit.

**Table 11. Number and percent distribution of office visits to internists by counseling/advice: United States, 1989**

Counseling/advice	Number of visits in thousands	Percent distribution
All visits <sup>1</sup> . . . . .	78,816	100.0
None . . . . .	48,239	61.2
Weight reduction . . . . .	10,363	13.1
Cholesterol reduction . . . . .	6,326	8.0
Smoking cessation. . . . .	2,527	3.2
HIV transmission . . . . .	*241	0.3
Breast self-exam . . . . .	1,670	2.1
Other . . . . .	16,643	21.1

<sup>1</sup>Detail may not add to total because more than one category was possible during visit.

and respiratory tract drugs accounted for 10.9 percent of the medication prescribed or administered by internists (table 13). (This classification is adopted from the therapeutic categories of the National Drug Code, 1985 (4).)

Hydrochlorothiazide, amoxicillin, and furosemide are the three most frequent generic ingredients prescribed or administered by the internist, accounting for 3.3, 2.3, and 2.2 percent, respectively, of the drugs mentioned (table 14).

#### Disposition and duration of visit

While at the internist's office, 20.2 percent of the patients saw the physician 6 to 10 minutes, 39.1 percent of the patients saw the physician 11 to 15 minutes, and 27.1 percent of the patients saw the physician 16 to 30 minutes. These estimates of minutes include only the time the patient spent with the physician and do not include time spent by the patient waiting for the physician or time while care was provided by someone other than the physician. A visit of zero minutes, one in which the patient had no face-to-face contact with the physician but received care from a member of the physician's staff, accounted for 1.7 percent of the visits—not statically different from 1985. The mean duration of the visits in 1989 was 17.9 minutes (excluding zero minutes) as compared with the mean duration of 19.3 minutes in 1985 (table 15).

Most of the patients that visited the internist were instructed to return at a specific time, 65.3 percent, similar to the percent for all specialties, 61.3 percent (3). The patient was to return if needed in 19.7 percent of the visits and was admitted to the hospital in only 1.0 percent of the visits (table 15).

**Table 12. Number and percent distribution of office visits to internist by type of visit and number of medications prescribed or ordered: United States, 1989**

Type of visit and number of medications	Number of visits in thousands	Percent distribution
All visits . . . . .	78,816	100.0
Type of visit		
Non-drug visit (0 medications) . . . . .	19,403	24.6
Drug visit. . . . .	59,412	75.4
Number of medications		
1. . . . .	25,775	32.7
2. . . . .	15,120	19.2
3. . . . .	9,221	11.7
4. . . . .	4,517	5.7
5. . . . .	4,779	6.1

**Table 13. Number and percent distribution of office visits to internists, by therapeutic category: United States, 1989**

Therapeutic category <sup>1</sup>	Number of visits in thousands	Percent distribution
All drug mentions . . . . .	147,807	100.0
Antimicrobial agents . . . . .	14,054	9.5
Hematologic agents . . . . .	2,074	1.4
Cardiovascular-renal drugs. . . . .	39,582	26.8
Antihypertensive agents . . . . .	14,802	10.0
Diuretics. . . . .	10,853	7.3
Psychopharmacologic drugs. . . . .	5,919	4.0
Gastrointestinal agents . . . . .	12,391	8.4
Metabolic and nutrient agents. . . . .	7,437	5.0
Hormones and agents affecting hormonal mechanisms . . . . .	13,847	9.4
Skin/mucous membrane . . . . .	4,152	2.8
Neurologic drugs. . . . .	3,225	2.2
Drugs used for relief of pain . . . . .	18,045	12.2
General analgesics . . . . .	8,667	5.9
Respiratory tract drugs . . . . .	16,134	10.9
Antitussives, expectorants, and mucolytics . . . . .	4,947	3.3
Unclassified/miscellaneous. . . . .	6,506	4.4
All others <sup>2</sup> . . . . .	4,441	3.0

<sup>1</sup>Therapeutic class based on the standard drug classification used in the National Drug Code Directory, 1985 edition.

<sup>2</sup>Includes anesthetic drugs, antidotes, radiopharmaceuticals/contrast media, immunologic agents, oncology, ophthalmic drugs, otologic drugs, and antiparasitic agents.

**Table 14. Number and percent distribution for the 20 most frequently used generic ingredients by internists: United States, 1989**

Rank	Generic substance <sup>1</sup>	Number of mentions in thousands <sup>1</sup>	Percent distribution
1	Hydrochlorothiazide. . . . .	4,860	3.3
2	Amoxicillin . . . . .	3,360	2.3
3	Furosemide. . . . .	3,257	2.2
4	Digoxin . . . . .	3,189	2.2
5	Acetaminophen . . . . .	2,801	1.9
6	Insulin . . . . .	2,742	1.9
7	Potassium replacement solutions . . . . .	2,494	1.7
8	Rantidine . . . . .	2,456	1.7
9	Naproxen . . . . .	2,411	1.6
10	Aspirin . . . . .	2,402	1.6
11	Atenolol . . . . .	2,247	1.5
12	Levothyroxine . . . . .	2,230	1.5
13	Triamterene. . . . .	2,228	1.5
14	Theophylline . . . . .	2,222	1.5
15	Verapamil . . . . .	2,200	1.5
16	Enalapril. . . . .	2,194	1.5
17	Diltiazem . . . . .	1,991	1.3
18	Captopril . . . . .	1,949	1.3
19	Nitroglycerin . . . . .	1,897	1.3
20	Cocaine. . . . .	1,830	1.2

<sup>1</sup>Frequency of mention combines single-ingredient agents with mentions of the agents as an ingredient in a combination drug.

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**Table 15. Number and percent distribution of office visits to internists by duration and disposition: United States, 1989**

<i>Duration and disposition of visit</i>	<i>Number of visits in thousands</i>	<i>Percent distribution</i>
All visits . . . . .	78,816	100.0
Duration of visit <sup>1</sup>		
Zero minutes . . . . .	1,311	1.7
1-5 minutes . . . . .	3,938	5.0
6-10 minutes . . . . .	15,918	20.2
11-15 minutes . . . . .	30,851	39.1
16-30 minutes . . . . .	21,391	27.1
31-60 minutes . . . . .	4,845	6.1
61 or more minutes . . . . .	562	0.7
Disposition of visit		
No followup planned . . . . .	5,339	6.8
Return at specific time . . . . .	51,494	65.3
Return if needed . . . . .	15,506	19.7
Telephone followup planned . . . . .	6,268	8.0
Referred to other physician . . . . .	3,591	4.6
Referred to referring physician . . . . .	*329	0.4
Admit to hospital . . . . .	821	1.0
Other . . . . .	1,087	1.4

<sup>1</sup>Mean duration of visit 17.9 minutes.

## Technical notes

### Sources of data and sample design

The information presented in this report is based on data collected by means of the National Ambulatory Medical Care Survey (NAMCS) from March 20, 1989, through March 18, 1990. The target universe of NAMCS includes office visits made in the United States by ambulatory patients to nonfederally employed physicians who are principally engaged in office practice, but not in the specialties of anesthesiology, pathology, or radiology. Telephone contacts and nonoffice visits are excluded.

