Vital and Health Statistics

Advance Data From Vital and Health Statistics: Numbers 231–240

Series 16: Compilations of Advance Data From Vital and Health Statistics No. 24

Data in this report from health and demographic surveys present statistics by age and other variables on firearm mortality among people 1–34 years old, drug utilization in medical office practice, office visits to urologists, home health and hospice care, negative moods as correlates of smoking and heavier drinking, office visits to psychiatrists, HIV antibody testing in women, AIDS-related behavior among women, and office visits to dermatologists. Estimates are based on the civilian noninstitutionalized population of the United States. These reports were originally published in 1993. Number 233 was never released.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control and Prevention
National Center for Health Statistics
July 1995
DHHS Publication No. (PHS) 95-1883

Suggested citation

National Center for Health Statistics. Advance data from vital and health statistics; numbers 231–240. National Center for Health Statistics. Vital Health Stat 16(24). 1995.

National Center for Health Statistics

Jack R. Anderson, *Acting Director*

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

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

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

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

(Vacant), *Associate Director for International Statistics*

Stephen E. Nieberding, *Associate Director for Management*

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

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

Contents

Number 231 • March 23, 1993

Advance Data

nchs

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

Firearm Mortality Among Children, Youth, and Young Adults 1–34 Years of Age, Trends and Current Status: United States, 1985–90

by Lois A. Fingerhut, M.A., Division of Analysis

Introduction

A previous report released by the National Center for Health Statistics (NCHS) documented the level of firearm mortality among children, youth, and young adults 1–34 years of age from 1979 through 1988 (1). The purpose of this report is to revise the 1985–88 data using newly available intercensal population estimates and to update the report with data through 1990. Emphases are on race and sex differences in homicide and suicide associated with firearms among males 15–34 years of age. This report will be limited to data for the period 1985 through 1990 because it was during the second half of the decade that firearm mortality increased for the younger population (1).

Methods

Firearm death rates for 1985–89 are based upon intercensal rather than the postcensal population estimates used in the previous report. Both sets of estimates were provided by the Bureau of the Census. Intercensal population estimates are preferred to postcensal estimates because they are consistent with the 1980 and 1990 decennial Census enumerations, and thus, form a continuous series over the decade (2). The relative difference between the two estimates, the error of closure, is equivalent to the relative difference in death rates based on the two estimates. The error of closure was larger for persons 18–24 years of age than for any other age group. However, the error of closure was not so large that death rates for either the black or the white populations ages 1–34 were significantly affected. Death rates for 1990 are based on postcensal estimates of the July 1, 1990, population.

In previous reports on firearm mortality (1,3), the definitions of firearm homicide excluded legal intervention by firearm. In this report, as in others (4,5), the definition has been amended to include those deaths. The inclusion of these deaths results in an increase in the overall firearm death rate and the firearm homicide rate with a concomitant decrease in the nonfirearm homicide rate—all by relatively small amounts (see appendix table I). For example, adding in deaths coded to legal intervention by a firearm to other firearm homicides among black and white males 20–24 years of age increased their respective firearm homicide rates by 1 percent and 3 percent.

Current status

In 1990, 19,722 persons 1–34 years of age died as a result of a firearm injury. This represented 17.6 percent of all deaths at those ages. Among young children 10–14 years of age, 560 died from a firearm injury, accounting for 1 out of every 8 deaths. Among teenagers 15–19 years and young adults 20–24 years, 1 of every 4 deaths were by firearm, and for adults 25–34 years, 1 of 6 deaths were by firearm (figure 1).

Within these age groups, variation by race and sex in the percentage of all deaths due to firearms is large. For example, 60 percent of deaths among black teenage males 15–19 years old resulted from a firearm injury compared with 23 percent of deaths among white teenage males. Among females 15–19 years old, 22 percent of deaths among black females

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

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

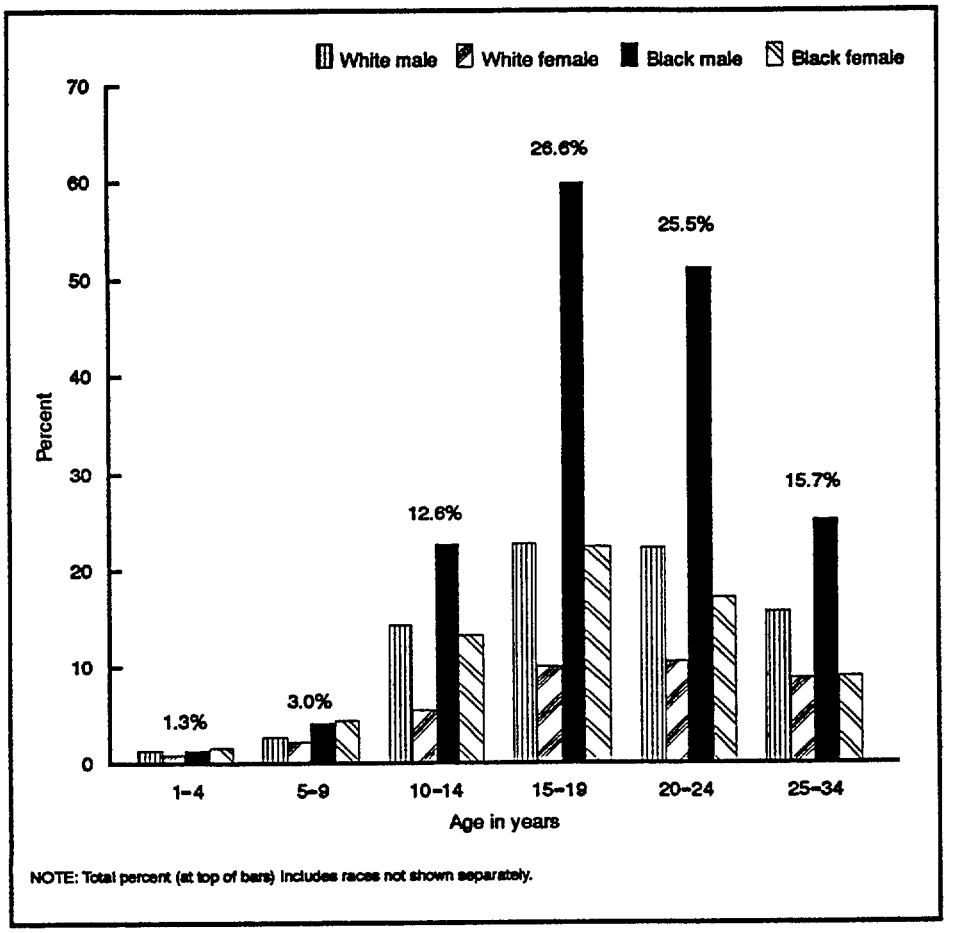


Figure 1. Percent of deaths due to firearms for persons 1–34 years of age, by age, race, and sex: United States, 1990

resulted from firearms compared with 10 percent of deaths among white females. By ages 25–34, the proportion of deaths due to firearms decreased for each race-sex group. Firearms were the cause of death for 25 percent of deaths among black males, 16 percent among white males, and 9 percent among black and white females in this age group (figure 1).

Another way to look at the differential impact of firearm mortality on the population is to focus on violent deaths (homicides and suicides) that result from firearms. The majority of homicides among teenagers and young adults 15–34 years of age resulted from the use of firearms. In 1990, 82 percent of homicides among teenagers 15–19 years of age were associated with firearms (91 and 77 percent among black and white males, respectively); at 20–24 years of age, 76 percent of homicides were from firearms (87 and 71 percent among black and white males, respectively); and at 25–34 years of age, 69 percent of homicides (75 and 72 percent among black and white males, respectively) were caused by firearms. Proportions of homicides due to firearms among females were lower than among males for both races and in each age group (table 1).

The age-specific proportions of suicides resulting from firearms were lower than the proportions of homicides, averaging 58–67 percent of suicides at 15–19 years of age through 25–34 years of age. Differences by race were smaller than for homicide, and proportions for females were also lower than for males (table 1).

Analysis of firearm death rates by age, race, and sex, as well as by manner of death facilitates the assessment of relative levels of risk associated with firearm fatalities across demographic categories as well as over time. Firearm death rates rise until the young adult years and then decline. In 1990, the firearm death rate per 100,000 increased from 0.6–0.7 per 100,000 population at ages 1–4 and 5–9 years, to 3.3 at ages 10–14, to 23.5 at ages 15–19, peaking at 28.1 at 20–24 years and declining to 21.8 at ages 25–34 years (figure 2). Firearm death rates for 1990 are shown in table 2 and numbers of firearm deaths are shown in table 3.

Firearm death rates vary by race and sex within age groups. For the younger children, those 1–9 years of age, rates for black children were higher than for white children. Because the firearm death rates at those ages are based on small numbers of deaths (fewer than 50 for each race-sex group), relative differences by sex are often not significant. At ages 10–14 years, firearm death rates are highest for black males; 10.2 per 100,000, which is more than twice the rates for white males and black females and 10 times the rate for white females. At ages 15–19 and 20–24 years, firearm death rates were also highest for black males, 119.9 and 157.6 per 100,000, respectively. The age-specific rates for these black males were 5 times the respective rates by age for white males and 10 to 11 times the age-specific rates for black females. At ages 25–34 years the firearm death rate for black males, 108.5 per 100,000, was 4 times the rate for white males and 7 times the rate for black females. The firearm death rates for white females 15–19 through 25–34 years were lower (about 5 per 100,000) than for any other race-sex group.

Race and sex differences in firearm mortality vary by manner of death as well. For young children ages 1–4 and 5–9 years firearm homicide rates among black children were higher than rates for white children, while there were no significant race differences in unintentional firearm mortality. For these young children, race and sex specific death rates for both firearm homicide and unintentional firearm mortality were generally less than 1 per 100,000.

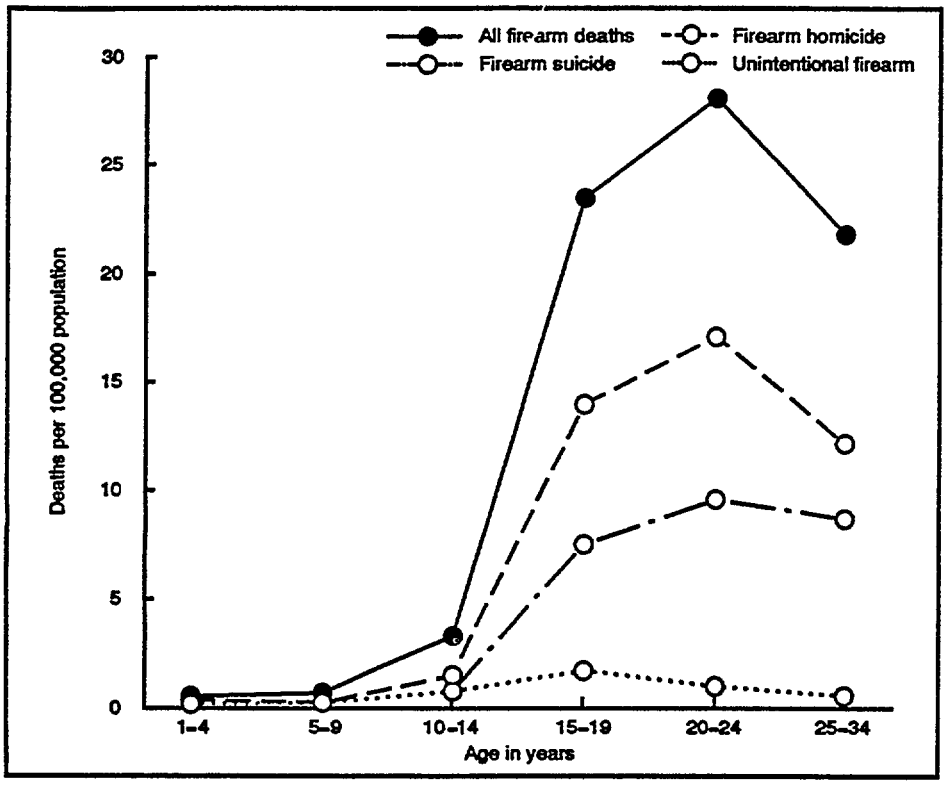


Figure 2. Firearm death rates by manner of death and age, for persons aged 1–34 years: United States, 1990

At ages 10–14 years, there were significant differences in the firearm homicide rates by race as well as by sex. The firearm homicide rate for black males 10–14 years of age was more than 5 times the rate for white males (6.9 compared with 1.3 deaths per 100,000) and the rate for black females was close to 8 times the rate for white females (3.1 compared with 0.4 per 100,000). Differences in firearm homicide by sex were smaller, with rates for white and black males 2 to 3 times those for females. While there were no differences by race in firearm suicide or unintentional firearm mortality at 10–14 years, those rates were higher for males than for females (table 4).

Firearm homicide for black males 15–19 years of age was 11 times the rate among white males, 105.3 compared with 9.7 per 100,000 population. The rate for black females was five times the rate for white females, 10.4 compared with 2.0 per 100,000. Thus, the firearm homicide rate for white males was about 5 times that for white females and the rate for black males about 10 times that for black females. Firearm homicide rates for both white and black males and females ages 20–24 years were about 1.2 to 1.3 times the respective rates at ages 15–19 years. Mortality race and sex ratios at 20–24 years were generally similar to those at ages 15–19 years (table 4).

Among males ages 25–34 years, race differences in firearm homicide rates were smaller than for persons 20–24 years of age. The rate for black males was 9 times the rate for white males (94.4 compared with 10.8 per 100,000). Firearm homicide rates for males were 5 to 7 times those for females (table 4).

Firearm suicide, unlike homicide, was higher for white males than for black males at ages 15–19 through 25–34 years, although race differences were considerably smaller than for firearm homicide. For example, the firearm suicide rate for white males 15–19 years was 1.5 times the rate for black males, 13.5 compared with 8.8 per 100,000 population. With increasing age, the race ratio decreased. Sex differences for both white and black persons in firearm suicide rates were much larger than race differences, with rates for white and black males 5 to 10 times the rates for females at ages 15–19 through 25–34 years (table 4).

Trends (tables 2 and 3)

Consistent with earlier patterns (1), there was virtually no change from 1985 to 1990 in the overall firearm death rate among young children 1–4 or 5–9 years of age. For children ages 10–14 years, however, the firearm death rate increased 18 percent from 1985 to 1990, reaching a rate of 3.3 deaths per 100,000. Among black males 10–14 years, the firearm death rate more than doubled from 1985 to 1990. Increases were largest for firearm homicide; the rate rose from 3.0 to 6.9 per 100,000. There was also an increase in the rate for black females in this age group; the firearm death rate in 1990 was more than twice what it was in 1986 and 1987 (3.7 compared with 1.4 to 1.7 per 100,000). Again, increases were largest for firearm homicide.

The total firearm death rate among teenagers 15–19 years of age increased 77 percent from 1985 through 1990, to 23.5 deaths per 100,000, its highest level to date. Firearm death rates increased for all four race-sex groups, with the largest increases noted for black males. The firearm death rate for black males 15–19 years of age more than doubled, rising from 46.5 per 100,000 in 1985 to 119.9 per 100,000 in 1990 (figure 3). From 1985 through 1990, the black teenage male firearm homicide rate nearly tripled, rising to 105.3 per 100,000 (figure 4). At the same time, the firearm homicide rate for white males and black females doubled, rising to 9.7 and 10.4 per 100,000, respectively. While the firearm suicide rate among black teenage males was less than a tenth the magnitude of the firearm homicide rate, it increased 63 percent from 1985 to 1990 to 8.8 per 100,000. A far smaller increase (25 percent) was noted for the firearm suicide rate for white teenage males (figure 4). Among black females 15–19 years old, the firearm homicide rate doubled

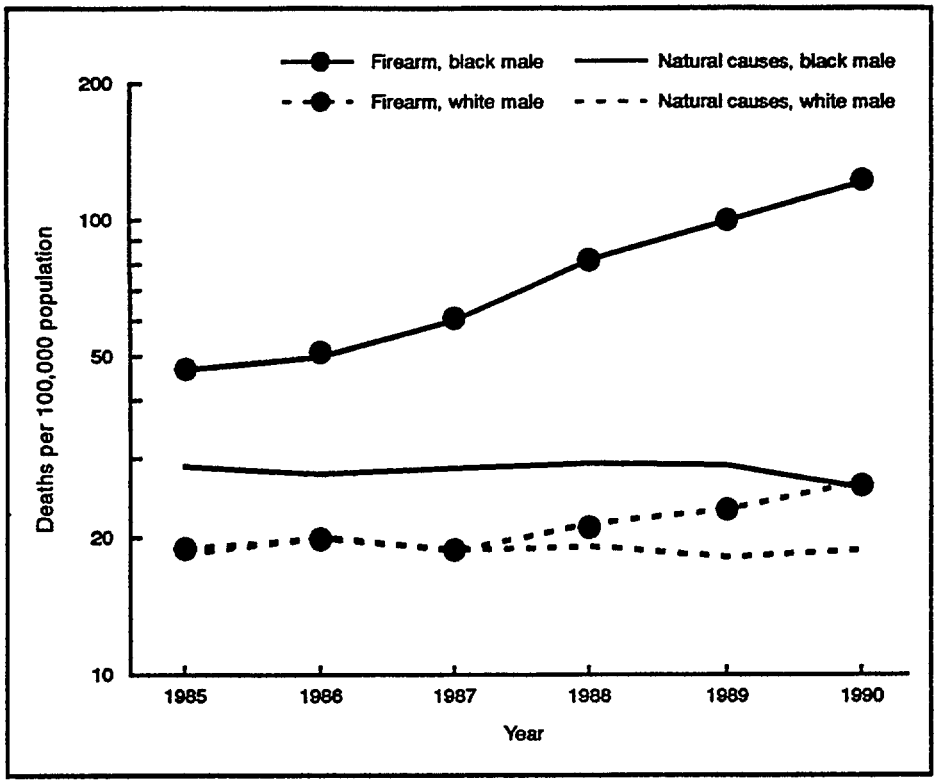


Figure 3. Deaths rates for natural causes and firearm injuries, for males aged 15–19 years: United States, 1985–90

from 1985 to 1990, reaching 10.4 per 100,000.