A multistage probability sample design is used in NAMCS, involving samples of primary sampling units (PSU's), physician practices within PSU's, and patient visits within physician practices. For 1989, a sample of 2,535 non-Federal, office-based physicians was selected from master files maintained by the American Medical Association and American Osteopathic Association (the sample included 213 internists of which 148 were eligible for the survey). The physician response rate for the 1989 NAMCS was 74 percent (64 percent for internists). Sample physicians were asked to complete patient records (see figure 1) for a systematic random sample of office visits occurring during a randomly assigned 1-week reporting period. Responding physicians completed 38,384 patient records (2,724 patient records were filled out by internists).

Characteristics of the physician's practice, such as primary specialty and type of practice, were obtained from the physicians during an induction interview. The U.S. Bureau of the Census, Housing Surveys Branch, was responsible for the survey's data collection. Processing operations and medical coding were performed by the National Center for Health Statistics, Hospital Discharge and Ambulatory Care Survey 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 relative standard error of an estimate is obtained by dividing the standard error by the estimate itself; the result is then expressed as a percent of the estimate. Approximate relative standard errors of selected aggregate statistics are shown in table I, and the relative standard errors of the estimated number of drug mentions are shown in table II. Relative standard errors for aggregate visits and drug estimates may be calculated using the following general formula, where  $x$  is the aggregate of interest in thousands, and  $A$  and  $B$  are the appropriate coefficients from table IV.

$$RSE(x) = \sqrt{\frac{A+B}{x}} \cdot 100.0$$

Approximate relative standard errors for estimates of the percent of visits are shown in table III. The relative standard errors for percent may be calculated using the following general

Table I. Relative standard errors for estimated numbers of office visits for the National Ambulatory Medical Care Survey: United States, 1989

Estimated number of office visits in thousands	All specialties	
	Specialties	Internists
100	69.7	61.8
200	49.4	44.6
300	40.4	37.1
400	35.0	32.7
500	31.4	29.7
700	26.6	26.0
1,000	22.4	22.7
2,000	16.1	18.3
5,000	10.6	14.9
7,000	9.2	14.2
10,000	8.0	13.7
30,000	5.7	12.7
50,000	5.1	12.5
100,000	4.6	12.4
690,000	4.1	...

NOTE: Internist 30% RSE=488,000; all specialties 30% RSE=547,000.

Example of use of table: An aggregate estimate of 5 million visits to an internist has a relative standard estimate of 14.9 percent or a standard error of 745 thousand visits (14.9 percent of 5 million).

Table II. Relative standard errors for estimated numbers of drug mentions for the National Ambulatory Medical Care Survey: United States, 1989

Estimated number of drug mentions in thousands	All specialties	
	Specialties	Internists
	Relative standard error (RSE) in percent	
100	89.6	50.1
200	63.4	37.1
300	51.9	31.5
400	45.0	28.4
500	40.3	26.3
700	34.2	23.7
1,000	28.7	21.5
2,000	20.6	18.7
5,000	13.6	16.8
7,000	11.8	17.2
10,000	10.3	16.1
30,000	7.2	15.2
50,000	6.5	15.5
100,000	5.8	15.4
200,000	5.5	...
700,000	5.2	...

NOTE: Internist 30% RSE=883,000; all specialties 30% RSE=912,000.

Example of use of table: An aggregate estimate of 2 million drug mentions by an internist has a relative standard estimate of 18.7 percent or a standard error of 374 thousand drug mentions (18.7 percent of 2 million).

formula, where  $p$  is the percent of interest and  $x$  is the denominator of the percent in thousands, using the appropriate coefficient from table IV.

$$RSE(p) = \sqrt{\frac{B \cdot (1-p)}{p \cdot x}} \cdot 100.0$$

### Adjustments for nonresponse

Estimates from NAMCS data were adjusted to account for sample physicians who were in scope but did not participate in the study. This adjustment was calculated to minimize the impact of response on final estimates by imputing to nonresponding physicians data from visits to similar physicians. For this purpose, physicians were judged similar if they had the same specialty designation and practiced in the same PSU.

### Test of significance and rounding

In this report, the determination of statistical significance is based on a two-sided  $t$ -test. The Bonferroni inequality was used to estimate the

**Table III. Standard errors for percents of estimated numbers of office visits for the National Ambulatory Medical Care Survey: United States, 1989**

Base of percent (visits in thousands)	Estimated percent					
	1 or 99	5 or 95	10 or 90	20 or 80	30 or 70	50
	Standard error in percentage points					
200	4.9	10.7	14.8	19.7	22.6	24.6
500	3.1	6.8	9.3	12.5	14.3	15.6
1,000	2.2	4.8	6.6	8.8	10.1	11.0
2,000	1.6	3.4	4.7	6.2	7.1	7.8
5,000	1.0	2.2	3.0	3.9	4.5	4.9
10,000	0.7	1.5	2.1	2.8	3.2	3.5
13,000	0.6	1.3	1.8	2.4	2.8	3.1
20,000	0.5	1.1	1.5	2.0	2.3	2.5
50,000	0.3	0.7	0.9	1.3	1.4	1.6
100,000	0.2	0.5	0.7	0.9	1.0	1.1
600,000	0.1	0.2	0.3	0.4	0.4	0.5

Example of use of table: An estimate of 30 percent based on an aggregate estimate of 13 million visits has a standard error of 2.8 percent or a relative standard error of 9.3 percent (2.8 percent divided by 30 percent).

**Table IV. Coefficients appropriate for determining relative standard errors by type of estimate and physician specialty for the National Ambulatory Medical Care Survey: United States, 1989**

Type of estimate and physician specialty	Coefficient	
	A	B
Visits		
Overall totals	0.00161075	48.44516000
Internal medicine, all other specialties	0.01498303	36.73205078
Drug mentions		
Overall totals	0.00258400	79.97392437
Internal medicine, all other specialties	0.02100443	61.17468803

critical value for statistically significant differences (.05 level of confidence). Terms relating to differences such as "higher," "less," and so forth indicate that the difference is statistically significant. Terms such as "similar" or "no difference" mean that no statistical significance exists between the estimates being compared. In the tables, estimates of office 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

**Ambulatory patient**—An ambulatory patient is an individual seeking personal health services who is not currently admitted to any

health care institution on the premises.

**Physician**—A physician is a duly licensed doctor of medicine (M.D.) or doctor of osteopathy (D.O.) who is currently in office-based practice and who spends some time caring for ambulatory patients. Excluded from the NAMCS are physicians who are hospital-based; who specialize in anesthesiology, pathology, or radiology; who are federally employed; who treat only institutionalized patients; or who are employed full time by an institution and spend no time seeing ambulatory patients.

**Office**—Offices are the premises physicians identify as locations for their ambulatory practice; these customarily include consultation, examination, or treatment spaces that patients associate with the particular physician.

**Visit**—A visit is a direct personal exchange between an ambulatory patient and a physician (or a staff member working under the physician's supervision), for the purpose of seeking care and rendering personal health services.

**Drug mention**—A drug mention is the physician's entry of a pharmaceutical agent—by any route of administration—for prevention, diagnosis, or treatment. Generic as well as brand-name drugs are included, as are nonprescription and prescription drugs. Along with all new drugs, the physician also records continued medications if the patient was specifically instructed during the visit to continue the medication.

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

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**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
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**Suggested citation**

Woodwell DA. Office visits to internists, 1989. Advance data from vital and health statistics; no 216. Hyattsville, Maryland: National Center for Health Statistics. 1992.