Among males 15–19 years of age, the nonfirearm homicide rate averaged 9 to 11 per 100,000 for black teenagers and 2 to 3 per 100,000 for white teenagers during the period 1985–90. It is interesting that although the nonfirearm homicide rate increased from 1989 to 1990 for both white and black males, the firearm homicide rates for white and black males were still 3 and 10 times the respective nonfirearm homicide rates. Nonfirearm suicide rates likewise showed little change during 1985–90 with rates averaging 6 per 100,000 for white male teenagers and 3 per 100,000 for black male teenagers (figure 4). Rates for females were also unchanged.

It was previously reported (1) that 1988 was the first year in which the firearm death rate for teenagers (15–19 years) exceeded the death rate associated with natural causes of death. That trend has continued; in 1990, among all teenagers 15–19 years, there were 39 percent more deaths from firearms than from natural causes of death. Driving that trend has been the rising rate for firearm mortality among white teenage males 15–19 years. For white teenage males 15–19 years, the natural cause death rate remained relatively unchanged at 18 to 19 per 100,000 and the firearm death rate increased from 21.4 per 100,000 in 1988 to 26.5 per 100,000 in 1990 (figure 3). Thus, the ratio of firearm to natural causes mortality among white teenage males 15–19 years increased from 1.1:1 in 1988 to 1.3:1 in 1989 to 1.4:1 in 1990. Among black males, that trend has also continued. From 1988 to 1990, the natural cause death rate declined 12 percent while the firearm death rate increased 48 percent. Whereas in 1988, the firearm death rate among black teenage males was 2.8 times the natural cause death rate, by 1990 the firearm death rate was 4.7 times the rate for natural causes.

The firearm death rate among persons 20–24 years of age was 36 percent higher in 1990 than in 1985; virtually all of the increase was a result of increases in firearm homicide among black males (figure 5). The firearm homicide rate more than doubled in this group reaching 140.7 per 100,000, its highest level ever. (The previous high was in 1972.) Among white males ages 20–24 years, increases in firearm mortality were far more modest, with the firearm homicide rate in 1990 32 percent higher than what it was in 1985. Increases in firearm suicide were also minimal (figure 5). Among white females ages 20–24 years, the firearm death rate hovered around 5 per 100,000 for 1985 through 1990. For black females, the firearm death rate increased from 1985 to 1990 (although it was unchanged from 1989 to 1990) as a result of an increase in the firearm homicide rate.

The firearm homicide rate for white males 20–24 years remained about twice the nonfirearm homicide rate. Similar to the recent trend among those 15–19 years, the nonfirearm rate for those 20–24 years increased from 1989 to 1990. The nonfirearm homicide rate for black males was unchanged from 1985 to 1990 at about 22–23 per 100,000. The firearm suicide rate for white males remained close to twice the nonfirearm suicide rate (figure 5).

By ages 25–34 years, the upward trend in age-specific firearm mortality slowed considerably. The firearm death rate in 1990 was only 13 percent higher than in 1985, with the largest increase again noted in firearm homicide among black males (a 40 percent increase from 1985 to 1990). There was relatively little change in the nonfirearm homicide and nonfirearm suicide rates (figure 6).

Discussion

Sixty percent of all deaths among persons 1–34 years of age resulted from unintentional and intentional injuries in 1990, and about 30 percent of those external deaths were from firearms. To compile the standard cause-of-death rankings for persons 1 year of age and older, NCHS uses the "List of 72 Selected Causes of Death and HIV Infection" (6). However, this ranking system is not particularly

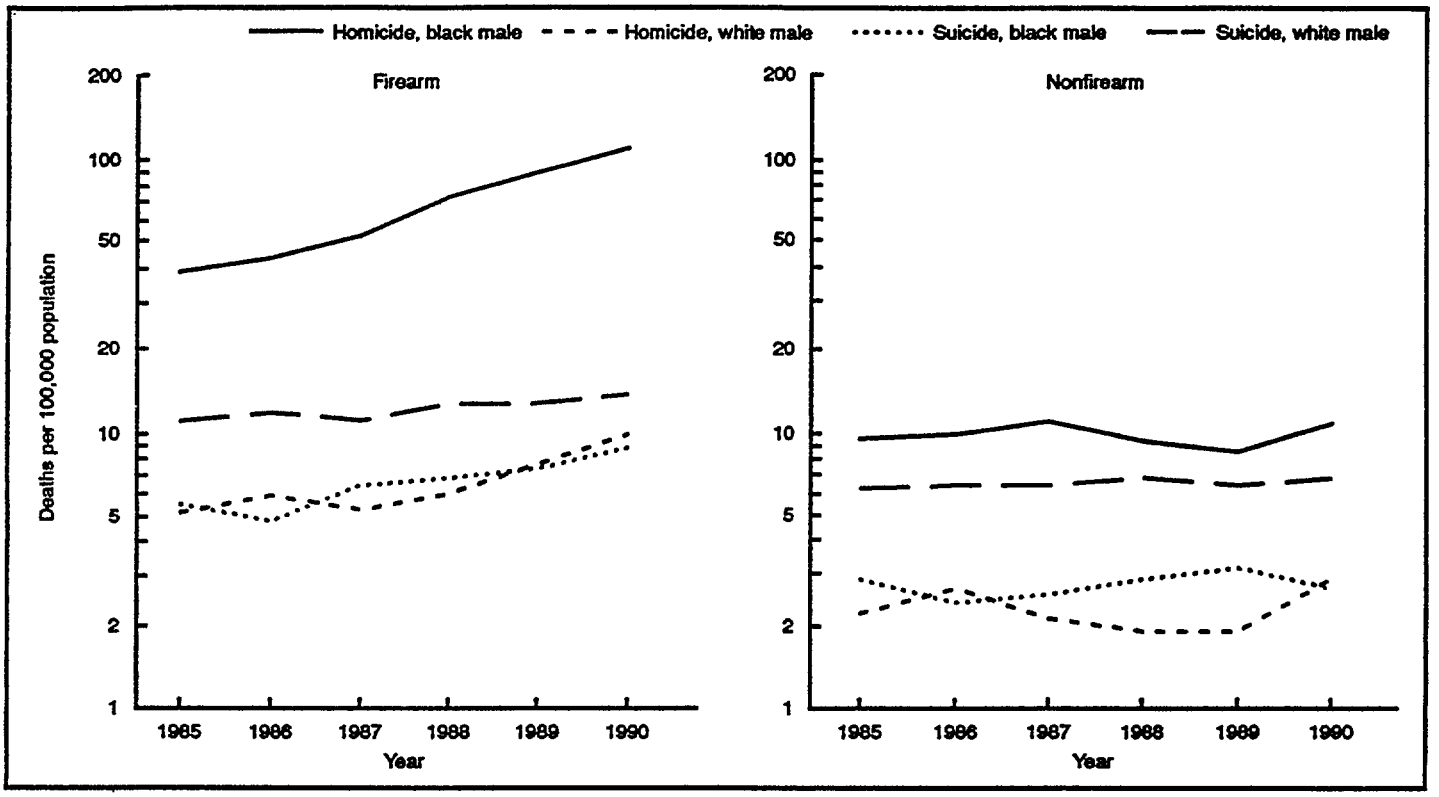


Figure 4. Homicide and suicide rates by firearm status for white and black males, aged 15–19 years: United States, 1985–90

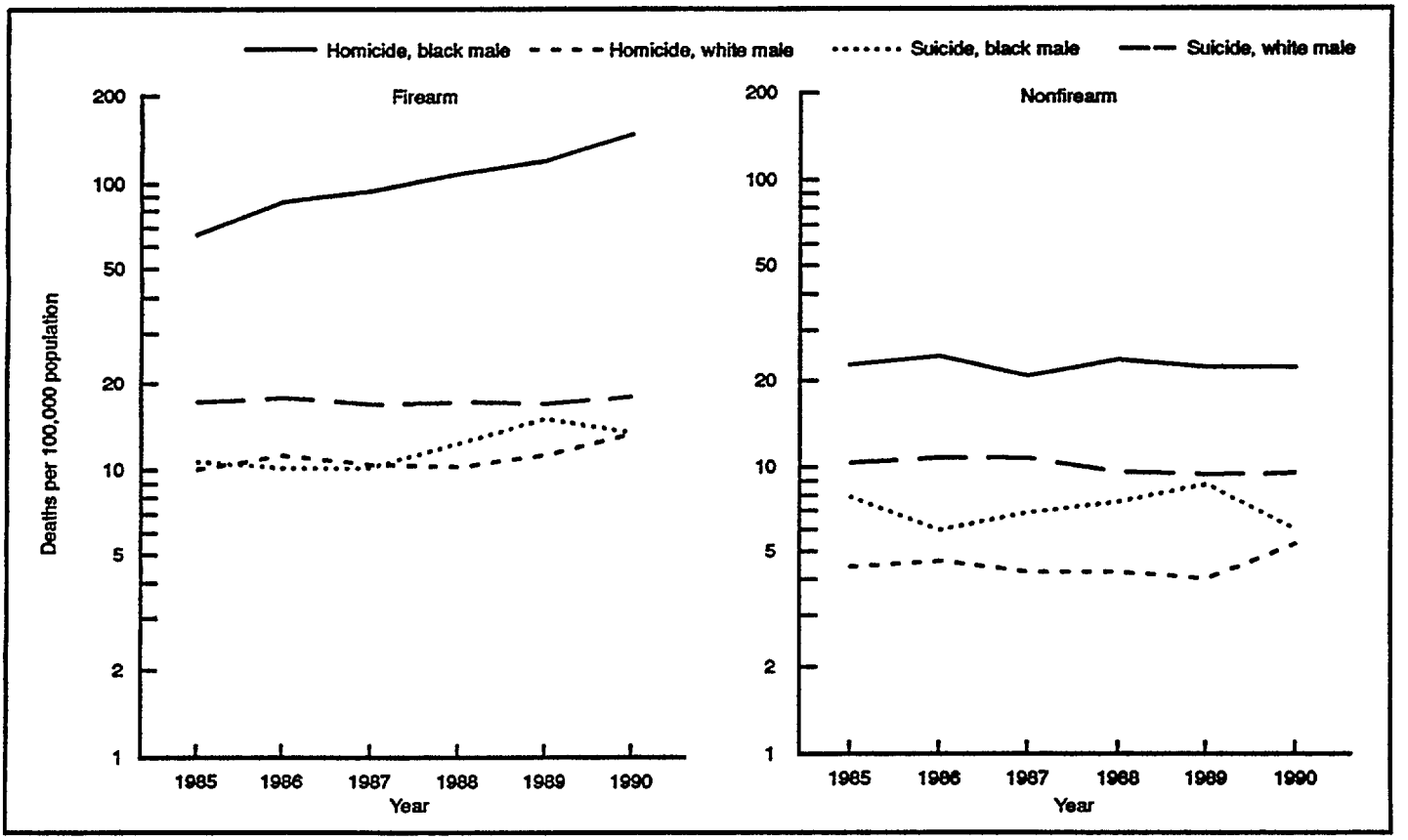


Figure 5. Homicide and suicide rates by firearm status for white and black males, aged 20–24 years: United States, 1985–90

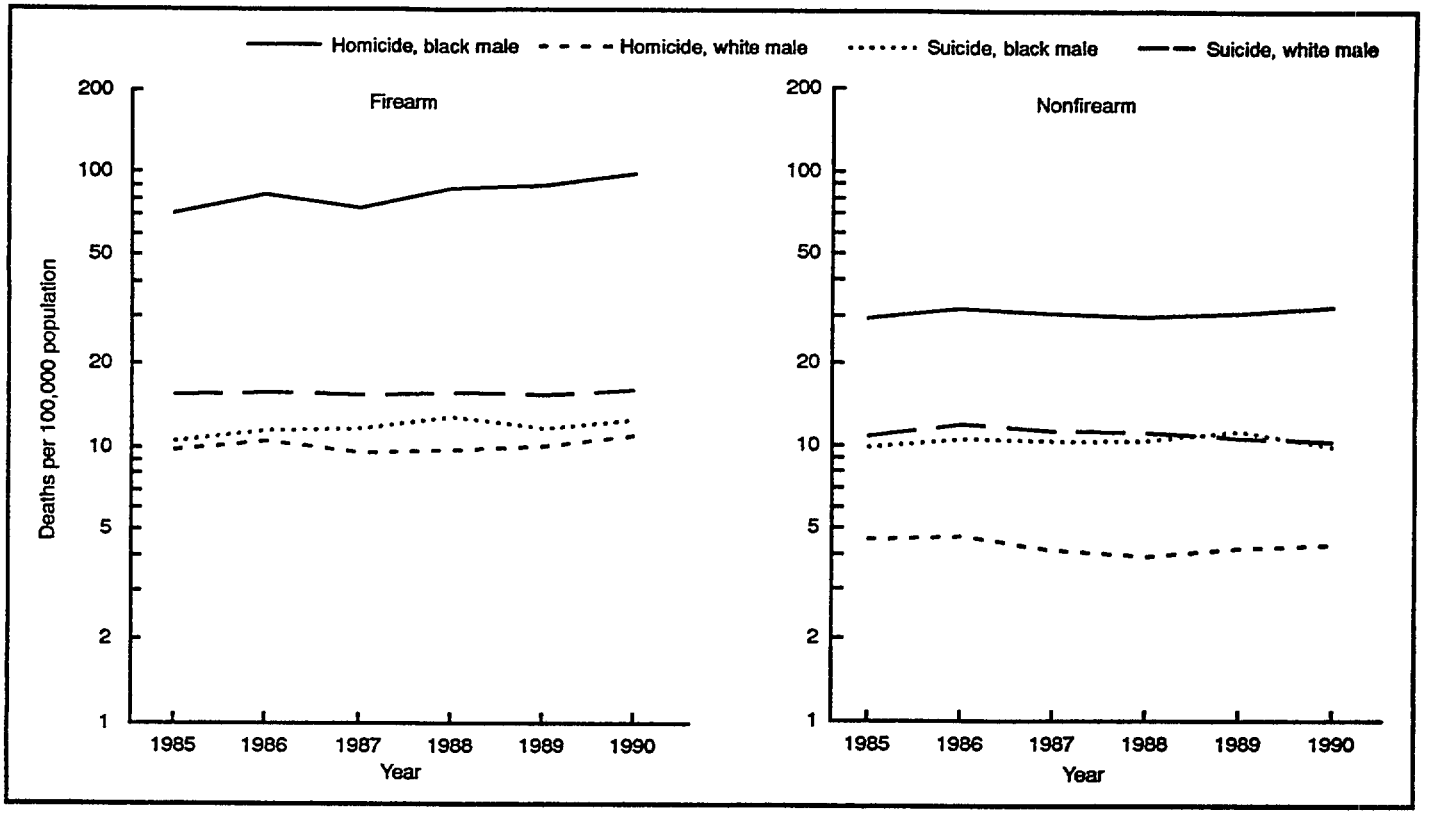


Figure 6. Homicide and suicide rates by firearm status for white and black males, aged 25–34 years: United States, 1985–90

appropriate for persons 1–34 years of age because it does not itemize specific causes of unintentional injuries, such as firearm injuries, motor vehicle injuries, fires and burns, and drowning. (They are counted in the "List of 72..." within the category "accidents and adverse effects".) Neither does the "List of 72" ranking specify intentional injury firearm deaths (which are counted in the categories homicide and suicide). In order to put firearms as a cause of death into perspective, causes of death for children, teenagers, and young adults have been reordered in an alternative ranking scheme that includes detailed causes of injury.

Based on this new ranking, firearms are the second leading cause of death (after motor vehicle injury fatalities) for children 10–14 years of age, teenagers 15–19 years of age, and young adults 20–24 years and 25–34 years of age. For persons 15–19 and 20–24 years of age, firearm homicide as an individual category of death was second only to motor vehicle deaths. For persons 25–34 years of age, there were 11 percent more deaths from firearms than from HIV infection (table 5).

Among black males, firearm injuries were the leading cause of death among children 10–14 through adults 25–34 years of age. For children 10–14 years, firearms were responsible for 30 percent more deaths than motor vehicle injuries. For black males 15–19 through 20–24 years, firearm homicide was the single leading cause of death, with more than 3 times the number of motor vehicle deaths. Firearm homicide was also the leading cause of death at ages 25–34 years, with 12 percent more deaths than from HIV infection. (Data available upon request.)

The firearm homicide rates among young persons 15–19 and 20–24 years continue to increase and the rates of increase have recently worsened for white males. For young black males 15–19 and 20–24 years of age, the average annual increases in firearm homicide of 20 percent and 15 percent, respectively, observed from 1985 to 1988 remained unchanged through 1988 to 1990. For white males 15–19 years, the firearm homicide rate increased an average of 4 percent per year from 1985 through 1988 and remained unchanged for those 20–24 years, whereas the firearm homicide rate increased at average annual rates of 24 percent and 12 percent for white males 15–19 and 20–24 years, respectively, from 1988 through 1990. Not only is progress not being made in reducing the rate of increase in firearm homicide for these young black males, but attention must also be paid to increasing firearm homicide rates among young white males.

References

1. Fingerhut LA, Kleinman JC, Godfrey E, and Rosenberg H. Firearm mortality among children, youth, and young adults 1–34 years of age, trends and current status: United States, 1979–88. Monthly Vital Statistics Report; vol 39 no 11 suppl. Hyattsville, Maryland: National Center for Health Statistics. 1991.

2. U.S. Bureau of Census. U.S. population estimates, by age, sex, race, and Hispanic origin: 1980–91. Series P-25, No. 1095 Advance Report. 1993.
3. Fingerhut LA and Kleinman JC. Firearm mortality among children and youth. Advance data from vital and health statistics; no 178. Hyattsville, Maryland: National Center for Health Statistics. 1989.
4. Fingerhut LA, Ingram DD, Feldman JJ. Firearm and nonfirearm homicide among persons 15–19 years of age: Differences by level of urbanization, United States, 1979–1989. JAMA 267:3048–53. 1992.
5. Fingerhut LA, Ingram DD, Feldman JJ. Firearm homicide among black teenage males in metropolitan counties, United States 1983–85 to 1987–89. JAMA 267:3054–58. 1992.
6. National Center for Health Statistics. Advance report of final mortality statistics, 1990. Monthly vital statistics report; vol 41 no 7 suppl. Hyattsville, Maryland: Public Health Service. 1993.
7. World Health Organization. Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death, based on the recommendations of the Ninth Revision Conference, 1975. Geneva: World Health Organization. 1977.

Table 1. Percent of homicides and suicides resulting from firearms by age, race, and sex for persons 10–34 years of age: United States, 1990

Age	Total	White		Black	
		Male	Female	Male	Female
	Percent of all homicides due to firearms				
10–14 years	72.5	80.3	45.2	85.2	66.1
15–19 years	81.7	76.7	54.8	90.9	67.0
20–24 years	75.9	70.8	50.6	86.7	56.0
25–34 years	69.1	71.8	54.5	75.4	50.1
	Percent of all suicides due to firearms				
10–14 years	55.0	53.7	56.1	71.4	62.5
15–19 years	67.3	69.4	57.3	76.4	65.4
20–24 years	63.4	65.2	54.2	69.2	51.4
25–34 years	57.6	61.1	48.9	55.9	38.0

Note: Total includes races not shown separately.

Table 2. Death rates due to firearms and nonfirearms by manner of death (homicide, suicide, and unintentional injury), by age, race, and sex for persons 1–34 years of age: United States, 1985–90

Age, race, and sex	*1985*	*1986*	*1987*	*1988*	*1989*	*1990*
1–4 years of age			Firearm deaths per 100,000 population			
Total	0.7	0.6	0.5	0.6	0.7	0.6
White male	0.6	0.5	0.5	0.6	0.7	0.6
White female	0.5	0.4	0.3	0.4	0.4	0.3
Black male	2.2	1.9	1.6	1.8	1.7	1.2
Black female	0.9	0.9	0.8	0.9	1.2	1.1
5–9 years of age						
Total	0.7	0.6	0.7	0.7	0.8	0.7
White male	0.9	0.7	0.9	0.7	0.8	0.6
White female	0.4	0.3	0.4	0.4	0.4	0.4
Black male	0.9	1.2	1.6	2.0	1.6	1.5
Black female	1.3	1.3	0.6	0.9	0.9	1.2
10–14 years of age						
Total	2.8	2.7	3.0	3.2	3.3	3.3
White male	4.5	4.4	4.3	4.2	4.6	4.2
White female	1.0	1.0	1.1	1.1	1.0	1.0
Black male	4.8	4.9	7.1	8.1	9.4	10.2
Black female	0.7	1.7	1.4	3.7	2.4	3.7
15–19 years of age						
Total	13.3	14.4	14.5	17.5	19.8	23.5
White male	18.4	20.1	18.7	21.4	23.1	26.5
White female	3.5	3.7	3.3	3.7	4.1	4.6
Black male	46.5	49.7	59.8	80.9	98.2	119.9
Black female	6.1	7.9	9.1	8.5	9.7	12.2
20–24 years of age						
Total	20.6	22.9	22.6	23.5	25.1	28.1
White male	29.1	30.6	28.7	29.0	29.7	32.5
White female	5.2	5.7	5.2	4.5	4.6	4.9
Black male	76.1	94.7	103.4	117.8	133.2	157.6
Black female	10.2	12.0	13.9	13.8	15.4	14.4
25–34 years of age						
Total	19.3	20.4	19.4	20.4	20.4	21.8
White male	26.3	27.0	25.8	26.0	26.2	27.8
White female	5.7	5.5	5.6	5.5	5.2	5.5
Black male	79.8	93.1	84.8	97.1	98.8	108.5
Black female	12.8	13.8	14.0	14.7	13.2	14.6
1–4 years of age			Firearm homicides per 100,000 population			
Total	0.4	0.4	0.3	0.3	0.5	0.4
White male	0.3	0.2	0.2	0.3	0.4	0.4
White female	0.2	0.2	0.2	0.2	0.3	0.2
Black male	1.1	1.4	0.8	1.1	1.0	0.8
Black female	0.7	0.6	0.7	0.6	0.8	0.9
5–9 years of age						
Total	0.3	0.3	0.3	0.4	0.4	0.3
White male	0.4	0.3	0.4	0.3	0.3	0.2
White female	0.2	0.1	0.2	0.3	0.4	0.3
Black male	0.5	0.6	0.7	1.2	1.0	1.0
Black female	1.0	0.8	0.4	0.7	0.7	0.9

Table 2. Death rates due to firearms and nonfirearms by manner of death (homicide, suicide, and unintentional injury), by age, race, and sex for persons 1–34 years of age: United States, 1985–90—Con.

Age, race, and sex	*1985*	*1986*	*1987*	*1988*	*1989*	*1990*
10–14 years of age			Firearm homicides per 100,000 population			
Total	0.8	0.9	1.1	1.1	1.4	1.5
White male	0.9	1.0	0.8	0.9	1.2	1.3
White female	0.4	0.4	0.4	0.4	0.4	0.4
Black male	3.0	3.4	5.3	4.7	6.8	6.9
Black female	0.6	1.0	1.1	2.6	1.8	3.1
15–19 years of age						
Total	5.8	6.8	7.0	9.0	11.1	14.0
White male	5.0	5.8	5.2	6.0	7.5	9.7
White female	1.2	1.5	1.2	1.3	1.7	2.0
Black male	37.4	42.2	50.1	69.2	85.5	105.3
Black female	5.0	6.6	7.3	7.2	8.7	10.4
20–24 years of age						
Total	9.9	12.1	12.4	13.2	14.5	17.1
White male	9.8	11.0	10.2	10.1	11.1	12.9
White female	2.2	2.4	2.3	2.3	2.2	2.3
Black male	63.1	82.5	90.4	102.5	113.7	140.7
Black female	8.8	10.6	12.1	11.8	13.1	12.4
25–34 years of age						
Total	9.8	10.8	10.0	11.0	11.2	12.2
White male	9.5	10.2	9.3	9.5	9.8	10.8
White female	2.5	2.3	2.4	2.4	2.3	2.4
Black male	67.3	79.4	71.2	82.4	85.3	94.4
Black female	10.7	11.6	11.8	12.7	11.7	12.7
10–14 years of age			Firearm suicides per 100,000 population			
Total	0.8	0.9	0.9	0.8	0.8	0.8
White male	1.5	1.5	1.7	1.2	1.4	1.2
White female	0.4	0.4	0.4	0.4	0.3	0.5
Black male	0.5	0.8	0.5	0.7	0.8	1.1
Black female	0.0	0.2	0.1	0.4	0.2	0.4
15–19 years of age						
Total	6.0	6.1	6.0	6.8	6.8	7.5
White male	10.8	11.6	10.9	12.4	12.5	13.5
White female	2.0	1.8	1.9	2.2	2.1	2.3
Black male	5.4	4.7	6.4	6.8	7.3	8.8
Black female	0.7	1.0	1.3	0.9	0.7	1.3
20–24 years of age						
Total	9.2	9.4	8.9	8.9	9.2	9.6
White male	16.8	17.2	16.3	16.6	16.5	17.5
White female	2.7	2.9	2.5	1.9	2.2	2.4
Black male	10.5	9.9	10.0	12.0	14.6	13.2
Black female	1.4	1.0	1.1	1.5	1.8	1.3
25–34 years of age						
Total	8.4	8.6	8.5	8.6	8.4	8.7
White male	15.0	15.2	15.0	15.2	15.0	15.6
White female	2.9	2.9	2.8	2.8	2.7	2.9
Black male	10.2	11.3	11.5	12.4	11.5	12.2
Black female	1.5	1.7	1.7	1.5	1.3	1.4

Table 2. Death rates due to firearms and nonfirearms by manner of death (homicide, suicide, and unintentional injury), by age, race, and sex for persons 1–34 years of age: United States, 1985–90—Con.

Age, race, and sex	*1985*	*1986*	*1987*	*1988*	*1989*	*1990*
1–4 years of age			Unintentional firearm deaths per 100,000 population			
Total	0.3	0.2	0.3	0.3	0.3	0.2
White male	0.3	0.2	0.3	0.3	0.2	0.3
White female	0.2	0.1	0.1	0.1	0.2	0.1
Black male	1.0	0.5	0.7	0.7	0.7	0.4
Black female	0.2	0.4	0.1	0.3	0.4	0.3
5–9 years of age						
Total	0.3	0.3	0.4	0.3	0.3	0.3
White male	0.5	0.4	0.5	0.4	0.5	0.5
White female	0.2	0.1	0.2	0.1	0.1	0.1
Black male	0.3	0.6	0.8	0.8	0.5	0.5
Black female	0.3	0.5	0.2	0.1	0.2	0.3
10–14 years of age						
Total	1.0	0.9	0.9	1.1	1.0	0.8
White male	2.0	1.7	1.6	1.8	1.8	1.5
White female	0.2	0.2	0.2	0.3	0.2	0.1
Black male	1.2	0.6	1.2	2.2	1.8	1.9
Black female	0.1	0.4	0.2	0.6	0.3	0.2
15–19 years of age						
Total	1.3	1.3	1.2	1.4	1.6	1.7
White male	2.1	2.2	2.1	2.5	2.6	2.9
White female	0.2	0.3	0.1	0.2	0.3	0.2
Black male	3.3	2.2	2.9	3.5	4.6	4.9
Black female	0.4	0.2	0.4	0.4	0.3	0.4
20–24 years of age						
Total	1.1	1.0	1.1	1.0	1.2	1.0
White male	1.9	1.7	1.7	1.8	1.7	1.6
White female	0.2	0.2	0.2	0.1	0.2	0.2
Black male	1.9	2.0	2.7	2.4	4.2	2.7
Black female	0.1	0.3	0.3	0.4	0.2	0.6
25–34 years of age						
Total	0.8	0.7	0.7	0.6	0.6	0.6
White male	1.3	1.2	1.1	1.0	1.0	1.1
White female	0.2	0.2	0.2	0.2	0.1	0.2
Black male	1.8	1.7	1.5	1.6	1.7	1.4
Black female	0.4	0.3	0.4	0.3	0.1	0.3
1–4 years of age			Nonfirearm homicides per 100,000 population			
Total	2.1	2.3	2.0	2.3	2.2	2.2
White male	1.6	1.7	1.6	1.9	1.5	1.4
White female	1.4	1.2	1.3	1.4	1.3	1.2
Black male	5.4	8.1	4.1	6.5	7.0	6.7
Black female	5.6	6.3	6.6	5.7	6.5	6.3
5–9 years of age						
Total	0.7	0.5	0.5	0.6	0.6	0.5
White male	0.3	0.2	0.3	0.5	0.3	0.3
White female	0.5	0.3	0.4	0.5	0.4	0.4
Black male	1.9	1.4	1.3	1.6	1.6	1.1
Black female	1.4	1.9	1.2	1.2	1.6	1.6

Table 2. Death rates due to firearms and nonfirearms by manner of death (homicide, suicide, and unintentional injury), by age, race, and sex for persons 1–34 years of age: United States, 1985–90—Con.

Age, race, and sex	*1985*	*1986*	*1987*	*1988*	*1989*	*1990*
10–14 years of age			Nonfirearm homicides per 100,000 population			
Total	0.6	0.6	0.6	0.6	0.6	0.6
White male	0.5	0.2	0.2	0.4	0.3	0.3
White female	0.6	0.6	0.5	0.4	0.6	0.5
Black male	1.1	1.3	1.7	1.3	0.8	1.2
Black female	1.1	1.1	1.4	1.9	2.0	1.6
15–19 years of age						
Total	2.8	3.1	2.8	2.6	2.4	3.1
White male	2.2	2.7	2.1	1.9	1.9	2.9
White female	1.5	1.9	1.8	1.7	1.5	1.6
Black male	9.3	9.7	10.6	9.1	8.4	10.5
Black female	5.3	5.6	4.8	4.5	3.1	5.1
20–24 years of age						
Total	5.0	5.5	5.0	5.3	5.0	5.4
White male	4.4	4.6	4.2	4.2	4.0	5.3
White female	2.1	2.7	2.3	2.4	2.2	2.2
Black male	22.1	23.6	20.3	23.1	21.7	21.6
Black female	9.1	9.5	11.2	11.4	9.7	9.7
25–34 years of age						
Total	5.1	5.5	5.2	5.3	5.3	5.5
White male	4.5	4.6	4.1	3.9	4.2	4.3
White female	1.9	2.1	2.2	2.1	2.0	2.0
Black male	28.3	30.2	29.4	28.5	29.5	30.8
Black female	9.3	10.5	10.9	13.1	11.9	12.6
10–14 years of age			Nonfirearm suicides per 100,000 population			
Total	0.8	0.7	0.6	0.7	0.6	0.7
White male	1.1	0.9	0.9	0.9	0.8	1.1
White female	0.5	0.4	0.3	0.4	0.4	0.4
Black male	0.8	0.8	1.2	0.6	0.9	0.4
Black female	0.4	0.2	0.2	0.6	0.5	0.2
15–19 years of age						
Total	3.9	4.0	4.1	4.3	4.2	3.6
White male	6.2	6.4	6.4	6.8	6.4	5.9
White female	2.1	2.2	2.5	2.5	2.4	1.7
Black male	2.9	2.4	2.6	2.9	3.2	2.7
Black female	0.9	1.1	1.4	1.3	1.6	0.7
20–24 years of age						
Total	6.2	6.2	6.1	5.7	5.6	5.5
White male	10.1	10.5	10.4	9.4	9.2	9.3
White female	2.5	2.4	2.2	2.4	2.0	2.0
Black male	7.7	5.9	6.8	7.4	8.5	5.9
Black female	1.1	1.4	1.3	1.4	1.6	1.3
25–34 years of age						
Total	6.9	7.3	7.1	7.0	6.8	6.4
White male	10.6	11.6	11.0	10.9	10.4	10.0
White female	3.5	3.4	3.6	3.4	3.3	3.1
Black male	9.6	10.3	10.0	10.2	11.0	9.6
Black female	1.5	2.2	2.3	2.3	2.5	2.3

Notes: Some of these death rates are based on small numbers of deaths (less than 20). This is especially true for rates among children 1–4 and 5–9 years. See table 3 for numbers of deaths on which all rates are based. Total includes races not shown separately.