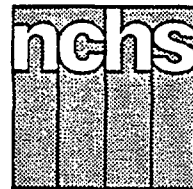
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# Advance Data



From Vital and Health Statistics of the National Center for Health Statistics

## 1990 Summary: National Hospital Discharge Survey

by Edmund J. Graves, Division of Health Care Statistics

### Introduction

During 1990, an estimated 30.8 million inpatients, excluding newborn infants, were discharged from short-stay non-Federal hospitals in the United States. These patients used 197.4 million days of inpatient hospital care. The discharge rate was 124 discharges per 1,000 civilian population and the average length of stay was 6.4 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 1990, data were abstracted from the medical records of approximately 266,000 patients discharged from 474 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 1988-90 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 through commercial abstracting services. In 1990, approximately 34 percent of the hospitals used this method to submit data. Analysis indicates that a greater number of nonsurgical procedures per patient are recorded from these hospitals than from hospitals submitting data in the traditional manual mode (see "Technical notes"). A portion of the increases from 1984 to 1990 in the estimates for miscellaneous diagnostic and therapeutic procedures and, therefore, for total procedures may be due to this change in data collection methods.

### 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 30.8 million patients discharged from short-stay hospitals during 1990 comprised an estimated 12.3 million males and 18.5 million females. The rate per 1,000 population for females was 144, which was 41 percent higher



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service  
Centers for Disease Control  
National Center for Health Statistics  
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**Table 1. Number of inpatients discharged from short-stay hospitals by age and geographic region: United States, 1990**

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

Age and region	Both sexes	Male	Female
Number of patients discharged in thousands			
Total	30,788	12,280	18,508
Age			
Under 15 years	2,412	1,362	1,049
15-44 years	11,799	3,330	8,469
45-64 years	6,244	3,115	3,129
65 years and over	10,333	4,472	5,861
Region			
Northeast	6,895	2,876	4,019
Midwest	7,620	3,039	4,581
South	11,173	4,351	6,822
West	5,100	2,013	3,086

**Table 2. Rate of inpatients discharged from short-stay hospitals, by age, geographic region, and sex: United States, 1990**

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

Age and region	Both sexes	Male	Female
Rate of patients discharged per 1,000 population			
Total	123.5	101.5	144.1
Age			
Under 15 years	43.9	48.5	39.2
15-44 years	101.7	58.0	144.5
45-64 years	133.1	138.3	128.2
65 years and over	327.1	346.2	313.8
Region			
Northeast	135.9	118.4	152.0
Midwest	126.2	103.5	147.7
South	130.2	105.1	153.6
West	97.2	77.8	116.1

**Table 3. Average length of stay for inpatients discharged from short-stay hospitals by age, geographic region, and sex: United States, 1990**

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

Age and region	Both sexes	Male	Female
Average length of stay in days			
Total	6.4	6.9	6.1
Age			
Under 15 years	4.8	4.8	4.9
15-44 years	4.6	6.1	4.0
45-64 years	6.8	6.7	6.8
65 years and over	8.7	8.3	8.9
Region			
Northeast	7.7	8.1	7.3
Midwest	6.4	6.8	6.1
South	6.1	6.5	5.8
West	5.5	6.3	5.0

than the rate of 102 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 6.9 days for males and 6.1 days for females during 1990. The average length of stay of the 4.0 million women who were hospitalized for deliveries was 2.8 days. The average length of stay was 4.8 days for patients under 15 years of age, 4.6 days for patients 15-44 years of age, 6.8 days for patients 45-64 years of age, and 8.7 days for patients 65 years of age and over.

The number of discharges from short-stay hospitals by geographic region during 1990 ranged from 11.2 million in the South to 5.1 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 136 in the Northeast Region to 97 in the West. Average lengths of stay by geographic region were 5.5 days in the West, 6.1 days in the South, 6.4 days in the Midwest, and 7.7 days in the Northeast.

**Utilization by diagnosis**

Diseases of the circulatory system ranked first in 1990 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 5.2 million discharges. Other leading ICD-9-CM diagnostic chapters were supplementary classifications (including females with deliveries) (4.5 million discharges) and diseases of the digestive system (3.2 million discharges). Approximately 42 percent of the patients discharged from non-Federal short-stay hospitals were included in these three 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 pneumonia, acute respiratory infections, asthma, noninfectious enteritis and colitis, and fractures. For patients 15-44 years of age, frequent diagnoses were deliveries, psychoses, fractures, heart disease, and intervertebral disc disorders. 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 14.6 days for psychoses.

#### Utilization by procedures

One or more surgical or nonsurgical procedures were performed for an estimated 20.2 million of the 30.8 million inpatients discharged from short-stay hospitals during 1990. A total of 40.5 million procedures, or an average of 2.0 per patient who underwent at least one procedure, were recorded in 1990.

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 extraction of lens and hysterectomy) are presented as single categories even though they are

divided into more precise subgroups in ICD-9-CM.

Three-fourths of all the surgical and nonsurgical procedures performed during 1990 are listed in just 5 of the 16 procedure chapters. These were diagnostic and therapeutic procedures (11.9 million), obstetrical procedures (6.8 million), operations on the digestive system (5.3 million), operations on the cardiovascular system (3.9 million), and operations on the musculo-skeletal system (3.1 million).

The number and rate of all-listed procedures in 1990 for each ICD-9-CM procedure chapter and selected procedure categories are shown by sex and age in tables 7 and 8. Of the 40.5 million procedures performed during 1990, 15.9 million were for males and 24.6 million were for females. The corresponding rates per 100,000 population were 16,243.0 for both sexes, 13,161.7 for males, and 19,143.8 for females. Frequent procedures for males were arteriography and angiocardiology and computerized axial tomography. 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 3,571.2 for patients under 15 years of age to 42,125.2 for patients 65 years of age and over. Commonly performed procedures for patients under 15 years of age were respiratory therapy, spinal tap, 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, diagnostic ultrasound, and computerized axial tomography; for patients 65 years of age and over, computerized axial tomography, arteriography and angiocardiology, and diagnostic ultrasound.

#### References

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2. Public Health Service and Health Care Financing Administration. International Classification of Diseases, 9th Revision, Clinical Modification. Washington: Public Health Service. 1980.
3. SMG Marketing Group, Inc. Hospital Market Database. Chicago: Healthcare Information Specialists. 1989.
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#### 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
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Table 4. Number of inpatients discharged from short-stay hospitals, by category of first-listed diagnosis, sex, and age: United States, 1990