Table 3. Deaths due to firearms and nonfirearms by manner of death (homicide, suicide, and unintentional injury), by age, race, and sex for persons 1–34 years of age: United States, 1985–90

Age, race, and sex	*1985*	*1986*	*1987*	*1988*	*1989*	*1990*
1–4 years of age			All firearm deaths			
Total	96	82	77	91	105	87
White male	35	27	29	37	41	38
White female	26	21	19	20	25	19
Black male	24	20	17	20	19	14
Black female	9	10	8	10	13	13
5–9 years of age						
Total	120	110	126	124	138	121
White male	61	52	64	53	62	48
White female	28	20	28	25	30	28
Black male	11	16	22	27	22	21
Black female	16	17	8	12	12	16
10–14 years of age						
Total	470	453	485	524	557	560
White male	319	297	290	287	321	298
White female	70	64	72	72	66	69
Black male	63	63	90	104	123	136
Black female	9	21	18	46	30	48
15–19 years of age						
Total	2,498	2,717	2,720	3,242	3,597	4,173
White male	1,445	1,581	1,458	1,642	1,732	1,936
White female	263	279	243	273	292	319
Black male	643	690	833	1,126	1,351	1,640
Black female	84	108	125	116	131	163
20–24 years of age						
Total	4,380	4,748	4,561	4,616	4,838	5,369
White male	2,615	2,675	2,430	2,387	2,396	2,600
White female	458	479	426	353	352	377
Black male	1,055	1,307	1,404	1,569	1,746	2,045
Black female	151	175	199	194	212	195
25–34 years of age						
Total	8,050	8,654	8,326	8,801	8,818	9,412
White male	4,654	4,851	4,665	4,728	4,752	5,026
White female	1,002	971	989	980	925	976
Black male	1,909	2,284	2,126	2,476	2,548	2,815
Black female	347	382	395	420	381	423
1–4 years of age			Firearm homicides			
Total	53	51	41	50	67	56
White male	19	13	12	17	27	22
White female	13	14	12	12	15	13
Black male	12	15	9	12	11	9
Black female	7	6	7	7	9	10
5–9 years of age						
Total	58	52	55	71	77	63
White male	25	21	26	20	22	13
White female	15	10	12	20	25	20
Black male	6	8	10	16	14	14
Black female	12	10	5	10	9	12
10–14 years of age						
Total	141	152	174	183	229	258
White male	63	67	56	59	80	94
White female	26	29	28	25	27	28
Black male	40	43	67	60	89	92
Black female	8	12	14	32	23	41

Table 3. Deaths due to firearms and nonfirearms by manner of death (homicide, suicide, and unintentional injury), by age, race, and sex for persons 1–34 years of age: United States, 1985–90—Con.

Age, race, and sex	*1985*	*1986*	*1987*	*1988*	*1989*	*1990*
15–19 years of age			Firearm homicides			
Total	1,087	1,274	1,312	1,657	2,011	2,484
White male	393	458	402	461	561	707
White female	88	109	87	97	123	136
Black male	517	586	697	963	1,176	1,441
Black female	69	91	100	98	117	140
20–24 years of age						
Total	2,107	2,510	2,497	2,595	2,786	3,274
White male	884	962	863	829	891	1,029
White female	189	207	189	182	166	173
Black male	874	1,138	1,227	1,365	1,491	1,826
Black female	129	154	173	166	180	168
25–34 years of age						
Total	4,081	4,591	4,302	4,725	4,835	5,280
White male	1,689	1,829	1,685	1,733	1,782	1,956
White female	433	406	433	426	402	419
Black male	1,608	1,948	1,786	2,101	2,201	2,450
Black female	291	321	332	365	337	368
10–14 years of age			Firearm suicides			
Total	139	141	151	125	138	142
White male	103	102	114	84	99	87
White female	28	23	27	23	22	32
Black male	6	10	6	9	11	15
Black female	0	3	1	5	3	5
15–19 years of age						
Total	1,117	1,151	1,129	1,261	1,241	1,332
White male	850	911	850	954	941	987
White female	150	138	141	163	147	160
Black male	74	65	89	95	100	120
Black female	9	14	18	13	10	17
20–24 years of age						
Total	1,964	1,946	1,793	1,754	1,775	1,833
White male	1,511	1,506	1,386	1,370	1,331	1,399
White female	234	244	206	154	171	181
Black male	146	136	136	160	192	171
Black female	20	14	16	21	25	18
25–34 years of age						
Total	3,509	3,627	3,629	3,706	3,632	3,773
White male	2,654	2,723	2,713	2,766	2,732	2,825
White female	511	514	507	497	481	517
Black male	245	276	288	315	296	317
Black female	40	46	49	44	38	41
1–4 years of age			Unintentional firearm deaths			
Total	41	31	36	41	38	31
White male	15	14	17	20	14	16
White female	13	7	7	8	10	6
Black male	11	5	8	8	8	5
Black female	2	4	1	3	4	3

Table 3. Deaths due to firearms and nonfirearms by manner of death (homicide, suicide, and unintentional injury), by age, race, and sex for persons 1–34 years of age: United States, 1985–90—Con.

Age, race, and sex	*1985*	*1986*	*1987*	*1988*	*1989*	*1990*
5–9 years of age			Unintentional firearm deaths			
Total	58	57	66	51	59	56
White male	33	30	35	32	39	34
White female	13	10	16	4	5	7
Black male	4	8	11	11	7	7
Black female	4	7	2	2	3	4
10–14 years of age						
Total	177	143	144	185	172	146
White male	145	115	111	123	127	108
White female	12	12	12	22	14	7
Black male	16	8	15	28	23	26
Black female	1	5	3	8	4	2
15–19 years of age						
Total	241	238	220	266	294	305
White male	166	176	160	194	195	212
White female	17	25	11	11	20	14
Black male	45	30	41	48	63	67
Black female	5	3	5	5	4	6
20–24 years of age						
Total	238	205	213	200	222	195
White male	175	148	148	146	133	129
White female	21	17	16	8	14	15
Black male	27	27	37	32	55	35
Black female	2	4	5	5	3	8
25–34 years of age						
Total	339	299	291	264	274	279
White male	232	213	196	175	190	194
White female	39	28	36	29	26	27
Black male	44	42	38	41	43	37
Black female	12	7	10	8	3	10
1–4 years of age			Nonfirearm homicides			
Total	295	331	293	331	326	322
White male	92	102	95	114	88	87
White female	80	65	76	78	72	68
Black male	58	87	44	72	80	79
Black female	59	66	70	61	72	72
5–9 years of age						
Total	109	82	86	108	104	93
White male	24	17	21	36	23	24
White female	31	20	27	32	27	31
Black male	24	18	18	22	22	15
Black female	18	24	16	16	21	21
10–14 years of age						
Total	109	93	92	97	100	98
White male	38	17	15	27	21	23
White female	37	42	35	28	40	34
Black male	15	17	22	16	11	16
Black female	14	14	17	24	25	21
15–19 years of age						
Total	515	588	526	478	431	558
White male	174	212	161	145	143	215
White female	113	140	131	121	109	112
Black male	128	135	147	126	116	144
Black female	73	77	66	61	42	69

Table 3. Deaths due to firearms and nonfirearms by manner of death (homicide, suicide, and unintentional injury), by age, race, and sex for persons 1–34 years of age: United States, 1985–90—Con.

Age, race, and sex	*1985*	*1986*	*1987*	*1988*	*1989*	*1990*
20–24 years of age			Nonfirearm homicides			
Total	1,063	1,150	1,019	1,041	957	1,038
White male	399	402	360	349	326	424
White female	187	226	191	189	170	169
Black male	306	325	275	308	285	281
Black female	134	138	160	160	134	132
25–34 years of age						
Total	2,109	2,313	2,244	2,267	2,300	2,363
White male	789	835	744	713	761	768
White female	334	374	398	377	355	350
Black male	677	740	736	726	762	800
Black female	251	291	308	375	344	366
10–14 years of age			Nonfirearm suicides			
Total	136	109	99	112	98	116
White male	77	64	59	62	52	75
White female	35	23	18	26	23	25
Black male	11	10	15	8	12	6
Black female	5	2	3	7	6	3
15–19 years of age						
Total	732	745	773	798	768	647
White male	489	503	502	519	483	435
White female	154	164	186	183	172	119
Black male	40	34	36	41	44	37
Black female	12	15	19	18	21	9
20–24 years of age						
Total	1,308	1,278	1,229	1,116	1,086	1,057
White male	903	921	879	775	743	748
White female	218	204	178	190	154	153
Black male	107	81	93	98	111	76
Black female	16	21	18	19	22	17
25–34 years of age						
Total	2,867	3,084	3,026	3,004	2,933	2,777
White male	1,881	2,084	1,997	1,980	1,890	1,800
White female	613	598	633	601	594	541
Black male	230	253	251	259	283	250
Black female	41	60	64	67	72	67

NOTE: Total includes races not shown separately. All firearm deaths include those for which the intent was unknown.

Table 4. Firearm mortality race and sex ratios, by manner of death for persons 1–34 years of age: United States, 1990

Manner of death	Race ratio (black/white)		Sex ratio (male/female)	
	Male	Female	White	Black
All firearm deaths:				
1–4 years	*1.9	*3.4	*1.9	*1.1
5–9 years	2.4	*3.0	1.6	*1.3
10–14 years	2.4	3.6	4.1	2.8
15–19 years	4.5	2.6	5.7	9.9
20–24 years	4.9	2.9	6.6	10.9
25–34 years	3.9	2.6	5.1	7.5
Firearm homicide:				
1–4 years	*2.1	*3.9	*1.6	*0.9
5–9 years	*5.8	*3.2	*0.6	*1.1
10–14 years	5.2	7.5	3.2	2.2
15–19 years	10.9	5.3	4.9	10.1
20–24 years	10.9	5.5	5.7	11.3
25–34 years	8.7	5.4	4.6	7.5
Firearm suicide:				
10–14 years	*0.9	*0.8	2.6	*2.9
15–19 years	0.7	*0.5	5.8	*6.9
20–24 years	0.8	*0.6	7.4	*9.9
25–34 years	0.8	0.5	5.4	8.7
Unintentional firearm:				
1–4 years	*1.6	*2.5	*2.5	*1.6
5–9 years	*1.1	*3.0	*4.6	*1.7
10–14 years	1.3	*1.5	*14.6	*12.7
15–19 years	1.7	*2.2	*14.3	*10.9
20–24 years	1.7	*3.0	*8.2	*4.6
25–34 years	1.3	*2.3	7.1	*4.1

NOTE: Ratios are asterisked (*) if either the numerator or the denominator of the ratio is based on 20 or fewer deaths. See table 2 for rates and table 3 for numbers of deaths.

Table 5. Selected causes of death among persons 1–34 years of age, by age: United States, 1990

Cause of death	Age					
	1–4 years	5–9 years	10–14 years	15–19 years	20–24 years	25–34 years
	Deaths per 100,000 population					
All external causes	20.0	10.8	14.7	71.6	84.0	71.4
Motor vehicle injuries	6.2	5.4	6.3	33.3	35.0	23.6
Drowning	3.8	1.4	1.5	2.7	2.2	2.0
Fires and burns	3.7	1.3	0.5	0.6	1.0	1.1
Firearms	0.6	0.7	3.3	23.5	28.1	21.8
Homicide	0.4	0.3	1.5	14.0	17.1	12.2
Suicide	...	...	0.8	7.5	9.6	8.7
Unintentional	0.2	0.3	0.8	1.7	1.0	0.6
Nonfirearm homicide	2.2	0.5	0.6	3.1	5.4	5.5
Nonfirearm suicide	...	...	0.7	3.6	5.5	6.4
All natural causes	26.6	11.3	11.1	16.9	25.9	67.9
Congenital anomalies	6.0	1.6	1.1	1.3	1.4	1.1
Malignant neoplasms	3.5	3.1	3.1	4.3	5.5	12.6
HIV infection	0.8	0.4	0.1	0.3	2.6	19.7
	Deaths					
All external causes	2,975	1,951	2,528	12,707	16,067	30,790
Motor vehicle injuries	928	970	1,089	5,918	6,689	10,170
Drowning	564	248	260	478	430	867
Fires and burns	554	226	91	114	183	470
Firearms	87	121	560	4,173	5,369	9,412
Homicide	56	63	258	2,484	3,274	5,280
Suicide	...	...	142	1,332	1,833	3,773
Unintentional	31	56	146	305	195	279
Nonfirearm homicide	322	93	98	558	1,038	2,363
Nonfirearm suicide	...	...	116	647	1,057	2,777
All natural causes	3,956	2,044	1,913	3,004	4,955	29,301
Congenital anomalies	896	286	182	224	267	473
Malignant neoplasms	513	569	525	759	1,060	5,427
HIV infection	123	64	20	48	493	8,483

Technical notes

Nature and sources of data

Data shown in this report are based on information from all death certificates filed in the 50 States and the District of Columbia.

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

Data for the United States refer to events occurring within the United States.

Table I. Deaths due to legal intervention by a firearm among persons 15–34 years of age, by sex and race: United States, 1985 and 1990

Age	Total	Male		Female	
		White	Black	White	Black
			Deaths		
1985					
15–19 years	23	11	11	0	1
20–24 years	54	32	19	0	0
25–34 years	87	52	32	0	0
1990					
15–19 years	22	12	10	0	0
20–24 years	57	28	22	1	0
25–34 years	114	68	39	4	2

Note: Total includes races not shown separately.

Cause-of-death classification

The mortality statistics presented in this report were compiled in accordance with the World Health Organization regulations, which specify that member nations classify causes of death by the current *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death* (7). In this report, causes of death for 1985–90 were classified according to the Ninth Revision of the ICD (ICD–9).

Homicides are classified according to ICD–9 Nos. E960–E969 (Homicide and injury purposely inflicted by other persons) and Nos. E970–E978 (Legal intervention). Homicides caused by firearm are classified under ICD–9, Nos. E965.0–E965.4 (Assault by firearms) and E970 (Legal intervention by firearm). Suicides are classified according to ICD–9 Nos. E950–E959 (Suicide and self-inflicted injury). Suicides caused by firearms are classified under ICD–9 Nos. E955.0–E955.4. Unintentional firearm deaths are classified under ICD–9, No. E922 (Unintentional injury caused by firearm missile). Injury deaths by firearms, undetermined whether unintentionally or purposely inflicted are classified under ICD–9, Nos. E985.0–E985.4.

Random variation

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

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

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

   covers the "true" number of events.

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

   covers the "true" rate.

If the rate R_1 corresponding to N_1 events is compared with the rate R_2 corresponding to N_2 events, the difference between the two rates may be regarded as statistically significant if it exceeds

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

Additional information on random variation may be found in the Technical Appendix of *Vital Statistics of the United States, 1987,* Volume II, Mortality, Part A.

Rates of change

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

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

Number 232 • March 25, 1993

Advance Data

nchs

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

Drug Utilization in Office Practice

National Ambulatory Medical Care Survey, 1990

By Cheryl R. Nelson, M.S.P.H., Division of Health Care Statistics

In 1990 an estimated 704 million office visits were made to office-based physicians in the United States. About 60 percent of the visits were classified as a "drug visit," a visit during which one drug or more was prescribed or provided to the patient. This resulted in office-based physicians prescribing or providing an estimated 759 million medications to their patients in 1990.

This report describes the drug utilization for 1 year according to data collected in the 1990 National Ambulatory Medical Care Survey (NAMCS). NAMCS, a year-long sample survey of the nation's nonfederal, office-based physicians is conducted by the Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Care Statistics. A summary of general findings from the 1990 NAMCS (1) and reports on drug utilization in office practice, 1985 (2) and 1980 (3) have been published.

The term utilization is defined as the prescribing or providing of a new or continued drug by a doctor of medicine or osteopathy in the course of an office visit. It is not an indication of the patient's compliance with the doctor's instructions. Drug utilization in this report will be described in three ways: 1) by frequency of drug use, namely, a drug visit; the proportion of visits during which medications were prescribed or provided, 2) by the intensity of drug use; the proportion of visits during which one, two, and three or more drugs were prescribed or provided, and 3) by the drug utilization rate; the average number of medications per visit. The terms "drug" and "medication" are used interchangeably and are broadly defined to include any pharmaceutical agent the doctor prescribes or provides to the patient during a visit.

Data presented in this report are based on entries in item 15 on the NAMCS Patient Record Form (figure 1) that asks the responding physician to report the names of up to five specific drugs that were prescribed or provided in the course of the office visit (drugs prescribed through telephone contact are excluded). Physicians were asked to report nonprescription and prescription drugs, to distinguish between new and continued medications, and to indicate whether the drug was intended for the principal diagnosis associated with the visit (item 10a).

Data highlights

Table 1 describes some key dimensions of the drug data base.

New or continued status—About half (51 percent) of the drugs prescribed or provided were described as continued medications.

Entry status—Seventy-one percent of the drugs prescribed or provided were specific brand or trade names.

Prescription status—A great majority (84 percent) of office-based drug therapy utilized prescription drugs.

Composition status—Seventy-five percent of the drugs were single ingredient medications.

Control status—Uncontrolled drugs represented 87 percent of the medications used in office-based drug therapy. Controlled drugs were distributed among the schedules as shown in table 1. Only 6 percent of the medications prescribed or provided by the office-based practitioner were classified as controlled substances.

The data in tables 2 and 3 show rank listings of the 50 drugs most frequently prescribed or provided by the office-based practitioner. Table 2 uses the entry names, that is, the trade or generic names entered on

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

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

Assurance of Confidentiality—All information which would permit identification of an individual, a practice, or an establishment will be held confidential, will be used only by persons engaged in and for the 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

1. DATE OF VISIT Month / Day / Year

PATIENT RECORD
NATIONAL AMBULATORY MEDICAL CARE SURVEY

OMB No. 0920-0234
Expires 8-31-89
(PHS) 6105B

2. ZIP CODE

3. DATE OF BIRTH Month / Day / Year

4. SEX
1 ☐ FEMALE
2 ☐ MALE

5. COLOR OR RACE
1 ☐ WHITE
2 ☐ BLACK
3 ☐ ASIAN/PACIFIC ISLANDER
4 ☐ AMERICAN INDIAN/ ESKIMO/ALEUT

6. ETHNICITY
1 ☐ HISPANIC ORIGIN
2 ☐ NOT HISPANIC

7. EXPECTED SOURCE(S) OF PAYMENT *[Check all that apply]*
1 ☐ SELF-PAY
2 ☐ MEDICARE
3 ☐ MEDICAID
4 ☐ BLUE CROSS/ BLUE SHIELD
5 ☐ OTHER COMMERCIAL INSURANCE
6 ☐ PRE-PAID PLAN HMO/IPA/PPO
7 ☐ NO CHARGE
8 ☐ OTHER *(Specify)*

8. WAS PATIENT REFERRED FOR THIS VISIT BY ANOTHER PHYSICIAN?
1 ☐ YES 2 ☐ NO

9. PATIENT'S COMPLAINT(S), SYMPTOM(S), OR OTHER REASON(S) FOR THIS VISIT *[In patient's own words]*
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 ☐ YES 2 ☐ NO
IF YES, FOR THE CONDITION IN ITEM 10a?
1 ☐ YES 2 ☐ NO

12. DIAGNOSTIC/SCREENING SERVICES *[Check all ordered or provided]*
1 ☐ NONE
2 ☐ PAP TEST
3 ☐ PELVIC EXAM
4 ☐ BREAST PALPATION
5 ☐ MAMMOGRAM
6 ☐ VISUAL ACUITY
7 ☐ BLOOD PRESSURE CHECK
8 ☐ URINALYSIS
9 ☐ CHEST X-RAY
10 ☐ DIGITAL RECTAL EXAM
11 ☐ PROCT/SIGMOIDOSCOPY
12 ☐ STOOL BLOOD EXAM
13 ☐ ORAL GLUCOSE TOL
14 ☐ CHOLESTEROL MEASURE
15 ☐ HIV SEROLOGY
16 ☐ OTHER BLOOD TEST
17 ☐ OTHER *(Specify)*

13. COUNSELING/ADVICE *[Check all ordered or provided]*
1 ☐ NONE
2 ☐ WEIGHT REDUCTION
3 ☐ CHOLESTEROL REDUCTION
4 ☐ SMOKING CESSATION
5 ☐ HIV TRANSMISSION
6 ☐ BREAST SELF-EXAM
7 ☐ OTHER

14. NON-MEDICATION THERAPY *[Check all ordered or provided]*
1 ☐ NONE
2 ☐ PSYCHOTHERAPY
3 ☐ CORRECTIVE LENSES
4 ☐ AMBULATORY SURGERY
5 ☐ PHYSIOTHERAPY
6 ☐ OTHER *(Specify)*

15. MEDICATION THERAPY *[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.]*

IF NONE, CHECK HERE ☐

	a. NEW MEDICATION? YES	a. NEW MEDICATION? NO	b. FOR DX IN ITEM 10a? YES	b. FOR DX IN ITEM 10a? NO
1	1 ☐	2 ☐	1 ☐	2 ☐
2	1 ☐	2 ☐	1 ☐	2 ☐
3	1 ☐	2 ☐	1 ☐	2 ☐
4	1 ☐	2 ☐	1 ☐	2 ☐
5.	1 ☐	2 ☐	1 ☐	2 ☐

16. DISPOSITION THIS VISIT *[Check all that apply]*
1 ☐ NO FOLLOW-UP PLANNED
2 ☐ RETURN AT SPECIFIED TIME
3 ☐ RETURN IF NEEDED, P.R.N.
4 ☐ TELEPHONE FOLLOW-UP PLANNED
5 ☐ REFERRED TO OTHER PHYSICIAN
6 ☐ RETURNED TO REFERRING PHYSICIAN
7 ☐ ADMIT TO HOSPITAL
8 ☐ OTHER *(Specify)*

17. DURATION OF THIS VISIT *[Time actually spent with physician]*
Minutes

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

Figure 1. Patient Record Form

the patient's prescription or medical record. The top three entry names, amoxicillin, amoxil, and ceclor, are antibiotics. In table 3 the data are presented by the generic ingredients of the drugs and provide a more complete perspective of drug utilization in the doctor's office. The most frequently used generic substance was amoxicillin (5 percent), an antibiotic. Seven other antibiotics are in the top 50 list including erythromycin and cefaclor. Other drugs frequently prescribed or provided by office-based physicians are the decongestants, phenylephrine, pseudoephedrine, and phenylpropanolamine, the broncodilators, albuterol and theophylline, and those drugs used in treating diseases of the circulatory system, hydrochlorothiazide, digoxin, furosemide, triamterene, nitroglycerin, diltiazem, and aspirin.

In table 4 the estimated 759 million drug mentions are classified by their chief therapeutic effect. Antimicrobial agents, cardiovascular-renal drugs, respiratory drugs, and drugs used for relief of pain account for 53 percent of all drug mentions.

The remaining tables describe the relationship between drug utilization and other key variables in office care: the characteristics of the attending physician (table 5), the patient's age and sex (table 6), race and ethnicity (table 7), and the principal diagnoses (table 8).

Table 1. Number and percent distribution of drug mentions by selected dimensions: United States, 1990

Drug dimension	Drug mentions in thousands	Percent distribution
All mentions	759,406	100.00
New or continued status		
New medication	327,748	43.16
Continued medication	384,009	50.57
Undetermined	47,649	6.27
Entry status[1]		
Generic name	131,893	17.37
Trade name	543,357	71.55
Undetermined	84,156	11.08
Prescription status		
Prescription drug	637,300	83.92
Nonprescription drug	68,452	9.01
Undetermined	53,654	7.07
Composition status		
Single ingredient drug	573,498	75.52
Combination drug	134,907	17.76
Undetermined	51,000	6.72
Federal control status		
Controlled drug	49,613	6.53
Schedule II drug	4,159	0.55
Schedule III drug	13,153	1.73
Schedule IV drug	23,630	3.11
Schedule V drug	8,670	1.14
Noncontrolled drug	658,729	86.74
Undetermined	51,064	6.72

[1]The trade or generic name used by the physician on the prescription or other medical records.

Physician

Ninety-four percent of the patient visits were to physicians who in the 1990 NAMCS sample identified themselves as doctors of medicine (table 5). However a slightly higher percent of visits to doctors of osteopathy (68 percent) were classified as a drug visit than those visits to doctors of medicine (60 percent). Doctors of osteopathy administered more single and multiple medications to patients than did doctors of medicine. The drug utilization rate for doctors of osteopathy was 1.3 medications per visit and 1.1 for doctors of medicine.

The physicians most likely to prescribe or provide medications were those specializing in cardiovascular disease, internal medicine, general and family practice, pediatrics, and neurology. Fifty-seven percent of the patient visits were to these five specialties and they accounted for 67 percent of all drug mentions.

The intensity in administering medication was greatest for the cardiovascular disease specialists. Seventy-eight percent of the visits to physicians specializing in cardiovascular disease were drug visits and 42 percent of the visits resulted in three or more medications prescribed or provided. Office-based orthopedic surgeons and general surgeons were the least likely to provide medications to their patients and about 18 percent of their visits resulted in administering a single medication.

The drug utilization rate ranged from 2.2 medications per visit for the cardiovascular disease specialists to 0.3 medications per visit for orthopedic surgeons. The drug utilization rate for the internal medicine specialty and "all other specialties" was about 1.4 medications per visit, followed by 1.2 medications per visit for dermatologists, neurologists, and general and family practitioners. By contrast, obstetricians and gynecologists, general surgeons, and urological surgeons have drug utilization rates of about 0.5 medications per visit, lower than the average rate for all physicians.

Patient

Patients 65 years of age and over represented 22 percent of the office visits and accounted for 28 percent of the drug mentions. Table 6 shows that the percent of drug visits and the administering of multiple medications when analyzed by patients' age are greatest for older patients. Older patients were most likely to receive multiple drug therapy while younger patients were most likely to receive only one medication. A higher percent of visits by patients 75 years of age and over (23 percent) were prescribed or provided three or more medications than their younger counterparts. By contrast, patients under 15 years of age were administered more single drug therapies (41 percent) than their older counterparts. The drug utilization rate for patients 65 years of age and over, about 1.4 medications per visit, was significantly higher than the drug utilization rate for younger patients, 1.2 and 1.0 medications per visit.

Table 6 also shows that more office visits were made by female patients (61 percent) and more drug mentions were prescribed or provided to female patients (61 percent). There was also a higher percent of drug visits by females 65 years of age and over (about 67 percent) than by males of the same age (61 percent). The drug utilization rate for female and male patients was about 1.1 medications per visit.

When the data were analyzed by the patient's race (table 7), white patients have a higher percent of visits (85 percent) and drug mentions (84 percent) than black and "other race" patients. However, black patients have a higher percent of drug visits (68 percent) than did white or "other race" patients (60 percent). Sixteen percent of the visits by black

Table 2. The 50 drugs most frequently utilized in office practice by entry name, number and percent of mentions, rank, and therapeutic use: United States, 1990

Rank	Entry name of drug and principal generic substance[1]	Number of mentions in thousands	Percent	Therapeutic use
	All drugs	759,406	100.00	All therapeutic uses
1	Amoxicillin	17,891	2.36	Antibiotic
2	Amoxil (amoxicillin)	13,448	1.77	Antibiotic
3	Ceclor (cefaclor)	8,910	1.17	Antibiotic
4	Lasix (furosemide)	8,868	1.17	Diuretic, antihypertensive
5	Prednisone	7,830	1.03	Steroid replacement therapy, anti-inflammatory agent
6	Naprosyn (naproxen)	7,585	1.00	Nonsteroidal anti-inflammatory agent
7	Seldane (terfenadine)	7,251	0.95	Antihistaminic
8	Motrin (ibuprofen)	6,988	0.92	Nonsteroidal anti-inflammatory agent
9	Zantac (ranitidine)	6,501	0.86	Duodenal or gastric ulcer
10	Premarin (estrogens)	6,327	0.83	Estrogen replacement therapy
11	Lanoxin (digoxin)	6,275	0.83	Cardiotonic/digitalis
12	Vasotec (enalapril)	5,991	0.79	Antihypertensive
13	Aspirin or A.S.A.	5,896	0.78	Analgesic, anti-inflammatory, antipyretic
14	Proventil (albuterol)	5,614	0.74	Bronchodilator
15	Dyazide (triamterene, hydrochlorothiazide)	5,584	0.74	Diuretic, antihypertensive
16	Diphtheria tetanus toxoids pertussis	5,176	0.68	Immunization
17	Voltaren (diclofenac sodium)	5,160	0.68	Nonsteroidal anti-inflammatory agent
18	Tylenol (acetaminophen)	5,144	0.68	Analgesic
19	Synthroid (levothyroxine)	5,137	0.68	Thyroid hormone therapy
20	Xanax (alprazolam)	5,089	0.67	Anxiety disorders
21	Cardizem (ditiazem)	4,979	0.66	Cardiotonic/calcium channel blocking agent
22	Capoten (captopril)	4,785	0.63	Antihypertensive
23	Prozac (fluoxetine)	4,785	0.63	Antidepressant
24	Calan (verapamil)	4,755	0.63	Cardiotonic/calcium channel blocking agent
25	Ventolin (albuterol)	4,666	0.61	Bronchodilator
26	Theo-dur (theophylline)	4,600	0.61	Bronchodilator
27	Polimoyelitis vaccine	4,551	0.60	Immunization
28	Tavist (clemastine)	4,405	0.58	Antihistaminic
29	Keflex (cephalexin)	4,265	0.56	Antibiotic
30	Tenormin (atenolol)	4,231	0.56	Antihypertensive, angina pectoris
31	Vancenase (beclomethasone dipropinate)	4,106	0.54	Intranasal steroid
32	Inderal (propranolol)	3,970	0.52	Hypertension, angina pectoris, arrhythmia, migraine
33	Timoptic (timolol)	3,877	0.51	Glaucoma
34	Cipro (ciprofloxacin)	3,823	0.50	Antibiotic
35	Augmentin (amoxicillin, potassium clavulanate)	3,783	0.50	Antibiotic
36	Entex (phenylpropanolamine, phenylephrine, guaifenesin)	3,757	0.49	Cough preparation
37	Tylenol No. 3 (acetaminophen, codeine)	3,729	0.49	Analgesic
38	Procardia (nifedipine)	3,698	0.49	Cardiotonic/calcium channel blocking agent
39	Darvocet-N (propoxyphene, acetaminophen)	3,653	0.48	Analgesic
40	Duricef (cefadroxil)	3,573	0.47	Antibiotic
41	Micronase (glyburide)	3,434	0.45	Hypoglycemic
42	Tetracycline	3,383	0.45	Antibiotic
43	Ampicillin	3,310	0.44	Antibiotic
44	Erythromycin	3,260	0.43	Antibiotic
45	Coumadin (warfarin)	3,183	0.42	Anticoagulant
46	E.E.S. (erythromycin)	3,172	0.42	Antibiotic
47	Valium (diazepam)	3,168	0.42	Anxiety disorders
48	Benadryl (diphenhydramine)	3,150	0.41	Antihistaminic
49	Ortho-novum (norethindrone, estradiol or mestranol)	3,041	0.40	Oral contraceptive
50	Tagamet (cimetidine)	3,014	0.40	Duodenal or gastric ulcer

[1]The trade or generic name used by the physician on the prescription or other medical records. The use of trade names is for identification only and does not imply endorsement by the Public Health Service or the U.S. Department of Health and Human Services. Because of its nonspecific nature, the entry "Allergy relief or shots," with 4,184,000 mentions, is omitted.

patients compared with 11 percent of white and "other race" patients were prescribed or provided three or more medications during a visit. The drug utilization rate was higher for black patients, 1.3 medications per visit, compared with 1.1 medications per visit for white and "other race" patients. Three percent of the visits and 2 percent of the drugs mentioned were by patients whose race was "unspecified." Under the assumption that these "unspecified" race visits and drug mentions are distributed proportionately among white, black, and "other race" patients, the previously mentioned differences in visits, drug visits , drug mentions, and drug utilization rates do not change. However if this assumption is incorrect, and these "unspecified" race visits and drug mentions were all from black patients there is no

Table 3. The 50 most frequently utilized generic substances in office practice by number and percent of mentions, rank, and therapeutic use: United States, 1990

Rank	Generic substance	Number of mentions in thousands[1]	Percent	Therapeutic use
	All drugs	759,406	100.0	All therapeutic uses
1	Amoxicillin	37,011	4.87	Antibiotic
2	Acetaminophen	23,416	3.08	Analgesic, antipyretic
3	Erythromycin	19,474	2.56	Antibiotic
4	Hydrochlorothiazide	15,011	1.98	Diuretic, antihypertensive
5	Codeine	14,435	1.90	Analgesic, antitussive
6	Phenylephrine	12,297	1.62	Decongestant, vasoconstrictor
7	Ibuprofen	11,964	1.58	Nonsteroidal anti-inflammatory agent
8	Phenylpropanolamine	11,489	1.51	Decongestant, anorexiant
9	Aspirin	10,823	1.43	Analgesic, antipyretic, anti-inflammatory
10	Albuterol	10,505	1.38	Bronchodilator
11	Pseudoephedrine	10,474	1.38	Decongestant
12	Naproxen	10,354	1.36	Nonsteroidal anti-inflammatory agent
13	Furosemide	9,570	1.26	Diuretic, antihypertensive
14	Chlorpheniramine	9,197	1.21	Antihistaminic
15	Digoxin	8,924	1.18	Cardiotonic/calcium channel blocking agent
16	Cefaclor	8,910	1.17	Antibiotic
17	Guaifenesin	8,890	1.17	Expectorant
18	Trimethorpim	8,649	1.14	Antibiotic
19	Sulfamethoxazole	8,282	1.09	Antibiotic
20	Prednisone	8,035	1.06	Steroid replacement therapy, anti-inflammatory agent
21	Triamterene	7,974	1.05	Diuretic, antihypertensive
22	Estradiol	7,965	1.05	Estrogen replacement therapy, oral contraceptive
23	Theophylline	7,634	1.01	Bronchodilator
24	Hydrocortisone	7,405	0.98	Steroidal anti-inflammatory agent
25	Terfenadine	7,251	0.95	Antihistaminic
26	Beclomethasone	7,092	0.93	Steroidal anti-inflammatory agent
27	Neomycin	6,915	0.91	Antibiotic
28	Insulin	6,913	0.91	Hypoglycemic
29	Cephalexin	6,737	0.89	Antibiotic
30	Estrogens	6,645	0.88	Estrogen replacement therapy, oral contraceptive
31	Verapamil	6,616	0.87	Cardiotonic/calcium channel blocking agent
32	Ranitidine	6,501	0.86	Duodenal or gastric ulcer
33	Penicillin	6,406	0.84	Antibiotic
34	Enalapril	6,386	0.84	Antihypertensive
35	Dextromethorphan	6,106	0.80	Antitussive
36	Polymixin B	5,966	0.79	Antibiotic
37	Glyburide	5,687	0.75	Hypoglycemic
38	Captopril	5,665	0.75	Antihypertensive
39	Dexamethasone	5,655	0.74	Steroidal anti-inflammatory agent
40	Nitroglycerin	5,642	0.74	Vasodilator
41	Nifedipine	5,544	0.73	Cardiotonic/calcium channel blocking agent
42	Triamcinolone	5,518	0.73	Steroidal anti-inflammatory agent
43	Levothyroxine	5,510	0.73	Thyroid hormone therapy
44	Diclofenac sodium	5,160	0.68	Nonsteroidal anti-inflammatory agent
45	Prednisolone	5,130	0.68	Steroidal anti-inflammatory agent
46	Alprazolam	5,089	0.67	Antianxiety agent
47	Promethazine	5,060	0.67	Antihistaminic
48	Diltiazem	4,979	0.66	Cardiotonic/calcium channel blocking agent
49	Fluoxetine Hydrochloride	4,785	0.63	Antidepressant
50	Atenolol	4,780	0.63	Cardiotonic/Beta-adrenergic blocking agent, antihypertensive

[1]Frequency of mentions combines single-ingredient agents with mentions of agents in a combination-ingredient drug.

difference between the drug utilization rates by race.