[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 . . . . .	30,788	12,280	18,508	2,412	11,799	6,244	10,333
Infectious and parasitic diseases . . . . . 001-139	737	356	380	191	226	91	229
Septicemia . . . . . 038	216	99	116	22	17	33	144
Neoplasms . . . . . 140-239	1,965	804	1,161	41	361	681	882
Malignant neoplasms . . . . . 140-208,230-234	1,571	730	841	29	185	545	812
Malignant neoplasm of large intestine and rectum . . . . . 153-154,197.5	175	85	90	*	*5	58	112
Malignant neoplasm of trachea, bronchus, and lung . . . . . 162,197.0,197.3	231	141	90	*	12	101	119
Malignant neoplasm of breast . . . . . 174-175,198.81	164	*	163	*	24	67	72
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature . . . . . 210-229,235-239	393	74	319	12	176	135	70
Endocrine, nutritional and metabolic diseases, and immunity disorders . . . . . 240-279	1,089	436	653	105	232	261	492
Diabetes mellitus . . . . . 250	420	190	230	21	112	134	153
Volume depletion . . . . . 276.5	319	127	192	59	41	49	171
Diseases of the blood and blood-forming organs . . . . . 280-289	324	158	166	61	93	54	115
Mental disorders . . . . . 290-319	1,538	777	761	50	938	317	234
Psychoses . . . . . 290-299	812	360	452	19	449	179	165
Alcohol dependence syndrome . . . . . 303	239	184	55	*	153	66	18
Diseases of the nervous system and sense organs . . . . . 320-389	770	356	414	154	214	159	243
Diseases of the central nervous system . . . . . 320-336,340-349	342	155	187	52	128	67	96
Diseases of the ear and mastoid process . . . . . 380-389	157	77	81	78	25	25	30
Diseases of the circulatory system . . . . . 390-459	5,161	2,668	2,493	25	406	1,515	3,215
Heart disease . . . . . 391-392.0,393-398,402,404,410-416,420-429	3,556	1,913	1,643	16	240	1,100	2,200
Acute myocardial infarction . . . . . 410	675	413	261	*	39	233	401
Coronary atherosclerosis . . . . . 414.0	410	277	133	-	28	189	193
Other ischemic heart disease . . . . . 411-413,414.1-414.9	870	465	406	*	62	316	492
Cardiac dysrhythmias . . . . . 427	483	244	239	*7	37	131	308
Congestive heart failure . . . . . 428.0	701	315	386	*	20	117	560
Cerebrovascular disease . . . . . 430-438	812	359	452	*	38	162	610
Diseases of the respiratory system . . . . . 460-519	2,966	1,430	1,536	701	498	520	1,247
Acute respiratory infections . . . . . 460-466	487	235	252	186	63	74	164
Chronic disease of tonsils and adenoids . . . . . 474	102	41	61	67	33	*	*
Pneumonia . . . . . 480-486	1,052	530	522	211	141	153	546
Asthma . . . . . 493	476	191	285	169	119	86	102
Diseases of the digestive system . . . . . 520-579	3,239	1,449	1,790	252	980	842	1,165
Ulcers of the stomach and small intestine . . . . . 531-534	244	131	113	*	48	74	120
Appendicitis . . . . . 540-543	238	138	101	62	135	26	16
Inguinal hernia . . . . . 550	168	149	18	19	39	46	63
Noninfectious enteritis and colitis . . . . . 555-558	373	151	223	97	123	63	90
Cholelithiasis . . . . . 574	506	132	374	*	198	160	145
Diseases of the genitourinary system . . . . . 580-629	2,175	803	1,373	70	866	500	739
Calculus of kidney and ureter . . . . . 592	272	177	95	*	136	89	46
Hyperplasia of prostate . . . . . 600	259	259	...	*	*	63	195
Complications of pregnancy, childbirth, and the puerperium . . . . . 630-676	734	...	734	*5	729	*	...
Abortions and ectopic and molar pregnancies . . . . . 630-639	208	...	208	*	205	*	...
Diseases of the skin and subcutaneous tissue . . . . . 680-709	462	234	228	45	150	105	161
Cellulitis and abscess . . . . . 681-682	288	151	137	27	94	76	92
Diseases of the musculoskeletal system and connective tissue . . . . . 710-739	1,592	735	857	38	568	458	529
Arthropathies and related disorders . . . . . 710-719	479	197	283	10	119	113	237
Intervertebral disc disorders . . . . . 722	425	241	183	*	222	145	57
Congenital anomalies . . . . . 740-759	182	105	77	120	34	20	*8
Certain conditions originating in the perinatal period . . . . . 760-779	163	93	70	159	*	*	*
Symptoms, signs, and ill-defined conditions . . . . . 780-799	410	201	209	59	180	110	60
Injury and poisoning . . . . . 800-999	2,774	1,476	1,298	266	1,174	482	851
Fractures, all sites . . . . . 800-829	1,017	466	551	87	332	149	448
Fracture of neck of femur . . . . . 820	281	72	209	*	*8	24	245
Intracranial injuries (excluding those with skull fracture) . . . . . 850-854	184	112	72	31	100	21	32
Lacerations and open wounds . . . . . 870-904	240	179	61	28	165	24	23
Supplementary classifications . . . . . V01-V82	4,507	198	4,309	68	4,150	128	160
Females with deliveries . . . . . V27	4,025	...	4,025	13	4,008	*	...