Non-Hispanic patients accounted for about 88 percent of the visits to office-based physicians and 89 percent of the drug mentions. There was a slight difference in the intensity in administering medications by the patients' ethnicity. Office visits by Hispanic patients were more often administered a single medication and visits by non-Hispanic patients were more often administered three or more medications. Seven percent of the visits and 6 percent of the drug mentions were by patients of "unspecified" ethnicity. Again the assumption is that these "unspecified" ethnicity visits and drug mentions are distributed proportionately among Hispanic and non-Hispanic patients. Under this assumption the drug utilization rate for Hispanics would not significantly

differ from the drug utilization rate for non-Hispanic patients. However if this assumption is incorrect and these "unspecified" ethnicity visits and drug mentions are all from Hispanic patients, the drug utilization rate for Hispanic patients becomes significantly lower than the drug utilization rate for non-Hispanic patients.

Diagnoses

In table 8 patient visits and drug mentions are displayed according to the International Classification of Diseases (ICD) and with selected related principal diagnoses. Medications were most likely administered during visits in which the patient's diagnosis was from the major ICD categories of diseases of the respiratory system, diseases of the circulatory system, or diseases of the nervous system and sense organs. In 33 percent of the visits, the patient's diagnosis was from one of these three major ICD categories and these visits accounted for almost half of the drugs mentioned. An estimated 100 million visits to doctors' offices were those in which the patient's diagnosis was categorized under diseases of the respiratory system and 86 percent of these visits were classified as a drug visit. Drugs were administered during 79 percent of the visits in which the patient's diagnosis was categorized under diseases of the circulatory system.

The intensity in administering medication was high during those visits in which patients were specifically diagnosed with asthma. Ninety-one percent of these visits were drug visits and in almost half (48 percent) of these visits, three or more medications were prescribed or provided. Three or more drugs were also administered during those visits where patients were diagnosed with ischemic heart disease (45 percent). The drug utilization rate for visits in which patients were diagnosed with asthma or ischemic heart disease were 2.5 and 2.3 medications per visit. A high percent of drug visits was also noted when patients were diagnosed with otitis media or acute upper respiratory infection (86 percent). For those visits, in which patients were diagnosed with otitis media, 60 percent were administered a single medication. Single medications were also administered in 52 percent of the visits in which patients were diagnosed as obese.

Medications were least likely administered during visits where the patient's diagnosis was normal pregnancy. Only a third of these visits were drug visits and most (25 percent) were administered a single medication.

References

1. Schappert SM. National Ambulatory Medical Care Survey: 1990 Summary. Advance data from vital and health statistics; no 213. Hyattsville, Maryland: National Center for Health Statistics. 1992.
2. Koch H, Knapp DA. Highlights of drug utilization in office practice, National Ambulatory Medical Care Survey, 1985. Advance data from vital and health statistics; no 134. Hyattsville, Maryland: National Center for Health Statistics. 1987.
3. Koch H. Drug utilization in office practice: 1980. Advancedata from vital and health statistics; no 81. Hyattsville, Maryland: National Center for Health Statistics. 1982.
4. Food and Drug Administration. National Drug Code Directory, 1985 Edition. Washington: Public Health Service. 1985.
5. Public Health Service and Health Care Financing Administration. International Classification of Diseases, 9th Revision, clinical modification. Washington: Public Health Service. 1980.

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

Table 4. Number and percent distribution of drug mentions by therapeutic catagories: United States, 1990

Therapeutic classifications[1]	Number of mentions in thousands	Percent distribution
All drugs	759,406	100.00
Anesthetic drugs	3,636	0.48
Local anesthetics	2,434	0.32
Antidotes	209	0.03
Antimicrobial agents	125,594	16.54
Penicillins	43,699	5.75
Cephalosporins	23,821	3.14
Erythromycins and lincosamides	22,357	2.94
Tetracyclines	10,311	1.36
Aminoglycosides	1,412	0.19
Sulfonamides and trimethoprim	9,395	1.24
Urinary tract antiseptics	6,485	0.85
Antifungal agents for systemic mycoses	2,239	0.29
Antiviral agents	2,311	0.30
Hematologic agents	9,914	1.31
Agents used to treat deficiency anemias	6,465	0.85
Anticoagulants or thrombolytics	3,356	0.44
Cardiovascular-renal drugs	111,125	14.63
Cardiac gylcosides	1,514	0.20
Antiarrhythmic agents	8,998	1.18
Antianginal agents	9,063	1.19
Agents used in peripheral or cerebral vascular disorders	18,921	2.49
Agents used to treat shock	4,784	0.63
Diuretics	39,383	5.19
Coronary vasodilators	27,829	3.66
Psychopharmacologic drugs	46,402	6.11
Antianxiety agents	5,465	0.72
Antipsychotic drugs	14,826	1.95
Antidepressants	5,620	0.74
CNS stimulants, anorexiants	17,364	2.29
Radiopharmaceuticals/contrast media	5,922	0.78
Diagnostics, nonradioactive, and radiopaque	5,922	0.78
Gastrointestinal agents	31,272	4.12
Agents used in disorders of upper GI tract	16,220	2.14
Antidiarrheal agents	2,919	0.38
Laxatives	3,378	0.44
Metabolic and nutrient agents	29,448	3.88
Agents used to treat hyperlipidemia	5,286	0.70
Vitamins, minerals	14,935	1.97
Replenishers and regulators of water and electrolytes	8,601	1.13
Hormones and agents affecting hormonal mechanisms	67,549	8.89
Adrenal corticosteroids	19,703	2.59
Estrogen and progestins	12,341	1.63
Blood glucose regulators	16,322	2.15
Agents used to treat thyroid disease	7,308	0.96
Contraceptive agents	9,619	1.27
Immunologic agents	19,337	2.55
Vaccines and antiserums	19,268	2.54
Skin/mucous membrane	43,777	5.76
Dermatologics	41,188	5.42
Neurologic drugs	14,140	1.86
Drugs used in extrapyramidal movement disorders	1,630	0.21
Drugs used to treat skeletal muscle hyperactivity	7,905	1.04
Anticonvulsants	4,474	0.59
Oncolytics	5,776	0.76
Antineoplastics	4,832	0.64
Ophthalmic Drugs	30,704	4.04
Agents used to treat glaucoma	10,267	1.35
Ocular anti-infective and anti-inflammatory agents	14,992	1.97
Otologic drugs	4,734	0.62
Topical otic preparations	1,640	0.22
Drugs used in vertigo, motion sickness, and vomiting	3,095	0.41
Drugs used for relief of pain	77,444	10.20
Drugs used to treat migraine and other headaches	36,693	4.83
Drugs used in gout	37,560	4.95
Drugs used in central pain syndromes	2,521	0.33
Antiparasitic agents	1,842	0.24
Respiratory tract drugs	87,491	11.52
Bronchodilators, antiasthmatics	24,587	3.24
Nasal decongestants	22,423	2.95
Antitussive, expectorants, mucolytics	18,750	2.47
Antihistamines	21,627	2.85
Unclassified/miscellaneous	43,089	5.67

[1]Therapeutic classifications are based on the standard drug classifications used in the National Drug Code Directory, 1985 Edition (4).

Table 5. Number and percent of office visits and drug mentions, percent of office visits during which one or multiple drugs were used by physician identity and specialty: United States, 1990

Physician identity and specialty	Office visits			Drug visits[1]			Drug mentions		Drug utilization rate
	Number in thousands	Percent distribution	Drug visits[1]	One drug used	Two drugs used	Three drugs or more used	Number in thousands	Percent distribution	
All physicians	704,604	100.00	60.26	32.74	15.73	11.78	759,406	100.00	1.08
Physician identity									
Doctor of medicine	665,317	94.42	59.78	32.60	15.56	11.61	710,092	93.51	1.07
Doctor of osteopathy	39,287	5.58	68.45	35.11	18.71	14.63	49,314	6.49	1.26
Specialty									
General and family practice	209,788	29.77	68.67	36.42	20.16	12.08	251,960	33.18	1.20
Internal medicine	96,622	13.71	74.48	33.70	19.82	20.97	149,370	19.67	1.55
Pediatrics	81,148	11.52	66.85	45.90	15.82	5.13	76,370	10.06	0.94
Obstetrics and gynecology	61,243	8.69	43.78	32.30	8.89	2.59	35,687	4.70	0.58
Ophthalmology	43,842	6.22	43.78	26.56	10.83	6.40	30,808	4.06	0.70
Orthopedic surgery	32,917	4.67	26.08	20.37	4.19	1.52	11,035	1.45	0.34
General surgery	22,402	3.18	31.07	18.38	5.40	7.30	12,597	1.66	0.56
Dermatology	24,009	3.41	63.99	29.48	17.96	16.55	29,572	3.89	1.23
Psychiatry	20,963	2.98	51.31	26.88	16.22	8.21	18,516	2.44	0.88
Otolaryngology	17,959	2.55	44.64	27.95	11.23	5.46	12,341	1.63	0.69
Urological surgery	9,546	1.35	40.37	30.23	7.70	2.44	5,145	0.68	0.54
Cardiovascular disease	11,240	1.60	78.53	19.47	17.45	41.60	25,153	3.31	2.24
Neurology	6,228	0.88	66.27	33.16	18.49	14.62	7,586	1.00	1.22
All other specialties	66,696	9.47	62.70	26.05	15.33	21.33	93,265	12.28	1.40

[1]Drug visits are percent distributions of all visits.

Table 6. Number and percent of office visits and drug mentions, percent of office visits during which one or multiple drugs were used by age and sex of patient: United States, 1990

Age and sex	Office visits			Drug visits[1]			Drug mentions		Drug utilization rate
	Number in thousands	Percent distribution	Drug visits[1]	One drug used	Two drugs used	Three drugs or more used	Number in thousands	Percent distribution	
All patients	704,604	100.00	60.26	32.74	15.73	11.78	759,406	100.00	1.08
Age									
Under 15 years	138,427	19.65	61.95	40.56	16.05	5.35	124,995	16.46	0.90
15–24 years	68,918	9.78	57.46	35.45	14.59	7.42	61,974	8.16	0.90
25–44 years	194,195	27.56	54.72	31.99	14.44	8.29	174,964	23.04	0.90
45–64 years	149,786	21.26	62.08	30.31	16.75	15.01	180,623	23.78	1.21
65–74 years	86,422	12.27	64.71	28.56	16.66	19.49	118,867	15.65	1.38
75 years and over	66,856	9.49	65.88	26.82	16.54	22.51	97,982	12.90	1.47
Sex									
Female	427,151	60.62	60.78	32.93	15.87	11.97	465,574	61.31	1.09
Male	277,452	39.38	59.46	32.46	15.52	11.48	293,831	38.69	1.06
Sex and age									
Female:									
Under 15 years	65,229	9.26	62.86	41.76	16.04	5.05	59,165	7.79	0.91
15–24 years	45,165	6.41	57.09	36.01	14.45	6.64	39,248	5.17	0.87
25–44 years	132,183	18.76	54.47	32.53	13.69	8.25	117,749	15.51	0.89
45–64 years	89,697	12.73	63.24	30.79	17.37	15.08	109,908	14.47	1.23
65–74 years	51,529	7.31	66.79	28.76	18.17	19.87	73,075	9.62	1.42
75 years and over	43,349	6.15	68.45	27.05	17.91	23.48	66,429	8.75	1.53
Male:									
Under 15 years	73,198	10.39	61.15	39.48	16.07	5.62	65,830	8.67	0.90
15–24 years	23,753	3.37	58.15	34.38	14.86	8.91	22,726	2.99	0.96
25–44 years	62,012	8.80	55.25	30.85	16.02	8.38	57,215	7.53	0.92
45–64 years	60,089	8.53	60.34	29.59	15.84	14.91	70,715	9.31	1.18
65–74 years	34,893	4.95	61.63	28.28	14.43	18.93	45,792	6.03	1.31
75 years and over	23,507	3.34	61.14	26.40	14.02	20.73	31,553	4.15	1.34

[1]Drug visits are percent distributions of all visits.

Table 7. Number and percent of office visits and drug mentions, percent of office visits during which one or multiple drugs were used by race and ethnicity of patient: United States, 1990

Race and ethnicity	Office visits			Drug visits[1]			Drug mentions		Drug utilization rate
	Number in thousands	Percent distribution	Drug visits[1]	One drug used	Two drugs used	Three drugs or more used	Number in thousands	Percent distribution	
All patients	704,604	100.00	60.26	32.74	15.73	11.78	759,406	100.00	1.08
Race									
White	597,306	84.77	59.88	32.86	15.47	11.56	637,424	83.94	1.07
Black	62,317	8.84	67.91	33.18	18.83	15.90	80,536	10.61	1.29
Other	23,694	3.36	60.46	32.89	16.55	11.03	24,715	3.25	1.04
Unspecified[1]	21,287	3.02	48.21	28.04	13.33	6.84	16,731	2.20	0.79
Ethnicity									
Hispanic	35,456	5.03	62.31	36.21	16.13	9.97	37,042	4.88	1.04
Non-Hispanic	619,747	87.96	60.71	32.69	15.79	12.23	679,551	89.48	1.10
Unspecified[2]	49,401	7.01	53.07	30.91	14.75	7.41	42,813	5.64	0.87

[1]Drug visits are percent distributions of all visits.
[2]Asian or Pacific Islander, and American Indian or Alaskan Native.