\*First-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, 1990

[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 . . . . .	1,234.6	1,015.5	1,440.9	439.4	1,017.4	1,330.5	3,270.8	
Infectious and parasitic diseases . . . . . 001-139	29.5	29.5	29.6	34.8	19.5	19.5	72.3	
Septicemia . . . . . .038	8.6	8.2	9.1	4.0	1.5	7.0	45.5	
Neoplasms . . . . . 140-239	78.8	66.5	90.4	7.4	31.1	145.0	279.2	
Malignant neoplasms. . . . . 140-208,230-234	63.0	60.4	65.5	5.2	15.9	116.2	257.1	
Malignant neoplasm of large intestine and rectum. . . . . 153-154,197.5	7.0	7.0	7.0	*	*0.4	12.4	35.3	
Malignant neoplasm of trachea, bronchus, and lung . . . . . 162,197.0,197.3	9.3	11.7	7.0	*	1.0	21.4	37.7	
Malignant neoplasm of breast . . . . . 174-175,198.81	6.6	*	12.7	*	2.0	14.3	22.9	
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature . . . . . 210-229,235-239	15.8	6.1	24.9	2.2	15.2	28.8	22.1	
Endocrine, nutritional and metabolic diseases, and immunity disorders . . . . . 240-279	43.7	36.0	50.9	19.1	20.0	55.6	155.8	
Diabetes mellitus . . . . . .250	16.8	15.7	17.9	3.8	9.6	28.6	48.5	
Volume depletion . . . . . .276.5	12.8	10.5	14.9	10.8	3.5	10.4	54.0	
Diseases of the blood and blood-forming organs . . . . . 280-289	13.0	13.1	12.9	11.2	8.0	11.5	36.5	
Mental disorders . . . . . 290-319	61.7	64.3	59.2	9.1	80.8	67.5	73.9	
Psychoses . . . . . 290-299	32.5	29.8	35.2	3.4	38.7	38.1	52.3	
Alcohol dependence syndrome . . . . . .303	9.6	15.2	4.3	*	13.2	14.1	5.7	
Diseases of the nervous system and sense organs . . . . . 320-389	30.9	29.4	32.3	28.0	18.5	33.9	77.0	
Diseases of the central nervous system . . . . . 320-336,340-349	13.7	12.8	14.6	9.4	11.0	14.2	30.4	
Diseases of the ear and mastoid process . . . . . 380-389	6.3	6.3	6.3	14.1	2.1	5.4	9.4	
Diseases of the circulatory system . . . . . 390-459	206.9	220.6	194.1	4.6	35.0	322.8	1,017.6	
Heart disease . . . . . 391-392.0,393-398,402,404,410-416,420-429	142.6	158.2	127.9	3.0	20.7	234.4	696.3	
Acute myocardial infarction. . . . . .410	27.1	34.2	20.3	*	3.4	49.7	127.0	
Coronary atherosclerosis . . . . . 414.0	16.4	22.9	10.4	-	2.4	40.3	61.0	
Other ischemic heart disease . . . . . 411-413,414.1-414.9	34.9	38.4	31.6	*1.3	5.4	67.4	155.6	
Cardiac dysrhythmias . . . . . .427	19.4	20.2	18.6	*1.3	3.2	28.0	97.4	
Congestive heart failure. . . . . 428.0	28.1	26.0	30.0	*	1.7	24.9	177.2	
Cerebrovascular disease . . . . . 430-438	32.6	29.7	35.2	*	3.3	34.6	193.0	
Diseases of the respiratory system . . . . . 460-519	118.9	118.2	119.6	127.6	43.0	110.7	394.7	
Acute respiratory infections . . . . . 460-466	19.5	19.4	19.6	33.8	5.5	15.8	52.0	
Chronic disease of tonsils and adenoids. . . . . .474	4.1	3.4	4.7	12.2	2.9	*	*	
Pneumonia . . . . . 480-486	42.2	43.8	40.6	38.5	12.1	32.7	172.9	
Asthma . . . . . .493	19.1	15.8	22.2	30.8	10.3	18.2	32.4	
Diseases of the digestive system . . . . . 520-579	129.9	119.8	139.3	46.0	84.5	179.3	368.6	
Ulcers of the stomach and small intestine . . . . . 531-534	9.8	10.8	8.8	*	4.2	15.8	37.9	
Appendicitis . . . . . 540-543	9.6	11.4	7.8	11.2	11.7	5.5	5.0	
Inguinal hernia. . . . . .550	6.7	12.3	1.4	3.5	3.4	9.8	19.8	
Noninfectious enteritis and colitis . . . . . 555-558	15.0	12.5	17.3	17.7	10.6	13.4	28.6	
Cholelithiasis . . . . . .574	20.3	10.9	29.1	*	17.1	34.2	45.9	
Diseases of the genitourinary system . . . . . 580-629	87.2	66.4	106.9	12.8	74.7	106.6	233.8	
Calculus of kidney and ureter . . . . . .592	10.9	14.6	7.4	*	11.8	18.9	14.5	
Hyperplasia of prostate . . . . . .600	10.4	21.4	...	*	*	13.5	61.9	
Complications of pregnancy, childbirth, and the puerperium <sup>1</sup> . . . . . 630-676	29.5	...	57.2	*0.9	62.8	*	...	
Abortions and ectopic and molar pregnancies . . . . . 630-639	8.3	...	16.2	*	17.7	*	...	
Diseases of the skin and subcutaneous tissue . . . . . 680-709	18.5	19.4	17.7	8.2	13.0	22.4	51.1	
Cellulitis and abscess . . . . . 681-682	11.5	12.5	10.7	4.9	8.1	16.2	29.0	
Diseases of the musculoskeletal system and connective tissue . . . . . 710-739	63.8	60.8	66.7	6.8	49.0	97.5	167.4	
Arthropathies and related disorders . . . . . 710-719	19.2	16.3	22.0	1.9	10.3	24.0	75.1	
Intervertebral disc disorders . . . . . .722	17.0	20.0	14.3	*	19.2	30.9	18.0	
Congenital anomalies . . . . . 740-759	7.3	8.7	6.0	21.9	2.9	4.3	*2.5	
Certain conditions originating in the perinatal period . . . . . 760-779	6.5	7.7	5.5	29.1	*	*	*	
Symptoms, signs, and ill-defined conditions . . . . . 780-799	16.4	16.6	16.3	10.8	15.6	23.5	19.1	
Injury and poisoning . . . . . 800-999	111.2	122.1	101.0	48.5	101.3	102.7	269.3	
Fractures, all sites. . . . . 800-829	40.8	38.5	42.9	15.9	28.6	31.9	142.0	
Fracture of neck of femur. . . . . .820	11.3	5.9	16.3	*	*0.7	5.0	77.6	
Intracranial injuries (excluding those with skull fracture) . . . . . 850-854	7.4	9.3	5.6	5.6	8.6	4.5	10.1	
Lacerations and open wounds . . . . . 870-904	9.6	14.8	4.7	5.1	14.3	5.1	7.2	
Supplementary classifications . . . . . V01-V82	180.7	16.4	335.5	12.5	357.8	27.4	50.8	
Females with deliveries . . . . . .V27	161.4	...	313.4	2.4	345.6	*	...	