Table 8. Number and percent of office visits and drug mentions, percent of office visits during which one or multiple drugs were used by physician diagnoses and ICD–9–CM codes: United States, 1990

Physician diagnoses and ICD–9–CM code[1]	Office visits			Drug visits[2]			Drug mentions[3]		Drug utilization rate
	Number in thousands	Percent distribution	Drug visits[2]	One drug used	Two drugs used	Three drugs or more used	Number in thousands	Percent distribution	
All diagnoses	704,604	100.00	60.26	32.74	15.73	11.78	759,406	100.00	1.08
Infectious and parasitic diseases 001–139	27,075	3.84	66.83	46.32	14.32	6.19	26,208	3.45	0.97
Neoplasms 140–239	21,941	3.11	37.72	17.13	9.25	11.35	17,350	2.28	0.79
Endocrine, nutritional and metabolic diseases, and immunity disorders 240–289	29,456	4.18	70.28	32.92	17.61	19.74	43,509	5.73	1.48
Diseases of the endocrine glands 240–259	19,289	2.74	74.22	30.89	18.33	25.00	32,520	4.28	1.69
Obesity 278	3,840	0.55	60.87	51.98	5.77	3.13	2,926	0.39	0.76
Diseases of blood and blood-forming organs 280–289	3,552	0.50	73.96	40.87	20.56	12.52	4,591	0.60	1.29
Mental disorders 290–319	29,929	4.25	58.79	33.12	16.02	9.65	30,276	3.99	1.01
Nonpsychotic disorders 300–316	22,612	3.21	51.31	30.48	12.98	7.85	19,566	2.58	0.87
Diseases of nervous system and sense organs 320–389	80,128	11.37	61.68	38.03	15.84	7.81	77,481	10.20	0.97
Diseases of the central nervous system 320–349	4,799	0.68	77.43	35.18	23.68	18.56	7,292	0.96	1.52
Eye disorders 360–379	38,603	5.48	48.28	29.04	11.77	7.47	30,388	4.00	0.79
Otitis media 382	21,043	2.99	86.48	59.92	20.82	5.74	25,185	3.32	1.20
Diseases of circulatory system 390–459	55,989	7.95	79.21	29.96	19.71	29.54	103,561	13.64	1.85
Essential hypertension 401	27,310	3.88	83.96	36.46	23.36	24.14	47,309	6.23	1.73
Ischemic heart disease 410–414	9,210	1.31	80.11	16.94	18.17	45.00	21,525	2.83	2.34
Diseases of respiratory system 460–519	100,294	14.23	86.35	40.01	26.58	19.77	165,963	21.85	1.65
Acute upper respiratory infection 465	18,676	2.65	85.80	43.45	31.31	11.04	27,143	3.57	1.45
Asthma 493	7,137	1.01	91.41	20.42	22.20	48.79	18,077	2.38	2.53
Diseases of digestive system 520–579	26,154	3.71	61.49	33.40	17.14	10.95	28,576	3.76	1.09
Diseases of genitourinary system 580–629	41,067	5.83	56.34	37.39	13.05	5.90	34,490	4.54	0.84
Male genitourinary system 600–608	4,479	0.64	50.38	33.68	11.06	5.64	3,370	0.44	0.75
Female genitourinary system 614–629	20,377	2.89	57.48	37.66	14.87	4.94	16,992	2.24	0.83
Diseases of skin and subcutaneous tissue 680–709	36,836	5.23	69.73	35.90	20.32	13.56	45,596	6.00	1.24
Disease of musculoskeletal system 710–739	47,101	6.68	64.68	36.53	15.48	12.68	53,395	7.03	1.13
Arthopathies 710–716	12,784	1.81	78.53	37.87	18.49	22.17	19,883	2.62	1.56
Symptoms, signs, and ill-defined conditions 780–799	27,221	3.86	52.86	29.59	13.54	9.74	25,469	3.35	0.94
Injury and poisoning 800–999	51,134	7.26	43.38	28.65	9.54	5.20	33,656	4.43	0.66
Normal pregnancy V022	23,561	3.34	32.86	24.73	6.87	1.26	9,973	1.31	0.42
Health supervision of infant or child V020	15,676	2.22	48.22	25.04	16.95	6.22	12,382	1.63	0.79
Other or undetermined[4]	87,454	12.41	33.91	21.72	7.33	4.84	46,928	6.18	0.54

[1]Based on the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (5).
[2]Drug visits are percent distributions of all visits.
[3]Includes all drug mentions whether or not associated with a principal diagnosis.
[4]Includes complications of pregnancy, childbirth and the puerperium (630–676); congenital anomalies (740–759); certain conditions originating in the perinatal period (760–767); supplementary classifications (V001–V082, excluding V020 and V022); and blanks, noncodable, and illegible diagnoses.

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 January 1990–December 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, or physicians who are principally engaged in teaching, research, or administration. Telephone contacts, nonoffice visits, and visits made to hospital emergency or outpatient departments are also excluded.

A multistage probability sample design is used in NAMCS, involving primary sampling units (PSU's), physician practices within PSU's, and patient visits within physician practices. The PSU's are counties, groups of counties, county equivalents (such as parishes or independent cities), or towns and townships (for some PSU's in New England). For 1990 a sample of 3,063 non-Federal, office-based physicians were selected from master files maintained by the American Medical Association and the American Osteopathic Association. The physician response rate for the 1990 NAMCS was 74 percent. Sample physicians were asked to complete Patient Records (figure 1) for a systematic random sample of office visits occurring during a randomly assigned 1-week reporting period. Responding physicians completed 43,469 patient records and were asked to report up to 5 drugs utilized.

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.

Table I. Relative standard errors for estimated number of drug mentions: National Ambulatory Medical Care Survey, 1990

Estimated number of drug mentions in thousands	All	Specialty group			
		A	B	C	D
	Relative standard error in percent				
100	82.6	72.8	35.5	79.2	37.1
171	63.2	56.0	32.4	61.9	30.0
200	58.5	51.9	31.7	57.7	28.4
300	47.9	42.7	30.4	48.5	24.8
338	45.1	40.3	30.0	46.1	23.9
400	41.5	37.3	29.7	43.1	22.7
500	37.2	33.6	29.2	39.6	21.4
600	34.0	30.9	28.9	37.0	20.5
638	33.0	30.0	28.8	36.2	20.3
700	31.6	28.8	28.7	35.1	19.9
775	30.0	27.5	28.6	33.9	19.5
800	29.6	27.2	28.6	33.5	19.3
900	27.9	25.8	28.4	32.3	18.9
1,000	26.6	24.6	28.3	31.3	18.6
1,144	24.9	23.3	28.2	30.0	18.2
2,000	19.1	18.6	27.9	26.1	17.0
5,000	12.7	13.8	27.6	22.5	15.9
10,000	9.7	11.7	27.5	21.2	15.6

A. General and family practice, internal medicine.
B. General surgery, neurology.
C. "All other" specialties.
D. Pediatrics, obstetrics and gynecology, orthopedic surgery, cardiovascular disease, dermatology, urology, psychiatry, ophthalmology, otorhinolaryngology, and doctors of osteopathy.

Example of use of table: An aggregate estimate of 2 million drug mentions by a cardiovascular disease specialist has a relative standard estimate of 17.0 percent or a standard error of 340,000 drug mentions (17.0 percent of 2 million).

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. Relative standard errors of the estimated number of drug mentions are shown in table I and relative standard errors of the estimated numbers of office visits are shown in table II.

Alternatively, relative standard errors for aggregate drug mentions and visits may be calculated using the following general formula, where x is the aggregate of interest in thousands, and A and B are the appropriate coefficient from table V.

$$\mathrm{RSE}(x) = \sqrt{A + \frac{B}{X}} \cdot 100.0$$

Standard errors for estimated percent of drug mentions are shown in table III and for estimates of the percent of visits in table IV.

Similarly, relative standard errors for percent may be calculated using the following general formula, where p is the percent of interest and x is the denominator of the percent in thousands, using the appropriate coefficient from table V.

$$\mathrm{RSE}(p) = \sqrt{\frac{B \cdot (1-p)}{p \cdot x}} \cdot 100.0$$

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

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 utilization rate—The average number of medications per visit.

Control status—Controlled medications, because of their significant potential for dependence or abuse and their possible diversion

Table II. Relative standard errors for estimated number of office visits: National Ambulatory Medical Care Survey, 1990

Estimated number of office visits in thousands	All	Specialty group			
		A	B	C	D
	Relative standard error in percent				
100	68.1	56.2	41.9	59.6	31.2
110	64.9	53.6	40.2	57.0	30.0
200	48.2	40.1	31.7	43.2	23.9
231	44.9	37.5	30.0	40.5	22.7
300	39.4	33.1	27.4	36.1	20.9
370	35.5	30.0	25.6	33.1	19.6
400	34.2	29.0	25.0	32.0	19.2
468	31.6	27.0	23.9	30.0	18.4
500	30.6	26.2	23.5	29.3	18.1
520	30.0	25.7	23.2	28.8	18.0
700	26.0	22.5	21.6	25.8	16.8
1,000	21.8	19.4	20.0	22.8	15.8
2,000	15.6	14.9	18.0	18.7	14.4
5,000	10.3	11.3	16.7	15.8	13.6
100,000	4.3	8.4	15.9	13.6	13.0

A. General and family practice and internal medicine.
B. Orthopedic surgery.
C. "All other" specialties.
D. Pediatrics, general surgery, obstetrics and gynecology, cardiovascular disease, dermatology, urology, psychiatry, neurology, ophthalmology, otorhinolaryngology, and doctors of osteopathy.

Example of use of table: An aggregate estimate of 2 million visits to a cardiovascular disease specialist has a relative standard estimate of 14.4 percent or a standard error of 288,000 visits (14.4 percent of 2 million).

Table III. Standard errors for percents of estimated numbers of drug mentions: National Ambulatory Medical Care Survey, 1990

Base of percent drug mentions in thousands	Estimated percent					
	1 or 99	5 or 95	10 or 90	20 or 80	30 or 70	50
	Standard errors in percentage points					
200	5.8	12.7	17.5	23.3	26.7	29.1
500	3.7	8.0	11.1	14.7	16.9	18.4
1,000	2.6	5.7	7.8	10.4	11.9	13.0
2,000	1.8	4.0	5.5	7.4	8.4	9.2
5,000	1.2	2.5	3.5	4.7	5.3	5.8
10,000	0.8	1.8	2.5	3.3	3.8	4.1
13,000	0.7	1.6	2.2	2.9	3.3	3.6
20,000	0.6	1.3	1.7	2.3	2.7	2.9
50,000	0.4	0.8	1.1	1.5	1.7	1.8
100,000	0.3	0.6	0.8	1.0	1.2	1.3
600,000	0.1	0.2	0.3	0.4	0.5	0.5

Example of use of table: An estimate of 30 percent based on an aggregate of 13 million drug mentions has a standard error of 3.3 pecent or a relative standard error of 11.0 percent (3.3 percent divided by 30 percent).

Table IV. Standard errors for percents of estimated numbers of office visits: National Ambulatory Medical Care Survey, 1990

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 errors in percentage points					
200	4.8	10.5	14.4	19.2	22.0	24.0
500	3.0	6.6	9.1	12.2	13.9	15.2
1,000	2.1	4.7	6.4	8.6	9.8	10.7
2,000	1.5	3.3	4.6	6.1	7.0	7.6
5,000	1.0	2.1	2.9	3.8	4.4	4.8
10,000	0.7	1.5	2.0	2.7	3.1	3.4
13,000	0.6	1.3	1.8	2.4	2.7	3.0
20,000	0.5	1.0	1.4	1.9	2.2	2.4
50,000	0.3	0.7	0.9	1.2	1.4	1.5
100,000	0.2	0.5	0.6	0.9	1.0	1.1
600,000	0.1	0.2	0.3	0.4	0.4	0.4

Example of use of table: An estimate of 30 pecent based on an aggregate of 13 million visits has a standard error of 2.7 percent or a relative standard error or 9.0 percent (2.7 percent divided by 30 percent).

Table V. Coefficients appropriate for determining relative standard errors by type of estimate and physician groups: National Ambulatory Medical Care Survey, 1990

Type of estimate and physician group	Coefficient	
	A	B
Drug mentions		
Overall totals	0.00259409	67.9417652
General and family practice, internal medicine	0.00856244	52.1278030
General surgery, neurology	0.07521297	5.08446943
"All other" specialties group	0.03885901	58.8324479
Doctors of osteopathy, pediatrics, obstetrics and gynecology, orthopedic surgery, cardiovascular disease, psychiatry, ophthalmology, and otorhinolaryngology	0.02306475	11.4657235
Visits		
Overall totals	0.00138387	46.1954141
General and family practice and internal medicine	0.00669347	30.8610803
Orthopedic surgery	0.02504087	15.0649723
"All other" specialties group	0.01820068	33.7058023
Doctors of osteopathy, pediatrics, general surgery, obstetrics and gynecology, cardiovascular disease, dermatology, urology, psychiatry, neurology, ophthalmology, and otorhinolaryngology	0.01684812	8.03232318

into illicit channels, are regulated under Federal law by the Department of Justice, Drug Enforcement Agency (DEA). The Controlled Substance Act of 1970 characterizes each controlled drug into one of five schedules. Schedule I drugs, like heroin and LSD, have a higher potential for abuse and no current accepted medical usefulness for treatment in the United States. Schedule I drugs are outside the scope of this report. Each successive schedule, II–V, reflects a decreasing degree of dependence and potential for abuse.

Trade name disclaimer

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

Suggested citation

Nelson CR. Drug utilization in office practice, National Ambulatory Medical Care Survey, 1990. Advance data from vital and health statistics; no 232. Hyattsville, Maryland: National Center for Health Statistics. 1983.

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

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

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

DHHS Publication No. (PHS) 93-1250

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

Number 234 • May 13, 1993

Advance Data

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

Office Visits to Urologists: United States, 1989–90

by David A. Woodwell, Division of Health Care Statistics

During 1989 and 1990 an average of 9,852,000 office visits were made annually to urologists in the United States. The information was collected by means of the National Ambulatory Medical Care Survey (NAMCS), an ongoing probability sample survey of the private office-based, non-Federal physicians practicing in the United States. The NAMCS excludes visits made to hospital emergency or outpatient departments. The survey also excludes physicians who specialize in anesthesiology, pathology, or radiology and those physicians principally engaged in teaching, research, or administration. The survey was conducted annually from 1973 through 1981, again in 1985, and resumed as an annual survey in 1989 by the Division of Health Care Statistics, National Center for Health Statistics, Centers for Disease Control and Prevention. Participation in the survey is voluntary.

The results published in this report are from the 1989 and 1990 NAMCS, which were conducted in identical fashion using the same survey instrument, definitions, and procedures. The two data sets were combined to obtain more reliable estimates. The estimates, including the number of visits, drug mentions, and visit rates, are annual averages, not two-year totals. The national estimates are calculated from a sample, not the entire universe of visits to urologists, and are therefore subject to sampling variability. The technical notes at the end of the report provide guidelines for judging the precision of the estimates. Definitions of key terms used in the survey are also provided. The Patient Record form used in data collection is shown in figure 1 and will be useful when reading the survey results.

Of the visits made to urologists, about 87 percent were to physicians who reported they were board certified in urology, almost 11 percent were to physicians who reported no board certification, and approximately 1 percent were to physicians who reported they were board certified in surgery.

Data highlights

The average annual 9.9 million visits to urologists represented 1.4 percent of all visits to office-based ambulatory care physicians in the United States during 1989–90, which is 4 visits per 100 persons and places urology as the 12th specialty of the 13 most frequently visited (table 1). In the 1975 and 1976 NAMCS, urologists had an annual average of 10,364,000 visits or 1.8 percent of all visits to office-based ambulatory care physicians and a visit rate of 5 visits per 100 persons (1). These numbers are not statistically significantly different from the current data.

Patient characteristics

As shown in table 2 most visits to the urologist are made by patients 25 years of age and over (about 91 percent). The percent of visits increases significantly by age, from nearly 4 percent for patients 15–24 years of age, to around 22 percent for patients 25–44 years of age. Since 1975–76, the percent distribution of visits by age group has remained statistically unchanged for all except patients 65 years of age and over. This age group accounted for about 28 percent of the visits to urologists in 1975–76 and about 44 percent in 1989–90. The visit rate increased from 1 visit per 100 persons for patients under 15 years of age to 17 visits per 100 persons for patients 75 years of age and over. Specifically, the visit rate more than doubled for patients 65–74 years old compared with

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

CENTERS FOR DISEASE CONTROL AND PREVENTION

Assurance of Confidentiality—All information which would permit identification of an individual, a practice, or an establishment will be held confidential, will be used only by persons engaged in and for the 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

A

1. DATE OF VISIT Month / Day / Year

PATIENT RECORD
NATIONAL AMBULATORY MEDICAL CARE SURVEY

OMB No. 0920-0234
Expires 8-31-89
(PHS) 6105A

2. ZIP CODE

3. DATE OF BIRTH Month / Day / Year

4. SEX
1 ☐ FEMALE
2 ☐ MALE

5. COLOR OR RACE
1 ☐ WHITE
2 ☐ BLACK
3 ☐ ASIAN/PACIFIC ISLANDER
4 ☐ AMERICAN INDIAN/ ESKIMO/ALEUT

6. ETHNICITY
1 ☐ HISPANIC ORIGIN
2 ☐ NOT HISPANIC

7. EXPECTED SOURCE(S) OF PAYMENT *[Check all that apply]*
1 ☐ SELF-PAY
2 ☐ MEDICARE
3 ☐ MEDICAID
4 ☐ BLUE CROSS/ BLUE SHIELD
5 ☐ OTHER COMMERCIAL INSURANCE
6 ☐ PRE-PAID PLAN HMO/IPA/PPO
7 ☐ NO CHARGE
8 ☐ OTHER *[Specify]*

8. WAS PATIENT REFERRED FOR THIS VISIT BY ANOTHER PHYSICIAN?
1 ☐ YES 2 ☐ NO

9. PATIENT'S COMPLAINT(S), SYMPTOM(S), OR OTHER REASON(S) FOR THIS VISIT *[In patient's own words]*
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 ☐ YES 2 ☐ NO
IF YES, FOR THE CONDITION IN ITEM 10a?
1 ☐ YES 2 ☐ NO

12. DIAGNOSTIC/SCREENING SERVICES THIS VISIT *[Check all ordered or provided]*
1 ☐ NONE
2 ☐ PAP TEST
3 ☐ PELVIC EXAM
4 ☐ BREAST PALPATION
5 ☐ MAMMOGRAM
6 ☐ VISUAL ACUITY
7 ☐ BLOOD PRESSURE CHECK
8 ☐ URINALYSIS
9 ☐ CHEST X-RAY
10 ☐ DIGITAL RECTAL EXAM
11 ☐ PROCT/SIGMOIDOSCOPY
12 ☐ STOOL BLOOD EXAM
13 ☐ ORAL GLUCOSE TOL.
14 ☐ CHOLESTEROL MEASURE
15 ☐ HIV SEROLOGY
16 ☐ OTHER BLOOD TEST
17 ☐ OTHER *[Specify]*

13. COUNSELING/ADVICE *[Check all ordered or provided]*
1 ☐ NONE
2 ☐ WEIGHT REDUCTION
3 ☐ CHOLESTEROL REDUCTION
4 ☐ SMOKING CESSATION
5 ☐ HIV TRANSMISSION
6 ☐ BREAST SELF-EXAM
7 ☐ OTHER

14. NON-MEDICATION THERAPY *[Check all ordered or provided]*
1 ☐ NONE
2 ☐ PSYCHOTHERAPY
3 ☐ CORRECTIVE LENSES
4 ☐ AMBULATORY SURGERY
5 ☐ PHYSIOTHERAPY
6 ☐ OTHER *[Specify]*

15. MEDICATION THERAPY *[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.]*

IF NONE, CHECK HERE ☐

	a. NEW MEDICATION? YES	a. NEW MEDICATION? NO	b. FOR DX IN ITEM 10a? YES	b. FOR DX IN ITEM 10a? NO
1.	1 ☐	2 ☐	1 ☐	2 ☐
2.	1 ☐	2 ☐	1 ☐	2 ☐
3.	1 ☐	2 ☐	1 ☐	2 ☐
4.	1 ☐	2 ☐	1 ☐	2 ☐
5.	1 ☐	2 ☐	1 ☐	2 ☐

16. DISPOSITION THIS VISIT *[Check all that apply]*
1 ☐ NO FOLLOW-UP PLANNED
2 ☐ RETURN AT SPECIFIED TIME
3 ☐ RETURN IF NEEDED, P.R.N.
4 ☐ TELEPHONE FOLLOW-UP PLANNED
5 ☐ REFERRED TO OTHER PHYSICIAN
6 ☐ RETURNED TO REFERRING PHYSICIAN
7 ☐ ADMIT TO HOSPITAL
8 ☐ OTHER *[Specify]* _____

17. DURATION OF THIS VISIT *[Time actually spent with physician]*
_____ Minutes

* U.S. GOVERNMENT PRINTING OFFICE:1989-228-197

Figure 1. Patient Record form

patients 45–64 years old, from 6 to 13 visits per 100 persons.