<sup>1</sup>First-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, 1990**

[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 . . . . .	6.4	6.9	6.1	4.8	4.6	6.8	8.7
Infectious and parasitic diseases . . . . . 001-139	9.1	10.2	8.2	4.6	9.7	10.9	11.6
Septicemia . . . . . 038	13.3	14.0	12.6	7.5	14.7	15.1	13.5
Neoplasms . . . . . 140-239	8.5	9.2	8.1	7.9	6.0	8.2	9.9
Malignant neoplasms . . . . . 140-208,230-234	9.4	9.5	9.2	9.7	*	8.8	10.1
Malignant neoplasm of large intestine and rectum . . . . . 153-154,197.5	13.7	13.0	14.4	*	*9.8	13.3	14.2
Malignant neoplasm of trachea, bronchus, and lung . . . . . 162,197.0,197.3	8.5	8.0	9.1	*	4.6	7.7	9.5
Malignant neoplasm of breast . . . . . 174-175,198.81	4.6	*	4.6	*	4.0	4.3	5.0
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature . . . . . 210-229,235-239	5.3	6.1	5.1	3.6	4.0	5.5	8.2
Endocrine, nutritional and metabolic diseases, and immunity disorders . . . . . 240-279	7.0	6.8	7.1	4.3	5.0	7.0	8.5
Diabetes mellitus . . . . . 250	7.8	7.6	8.1	4.3	5.7	8.1	9.7
Volume depletion . . . . . 276.5	6.5	6.1	6.9	2.9	3.5	6.7	8.5
Diseases of the blood and blood-forming organs . . . . . 280-289	5.8	6.0	5.6	4.0	5.8	6.8	6.3
Mental disorders . . . . . 290-319	12.2	11.5	13.0	21.1	11.7	11.3	13.6
Psychoses . . . . . 290-299	14.6	13.9	15.2	26.3	14.1	13.7	15.6
Alcohol dependence syndrome . . . . . 303	9.9	9.9	10.1	*	10.0	9.3	10.4
Diseases of the nervous system and sense organs . . . . . 320-389	5.5	5.8	5.3	4.5	5.2	5.4	6.5
Diseases of the central nervous system . . . . . 320-336,340-349	8.6	9.4	8.0	7.3	6.6	9.0	11.8
Diseases of the ear and mastoid process . . . . . 380-389	2.8	2.8	2.8	2.6	2.8	2.3	3.8
Diseases of the circulatory system . . . . . 390-459	7.3	7.1	7.6	7.6	5.5	6.4	8.0
Heart disease . . . . . 391-392.0,393-398,402,404,410-416,420-429	6.9	6.7	7.1	8.3	5.4	5.9	7.6
Acute myocardial infarction . . . . . 410	8.4	8.4	8.4	*	6.7	7.5	9.1
Coronary atherosclerosis . . . . . 414.0	5.8	5.7	6.2	-	3.9	4.9	7.0
Other ischemic heart disease . . . . . 411-413,414.1-414.9	5.2	5.0	5.3	*	3.6	4.9	5.6
Cardiac dysrhythmias . . . . . 427	5.8	5.5	6.0	*5.1	4.1	4.6	6.5
Congestive heart failure . . . . . 428.0	8.0	7.5	8.4	*	5.8	7.0	8.3
Cerebrovascular disease . . . . . 430-438	9.5	9.2	9.7	*	7.0	10.3	9.5
Diseases of the respiratory system . . . . . 460-519	6.9	6.7	7.0	3.5	4.9	7.0	9.5
Acute respiratory infections . . . . . 460-466	5.1	4.7	5.5	3.3	3.7	6.1	7.3
Chronic disease of tonsils and adenoids . . . . . 474	1.3	1.3	1.3	1.3	1.2	*	*
Pneumonia . . . . . 480-486	8.3	8.2	8.4	4.5	6.9	8.0	10.2
Asthma . . . . . 493	4.7	3.9	5.2	2.9	4.2	5.2	7.6
Diseases of the digestive system . . . . . 520-579	5.9	5.6	6.2	3.5	4.4	6.1	7.6
Ulcers of the stomach and small intestine . . . . . 531-534	6.5	6.1	7.0	*	4.9	6.0	7.6
Appendicitis . . . . . 540-543	4.4	4.3	4.5	4.0	3.8	5.8	8.4
Inguinal hernia . . . . . 550	2.3	2.2	3.0	1.4	1.5	2.3	3.1
Noninfectious enteritis and colitis . . . . . 555-558	4.9	4.7	5.0	3.0	4.3	5.5	7.2
Cholelithiasis . . . . . 574	5.8	6.6	5.5	*	4.3	5.9	7.7
Diseases of the genitourinary system . . . . . 580-629	5.1	5.0	5.1	3.5	3.7	4.5	7.1
Calculus of kidney and ureter . . . . . 592	3.1	2.7	3.8	*	2.6	2.9	4.9
Hyperplasia of prostate . . . . . 600	4.9	4.9	...	*	*	4.2	5.2
Complications of pregnancy, childbirth, and the puerperium <sup>1</sup> . . . . . 630-676	2.6	...	2.6	*2.7	2.6	*	...
Abortions and ectopic and molar pregnancies . . . . . 630-639	2.1	...	2.1	*	2.1	*	...
Diseases of the skin and subcutaneous tissue . . . . . 680-709	7.9	7.7	8.2	4.0	6.0	8.4	10.5
Cellulitis and abscess . . . . . 681-682	7.2	6.4	8.0	3.9	5.7	8.3	8.6
Diseases of the musculoskeletal system and connective tissue . . . . . 710-739	6.4	5.7	7.1	5.1	4.5	5.9	9.0
Arthropathies and related disorders . . . . . 710-719	7.8	7.0	8.4	5.3	4.6	7.4	9.8
Intervertebral disc disorders . . . . . 722	5.1	4.8	5.5	*	4.4	5.2	7.6
Congenital anomalies . . . . . 740-759	6.0	5.8	6.3	5.7	4.6	9.9	*7.8
Certain conditions originating in the perinatal period . . . . . 760-779	10.2	9.0	11.8	10.2	*	*	*
Symptoms, signs, and ill-defined conditions . . . . . 780-799	2.8	2.6	3.1	2.6	2.6	2.9	3.7
Injury and poisoning . . . . . 800-999	6.8	6.1	7.6	4.2	5.1	6.9	9.9
Fractures, all sites . . . . . 800-829	8.3	6.7	9.7	4.3	5.9	7.6	11.1
Fracture of neck of femur . . . . . 820	12.8	11.7	13.3	*	*10.3	12.8	13.0
Intracranial injuries (excluding those with skull fracture) . . . . . 850-854	5.5	5.6	5.4	4.9	5.0	6.0	7.5
Lacerations and open wounds . . . . . 870-904	4.3	4.3	4.2	3.4	4.0	4.8	7.1
Supplementary classifications . . . . . V01-V82	3.2	6.5	3.0	3.5	2.8	5.7	9.6
Females with deliveries . . . . . V27	2.8	...	2.8	2.6	2.8	*	...

<sup>1</sup>First-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, 1990**

[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 . . . . .	40,506	15,916	24,590	1,960	16,186	9,052	13,308	
Operations on the nervous system . . . . . 01-05	952	479	472	210	314	214	214	
Spinal tap . . . . . 03.31	396	204	192	166	100	54	77	
Operations on the endocrine system . . . . . 06-07	96	26	70	*	40	31	23	
Operations on the eye . . . . . 08-16	350	174	176	16	74	76	184	
Operations on the ear . . . . . 18-20	137	73	64	81	27	18	11	
Operations on the nose, mouth, and pharynx . . . . . 21-29	585	327	258	140	254	112	79	
Tonsillectomy with or without adenoidectomy . . . . . 28.2-28.3	117	49	68	74	40	*	*	
Operations on the respiratory system . . . . . 30-34	975	555	420	66	177	296	436	
Bronchoscopy with or without biopsy . . . . . 33.21-33.24,33.27	298	175	123	20	46	88	144	
Operations on the cardiovascular system . . . . . 35-39	3,881	2,317	1,564	154	429	1,438	1,860	
Removal of coronary artery obstruction . . . . . 36.0	285	200	85	*	22	148	115	
Coronary artery bypass graft <sup>1</sup> . . . . . 36.1	392	286	106	*	19	169	204	
Cardiac catheterization . . . . . 37.21-37.23	995	620	376	17	100	457	421	
Insertion, replacement, removal, and revision of pacemaker leads or device . . . . . 37.7-37.8	259	138	121	*	*5	52	199	
Shunt or vascular bypass . . . . . 39.0-39.2	162	95	67	*	16	58	83	
Hemodialysis . . . . . 39.95	216	105	111	*	44	77	95	
Operations on the hemic and lymphatic system . . . . . 40-41	361	187	174	20	80	109	151	
Operations on the digestive system . . . . . 42-54	5,271	2,194	3,077	212	1,487	1,386	2,185	
Endoscopy of small intestine with or without biopsy . . . . . 45.11-45.14,45.16	785	357	428	10	148	213	414	
Endoscopy of large intestine with or without biopsy . . . . . 45.21-45.25	548	212	336	*	79	136	329	
Partial excision of large intestine . . . . . 45.7	204	89	116	*	20	58	125	
Appendectomy, excluding incidental . . . . . 47.0	274	147	127	66	158	32	18	
Cholecystectomy . . . . . 51.2	522	147	375	*	206	168	146	
Repair of inguinal hernia . . . . . 53.0-53.1	205	181	24	22	43	54	86	
Lysis of peritoneal adhesions . . . . . 54.5	323	62	261	*5	155	79	84	
Operations on the urinary system . . . . . 55-59	1,664	946	718	41	390	426	807	
Cystoscopy with or without biopsy . . . . . 57.31-57.33	527	377	150	*7	76	127	317	
Operations on the male genital organs . . . . . 60-64	594	594	...	46	40	127	380	
Prostatectomy . . . . . 60.2-60.6	364	364	...	...	*	80	284	
Operations on the female genital organs . . . . . 65-71	2,440	...	2,440	10	1,711	495	223	
Oophorectomy and salpingo-oophorectomy . . . . . 65.3-65.6	476	...	476	*	260	160	56	
Bilateral destruction or occlusion of fallopian tubes . . . . . 66.2-66.3	419	...	419	-	418	*	...	
Hysterectomy . . . . . 68.3-68.7	591	...	591	-	349	184	58	
Dilation and curettage of uterus . . . . . 69.0	220	...	220	*	177	31	10	
Repair of cystocele and rectocele . . . . . 70.5	137	...	137	-	42	52	43	
Obstetrical procedures . . . . . 72-75	6,792	...	6,792	19	6,763	10	...	
Episiotomy with or without forceps or vacuum extraction . . . . . 72.1,72.21,72.31,72.71,73.6	1,717	...	1,717	*7	1,709	*	...	
Artificial rupture of membranes . . . . . 73.0	691	...	691	*	688	*	...	
Cesarean section . . . . . 74.0-74.2,74.4,74.99	945	...	945	*	940	*	...	
Fetal EKG (scalp) and fetal monitoring, not otherwise specified . . . . . 75.32,75.34	1,377	...	1,377	*	1,370	*	...	
Repair of current obstetric laceration . . . . . 75.5-75.6	795	...	795	*	793	*	...	
Operations on the musculoskeletal system . . . . . 76-84	3,132	1,624	1,508	161	1,273	733	965	
Partial excision of bone . . . . . 76.2-76.3,77.6-77.8	193	112	81	10	89	56	39	
Open reduction of fracture with internal fixation . . . . . 79.3	391	177	214	17	140	71	163	
Excision or destruction of intervertebral disc . . . . . 80.5	305	175	130	*	164	106	34	
Total hip replacement . . . . . 81.51	119	48	71	-	*8	28	82	
Total knee replacement . . . . . 81.54	129	46	83	-	*	32	95	
Operations on the integumentary system . . . . . 85-86	1,387	580	807	85	527	355	419	
Mastectomy . . . . . 85.4	122	*	121	*	14	52	56	
Debridement of wound, infection, or burn . . . . . 86.22,86.28	332	184	148	21	119	63	129	
Skin graft . . . . . 86.6-86.7	110	66	44	*9	42	25	34	
Miscellaneous diagnostic and therapeutic procedures . . . . . 87-99	11,890	5,842	6,048	694	2,600	3,225	5,371	
Computerized axial tomography . . . . . 87.03,87.41,87.71,88.01,88.38	1,506	736	770	69	359	333	745	
Pyelogram . . . . . 87.73-87.75	291	149	142	*5	116	75	96	
Arteriography and angiocardiology using contrast material . . . . . 88.4-88.5	1,735	1,051	685	19	208	766	742	
Diagnostic ultrasound . . . . . 88.7	1,608	667	941	90	427	357	734	
Circulatory monitoring . . . . . 89.6	724	344	380	30	118	167	409	
Radioisotope scan . . . . . 92.0-92.1	603	268	335	19	105	160	318	
Respiratory therapy . . . . . 93.9	1,164	586	578	190	183	226	565	

<sup>1</sup>The number of discharged patients with a coronary artery bypass graft was 262,000.

**Table 8. Rate of all-listed procedures for inpatients discharged from short-stay hospitals, by procedure category, sex, and age: United States, 1990**

[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 . . . . .	16,243.0	13,161.7	19,143.8	3,571.2	13,956.8	19,287.0	42,125.2
Operations on the nervous system . . . . . 01-05	381.6	396.5	367.6	382.7	270.3	455.5	678.2
Spinal tap . . . . . 03.31	158.8	168.8	149.3	301.9	85.8	114.2	244.0
Operations on the endocrine system . . . . . 06-07	38.3	21.2	54.5	*	34.3	65.4	72.4
Operations on the eye . . . . . 08-16	140.2	143.6	136.9	29.0	63.6	161.4	582.9
Operations on the ear . . . . . 18-20	54.7	60.1	49.7	147.3	23.5	38.2	33.4
Operations on the nose, mouth, and pharynx . . . . . 21-29	234.7	270.3	201.2	255.3	219.0	239.6	249.1
Tonsillectomy with or without adenoidectomy . . . . . 28.2-28.3	47.1	40.9	52.9	135.1	34.2	*	*
Operations on the respiratory system . . . . . 30-34	391.0	458.7	327.3	121.0	152.8	629.9	1,379.4
Bronchoscopy with or without biopsy . . . . . 33.21-33.24,33.27	119.5	144.9	95.6	36.9	39.5	188.0	454.4
Operations on the cardiovascular system . . . . . 35-39	1,556.2	1,915.7	1,217.8	280.2	369.7	3,064.2	5,888.5
Removal of coronary artery obstruction . . . . . 36.0	114.4	165.7	66.2	*	19.1	315.7	364.0
Coronary artery bypass graft <sup>1</sup> . . . . . 36.1	157.2	236.7	82.4	*	16.2	360.7	645.9
Cardiac catheterization . . . . . 37.21-37.23	399.2	512.4	292.6	31.5	86.2	973.9	1,332.9
Insertion, replacement, removal, and revision of pacemaker leads or device . . . . . 37.7-37.8	103.8	114.0	94.2	*	*4.7	111.4	629.0
Shunt or vascular bypass . . . . . 39.0-39.2	64.8	78.4	52.0	*	13.8	124.6	262.3
Hemodialysis . . . . . 39.95	86.8	87.0	86.5	*	37.9	163.1	299.1
Operations on the hemic and lymphatic system . . . . . 40-41	144.7	154.2	135.8	37.2	69.0	232.2	479.5
Operations on the digestive system . . . . . 42-54	2,113.6	1,814.4	2,395.3	386.4	1,282.6	2,953.1	6,917.4
Endoscopy of small intestine with or without biopsy . . . . . 45.11-45.14,45.16	314.7	295.2	333.0	18.1	127.3	453.9	1,311.2
Endoscopy of large intestine with or without biopsy . . . . . 45.21-45.25	219.7	175.2	261.7	*	67.8	289.8	1,042.8
Partial excision of large intestine . . . . . 45.7	82.0	73.4	90.0	*	16.8	122.7	394.9
Appendectomy, excluding incidental . . . . . 47.0	109.8	121.7	98.6	121.0	136.2	67.2	56.4
Cholecystectomy . . . . . 51.2	209.3	121.9	291.6	*	177.3	357.7	463.3
Repair of inguinal hernia . . . . . 53.0-53.1	82.1	149.6	18.7	39.9	36.8	115.5	272.5
Lysis of peritoneal adhesions . . . . . 54.5	129.6	51.2	203.4	*8.4	133.9	168.2	267.2
Operations on the urinary system . . . . . 55-59	667.3	782.3	559.1	74.7	336.3	908.7	2,553.4
Cystoscopy with or without biopsy . . . . . 57.31-57.33	211.4	312.0	116.8	*12.7	65.8	270.3	1,003.7
Operations on the male genital organs . . . . . 60-64	238.2	491.3	...	84.4	34.8	270.7	1,203.9
Prostatectomy . . . . . 60.2-60.6	145.9	300.8	...	...	*	169.4	899.1
Operations on the female genital organs . . . . . 65-71	978.3	...	1,899.4	18.9	1,475.6	1,054.8	706.0
Oophorectomy and salpingo-oophorectomy . . . . . 65.3-65.6	190.9	...	370.6	*	223.9	340.1	177.3
Bilateral destruction or occlusion of fallopian tubes . . . . . 66.2-66.3	167.9	...	326.0	-	360.6	*	...
Hysterectomy . . . . . 68.3-68.7	237.0	...	460.2	-	301.0	392.5	182.9
Dilation and curettage of uterus . . . . . 69.0	88.4	...	171.5	*	152.5	66.7	33.0
Repair of cystocele and rectocele . . . . . 70.5	54.9	...	106.5	-	36.4	111.0	134.8
Obstetrical procedures . . . . . 72-75	2,723.8	...	5,288.1	34.9	5,831.7	21.7	...
Episiotomy with or without forceps or vacuum extraction . . . . . 72.1,72.21,72.31,72.71,73.6	688.6	...	1,336.9	*12.2	1,473.8	*	...
Artificial rupture of membranes . . . . . 73.0	277.1	...	538.0	*	593.1	*	...
Cesarean section . . . . . 74.0-74.2,74.4,74.99	379.1	...	736.0	*	810.5	*	...
Fetal EKG (scalp) and fetal monitoring, not otherwise specified . . . . . 75.32,75.34	552.1	...	1,071.9	*	1,181.4	*	...
Repair of current obstetric laceration . . . . . 75.5-75.6	318.7	...	618.7	*	683.7	*	...
Operations on the musculoskeletal system . . . . . 76-84	1,256.1	1,342.9	1,174.3	294.1	1,097.4	1,562.7	3,053.9
Partial excision of bone . . . . . 76.2-76.3,77.6-77.8	77.4	92.7	62.9	18.5	76.4	118.3	122.3
Open reduction of fracture with internal fixation . . . . . 79.3	156.8	146.1	166.8	30.5	121.1	151.1	515.4
Excision or destruction of intervertebral disc . . . . . 80.5	122.2	144.8	100.9	*	141.4	225.7	107.9
Total hip replacement . . . . . 81.51	47.7	39.8	55.1	-	*7.1	60.5	260.5
Total knee replacement . . . . . 81.54	51.7	37.6	65.0	-	*	67.3	301.5
Operations on the integumentary system . . . . . 85-86	556.2	479.4	628.5	155.5	454.7	757.1	1,326.6
Mastectomy . . . . . 85.4	48.9	*	94.1	*	11.8	111.2	176.0
Debridement of wound, infection, or burn . . . . . 86.22,86.28	133.2	152.0	115.5	39.0	102.3	135.2	407.2
Skin graft . . . . . 86.6-86.7	44.1	54.6	34.3	*16.2	35.8	53.5	109.0
Miscellaneous diagnostic and therapeutic procedures . . . . . 87-99	4,767.9	4,831.2	4,708.2	1,265.3	2,241.6	6,871.8	17,000.5
Computerized axial tomography . . . . . 87.03,87.41,87.71,88.01,88.38	603.8	608.2	599.7	125.3	310.0	709.5	2,356.8
Pyeiogram . . . . . 87.73-87.75	116.8	123.1	110.8	*8.5	100.1	158.9	303.3
Arteriography and angiocardiology using contrast material . . . . . 88.4-88.5	695.8	868.8	532.9	35.2	179.5	1,631.4	2,348.8
Diagnostic ultrasound . . . . . 88.7	645.0	551.6	732.9	164.6	368.0	760.8	2,324.3
Circulatory monitoring . . . . . 89.6	290.5	284.8	295.8	55.5	101.7	355.1	1,295.5
Radioisotope scan . . . . . 92.0-92.1	241.8	221.6	260.8	35.4	90.8	340.7	1,008.0
Respiratory therapy . . . . . 93.9	466.8	484.4	450.2	346.5	158.2	481.3	1,787.0

<sup>1</sup>The rate per 100,000 population of discharged patients with a coronary bypass graft was 105.2.



## Technical notes

### Survey methodology

#### Source of data

The National Hospital Discharge Survey covers discharges from noninstitutional hospitals, exclusive of Federal, military, and Veterans Administration 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 less 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.

Beginning with 1988, the NHDS sampling frame consists of hospitals that were listed in the April 1987 SMG Hospital Market Tape (3), met the above criteria, and began accepting patients by August 1987. For 1990, the sample consisted of 542 hospitals. Of the 542 hospitals, 23 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 519 in-scope (eligible) hospitals, 474 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 was 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 1990, that involved the purchase of data tapes from abstracting service organizations.

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. A few of these hospitals submitted their data via computer printout or tape. Of the hospitals using the manual system in 1990, about two-thirds 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 from abstracting service organizations. Records were systematically sampled by NCHS.

The medical abstract form and the abstract service 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. Based on consideration of the complex sample design of the NHDS, the following guidelines are used for presenting the NHDS estimates:

- If the relative standard error of an estimate is larger than 30 percent, or the sample size is less than 30, the estimate is not shown. Only an asterisk (\*) appears in the tables.
- If the sample size is less than 60, the value of the estimate should not be assumed to be reliable. The estimate is preceded by an asterisk (\*) in the tables.

#### 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 (4).

The constants for relative standard error curves for the National Hospital Discharge Survey constants are presented in table I. The relative standard error [RSE(X)] of an

estimate  $X$  may be estimated from the formula:

$$RSE(X) = \sqrt{a + b/X}$$

where  $X$ ,  $a$ , and  $b$  are as defined in table I.

Estimates have been rounded to the nearest thousand. 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 less 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 less 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 at time of discharge by a patient. 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. The following ICD-9-CM procedure codes are not used in the the NHDS:

87.09, 87.11, 87.12, 87.16-87.17, 87.22-87.29, 87.39, 87.43-87.49, 87.85, 87.89, 87.92, 87.95, 87.99, 88.09, 88.16, 88.19, 88.21-88.29, 88.31, 88.33, 88.35, 88.37, 88.39, 89.01-89.09, 89.11-89.13, 89.15-89.16, 89.26, 89.29, 89.31, 89.33-89.39, 89.7-89.8, 90.01-90.99, 91.01-91.99, 93.01-93.09, 93.11-93.19, 93.21-93.25, 93.27-93.28, 93.31-93.39, 93.61-93.67, 93.71-93.78, 93.81-93.89, 94.01-94.09, 94.11-94.19, 94.21-94.23, 94.29, 94.31-94.39, 94.41-94.49, 94.51-94.59, 95.01-95.03, 95.05-95.09, 95.14-95.15, 95.31-95.36, 95.41-95.48, 96.11-96.19, 96.26-96.28, 96.34-96.39, 96.41-96.48, 96.51-96.59, 96.6, 97.01-97.04, 97.14-97.16, 97.21-97.29, 97.31-97.39, 97.41-97.49, 97.51-97.59, 97.61-97.69, 97.72-97.79, 97.81-97.87, 97.89, 99.12-99.14,

Table I. Estimated parameters for relative standard error equations for National Hospital Discharge Survey statistics, by sex, age, and geographic region: United States, 1990

Characteristic	Number of discharges or first-listed diagnoses		Number of procedures	
	a	b	a	b
Total	0.00213	228.834	0.00547	92.597
Sex				
Male	0.00152	313.079	0.00410	89.724
Female	0.00125	311.632	0.00337	83.021
Age				
Under 15 years	0.01597	47.116	0.03171	44.124
15-44 years	0.00142	299.762	0.00302	139.070
45-64 years	0.00157	234.543	0.00491	68.024
65 years and over	0.00161	263.223	0.00436	47.886
Region				
Northeast	0.00274	56.268	0.00588	108.765
Midwest	0.00487	183.531	0.00886	107.681
South	0.00375	343.892	0.00781	50.919
West	0.00564	318.914	0.01235	144.582

99.16–99.18, 99.26–99.29, 99.31–99.39, 99.41–99.48, 99.51–99.59.

*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. The population estimates are from unpublished tabulations provided by the U.S. Bureau of the Census that do not include the results of the 1990 Census.

*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 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	Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas
Midwest . . . .	Michigan, Ohio, Illinois, Indiana, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas	West . . . . . Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Hawaii, and Alaska
South . . . . .	Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia,	

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**Suggested citation**

Graves EJ. 1990 Summary: National Hospital Discharge Survey. Advance data from vital and health statistics; no. 210. Hyattsville, Maryland: National Center for Health Statistics. 1992.

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