Males made the majority of visits to urologists (72 percent) while females made the majority of visits to all physicians (about 60 percent). Males 25 years of age and over made almost 66 percent of the visits to urologists, and those 25–44 years of age accounted for 5 times more visits than the 15–24 year olds. The visit rate for males rose from 1 visit per 100 persons for patients under 15 years of age to 33 visits per 100 persons for patients 75 years of age and over. The most significant increase in the visit rate was for male patients 65–74 years of age with 23 visits per 100 persons compared with 8 visits per 100 persons for patients 45–64 years old. Males also showed a significant increase in the visit rate between the 65–74 and 75 years and over age groups, from 23 to 33 visits per 100 persons (table 2).

The percent distribution of visits for females was similar in that a significant increase occurred for female patients 25–44 years old. As compared with 1975–76, the percent of visits by males to urologists has increased by about 21 percent while the percent of visits by females has decreased by about 30 percent. The visit rate for males was 3 times the rate for females, 6 and 2 visits per 100 persons, respectively. Visit rates for males were significantly higher

Table 1. Average annual number, percent distribution, and rate of office visits, by physician specialty: United States, 1989–90

Physician specialty	Average annual number of visits in thousands	Percent distribution	Average annual number of visits per 100 persons
All visits	698,653	100.0	285
General and family practice	208,045	29.8	85
Internal medicine	87,719	12.6	36
Pediatrics	84,280	12.1	34
Obstetrics and gynecology	59,812	8.6	24
Opthalmology	41,302	5.9	17
Orthopedic surgery	34,033	4.9	14
Dermatology	25,164	3.6	10
General surgery	23,891	3.4	10
Psychiatry	18,790	2.7	8
Otolaryngology	16,957	2.4	7
Cardiovascular disease	11,040	1.6	5
Urological surgery	9,852	1.4	4
Neurology	6,167	0.9	3
All other specialties	71,603	10.2	29

Table 2. Average annual number and percent distribution and average annual rate of office visits to urologists, by sex and age: United States, 1989–90

Sex and age	Average annual number of visits in thousands	Percent distribution	Average annual number of visits per 100 persons
Total visits	9,852	100.0	4
Under 15 years	492	5.0	1
15–24 years	370	3.8	1
25–44 years	2,120	21.5	3
45–64 years	2,575	26.1	6
65–74 years	2,377	24.1	13
75 years and over	1,917	19.5	17
Male	7,098	72.0	6
Under 15 years	369	3.7	1
15–24 years	268	2.7	2
25–44 years	1,446	14.7	4
45–64 years	1,818	18.5	8
65–74 years	1,805	18.3	23
75 years and over	1,392	14.1	33
Female	2,754	28.0	2
Under 15 years	123	1.3	0
15–24 years	102	1.0	1
25–44 years	674	6.8	2
45–64 years	757	7.7	3
65–74 years	573	5.8	6
75 years and over	526	5.3	7

than visit rates for females for the three oldest age groups (table 2).

Visits to urologists by the patient's race are shown in table 3. About 9 of every 10 patients were white persons, which is similar to that for all physicians. When visit rates are compared, there are no statistical differences between the visit rates for white, black, or "other" race groups. Males accounted for more visits to urologists than females did for all race groups.

The expected sources of payment for visits to the urologist are shown in figure 2. Blue Cross/Blue Shield or another commercial insurance was an expected source of payment in about 49 percent of the visits, which is about 40 percent higher than for all physicians. In about 46 percent of the visits to urologists, government insurance (Medicare and Medicaid) was the expected source of payment for all or part of the visit, which is almost 70 percent higher than for all physicians. Self payment was an expected source of payment in approximately 16 percent of the visits or about half as many compared with all physicians. HMO's (health maintenance organizations), IPA's (individual practice associations), and other prepaid plans were the expected source of payment in about 7.2 percent of the visits to urologists as compared with 14.8 percent for all physicians.

As shown in table 4, about 14 percent of visits made to the urologist were referred by another physician, which is considerably higher than 5.5 percent for all physicians. Most visits to the urologist were "old patients" (patients who had previously visited the physician) with an "old problem" (a condition previously treated by the physician), which represented almost three-quarters of the visits. Old patients with new problems represented about 5 percent of the visits and new patients to the urologists represented about one-fifth of the visits. Compared with all physicians, urologists saw a higher percent of old patients with old problems and a smaller percent of new patients. No statistical difference was found in comparison with data from the 1975–76 NAMCS.

Patient's reason for visit

The principal reasons for visit are presented in tables 5 and 6. The principal reason for visit is the patient's problem, complaint, or symptom listed first on item 9 of the Patient Record that necessitated the office visit. These data have been classified and coded according to the *Reason for Visit Classification for Ambulatory Care* (RVC) (2).

The RVC is classified into eight modules as shown in table 5. Almost 60 percent of the principal reasons for visit to the urologist were for symptoms, with over half of these

Table 3. Average annual number, percent distribution, and rate of visits to urologists, by race and sex: United States, 1989–90

Race and sex	Average annual number of visits in thousands	Percent distribution	Average annual number of visits per 100 persons
Total visits	9,852	100.0	4
Black	747	7.6	2
Male	574	5.8	4
Female	173	1.8	1
White	8,785	89.2	4
Male	6,281	63.8	6
Female	2,503	25.4	3
Other[1]	134	1.4	2
Male	102	1.0	2
Female	32	0.3	.1
Unspecified	186	1.9	...

[1]Includes Asian and Pacific Islander and American Indian, Eskimo, and Aleut.

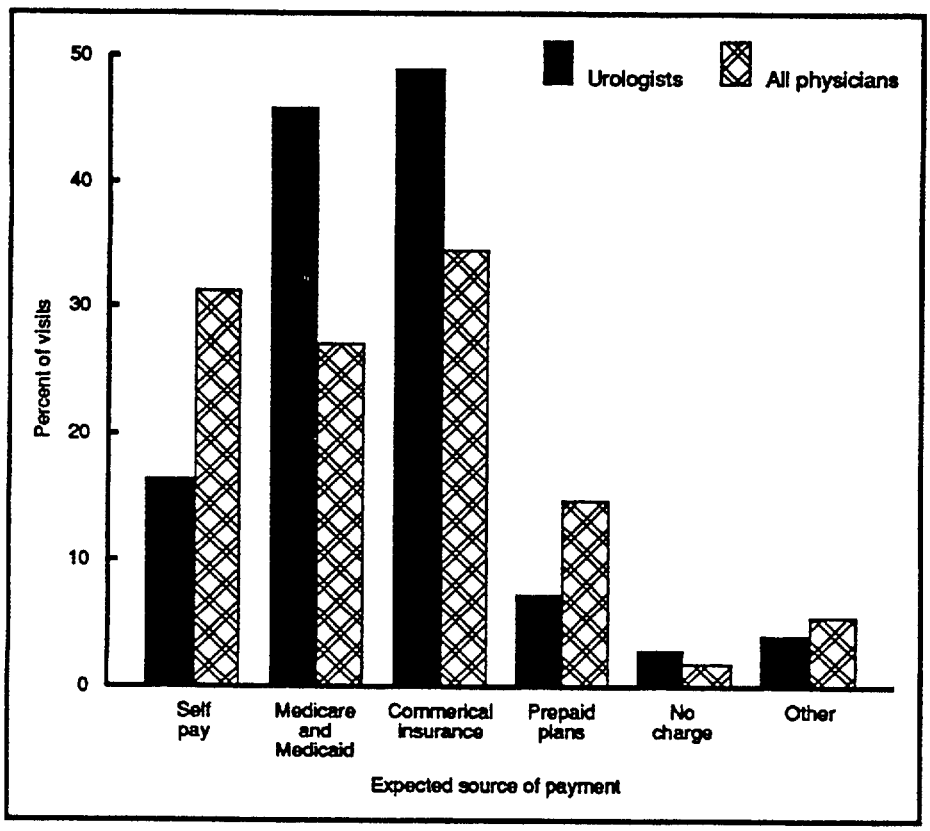


Figure 2. Expected source of payment to urologist: United States, 1989–90

visits being symptoms referable to the genitourinary system. Other principal reasons for visit were for treatments (about 17 percent) and for diseases (almost 14 percent). The principal reasons for visit to all physicians fell mostly into the symptom module (approximately 57 percent); the diagnostic, screening, and preventive module (about 16 percent); and the treatment module (about 10 percent). Differences between urologists and all physicians in these modules were statistically significant.

The top 20 principal reasons for visit to the urologist, which accounted for about three-fifths of all visits, are listed in table 6. Other urinary dysfunctions (7.8 percent) is the first listed principal reason for visit and includes problems of retention, hesitancy, or volume of urine. This reason for visit has increased significantly since 1975–76 when it represented 3.4 percent of the visits to urologists and was the 8th listed reason for visit (1). This change may be associated with the significant increase in the percent of visits for the principal diagnosis, hyperplasia of prostate (ICD–9–CM code 600), discussed later in this report, and the increase in the percent of visits made by patients 65 years of age and over. Frequency and urgency of urination, abnormalities of urine, painful urination, and incontinence account for five of the first ten reasons for visit. Painful urination decreased significantly from 10.7 percent in 1975–76 to 4.5 percent in 1989–90, a decrease of 58 percent (1) and may be associated with the significant decrease in the percent of visits for the principal diagnosis, inflammatory diseases of the prostate (ICD–9–CM code 601). Most of the other principal reasons for visit have remained statistically similar since 1975–76.

Physician's diagnosis

Data on the principal diagnosis rendered by the urologist are shown in tables 7 and 8. The principal diagnosis is recorded on item 10a of the Patient Record and corresponds to the principal reason for visit (item 9a). The diagnoses are coded and classified according to the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (3).

As shown in table 7, the ICD–9–CM is organized into broad categories relating to the major systems of the body. As expected, diseases of the genitourinary system represented over half of the

Table 4. Average annual number and percent distribution of office visits to urologists, by patients' referral status and visit status: United States, 1989–90

Referral and visit status	Average annual number of visits in thousands	Percent distribution
All visits	9,852	100.0
Patient referred		
Yes	1,412	14.3
No	8,440	85.7
Visit status		
New patient	2,027	20.6
Old patient, new problem	476	4.8
Old patient, old problem	7,349	74.6

Table 5. Average annual number and percent distribution of office visits to urologists, by principal reason for visit module: United States, 1989–90

Principal reason for visit module and RVC code[1]		Average annual number of visits in thousands	Percent distribution
All principal reasons for visit		9,852	100.0
Symptom module	.S100–S999	5,903	59.9
Symptoms referable to the genitourinary system	.S640–S829	4,560	46.3
Disease module	.D001–D999	1,360	13.8
Diagnostic, screening, and preventive module	.X100–X599	528	5.4
Treatment module	.T100–T899	1,704	17.3
All other modules[2]		357	3.6

[1]Based on *A Reason for Visit Classification for Ambulatory Care* (RVC) (2).
[2]Includes Injury and adverse effects module; test results module; administrative module; uncodable and blank entries.

Table 6. Average annual number, percent distribution, and cumulative percent of office visits to urologists, by the 20 most common principal reasons for visit: United States, 1989–90

Rank	Principal reason for visit and RVC code[1]		Average annual number of visits in thousands	Percent distribution	Cumulative percent
	All reasons for visit		9,852	100.0	---
1	Other urinary dysfunctions	.S660	771	7.8	7.8
2	Frequency and urgency of urination	.S645	656	6.7	14.5
3	Abnormalities of urine	.S640	485	4.9	19.4
4	Psychosexual disorders	.S160	444	4.5	23.9
5	Painful urination	.S650	441	4.5	28.4
6	Incontinence of urine (enuresis)	.S655	395	4.0	32.4
7	Symptoms of prostate	.S710	386	3.9	36.3
8	Cancer, urinary and male genital tract	.D125	383	3.9	40.2
9	Urinary tract disease (except cystitis)	.D705	348	3.5	43.7
10	Symptoms of scrotum and testes	.S715	348	3.5	47.2
11	Diseases of the male genital organs	.D710	334	3.4	50.6
12	Symptoms of the bladder	.S665	271	2.8	53.4
13	Urinary tract infection	.S675	268	2.7	56.1
14	Pain	.S055	208	2.1	58.2
15	Generial medical exam	.X100	182	1.9	60.1
16	Symptoms of penis	.S700	154	1.6	61.7
17	Family planning	.X500	124	1.3	63.0
18	Sterilization to be performed (at this visit)	.X525	118	1.2	64.2
19	Back symptoms	.S905	115	1.2	65.4
20	Other symptoms referable to urinary tract	.S680	114	1.2	66.6

[1]Based on *A Reason for Visit Classification for Ambulatory Care* (RVC) (2).

diagnoses. Neoplasms, the second most frequent diagnosis category, represented about 12 percent of the visits. Together, these two categories accounted for approximately 71 percent of all the visits to urologists. The percent of visits to urologists that included diagnoses of neoplasms have significantly increased from 1975–76 to 1989–90 (from about 6 percent to almost 12 percent).

The top 20 diagnoses made by urologists in 1989–90, which represent almost 78 percent of all visits, are listed in table 8. Hyperplasia of prostate, the first-listed principal diagnosis, accounted for about 13 percent of the visits in 1989–90, a significant increase from 1975–76 when it represented almost 6 percent of the visits and was the fifth-listed principal diagnosis. Inflammatory diseases of prostate, the fourth-listed principal diagnosis, decreased significantly, from 9.3 percent of the visits in 1975–76 to 5.4 percent in 1989–90. Cystitis, which accounted for about 4 percent of the visits in 1989–90, decreased by approximately 60 percent since 1975–76. In the 1975–76 survey, cystitis was the most common diagnosis, with almost 11 percent of the visits (1). The other top 20 diagnoses in 1989–90 have remained similar since 1975–76.

Diagnostic and screening services

Urologists ordered or provided a urinalysis in about 72 percent of all visits, almost 6 times more than all physicians. In addition, a digital rectal exam was also ordered or provided 6 times more often by urologists (about 20 percent) than all other physicians (approximately 4 percent). Urologists performed or ordered fewer pelvic exams, blood pressure tests, and other blood tests than all other physicians. Approximately one-third of the visits included a diagnostic test that was not specified on the Patient Record (table 9).

Table 7. Average annual number and percent distribution of office visits to urologists, by principal diagnoses rendered by the physician: United States, 1989–90

Principal diagnoses and ICD–9–CM codes[1]	Average annual number of visits in thousands	Percent distribution
All principal diagnoses	9,852	100.0
Infectious and parasitic diseases .001–139	213	2.2
Neoplasms .140–239	1,169	11.9
Endocrine, nutritional, and metabolic diseases and immunity disorders .240–279	92	0.9
Mental disorders .290–319	330	3.4
Diseases of the nervous system and sense organs .320–389	158	1.6
Diseases of the genitourinary system .580–629	5,797	58.8
Symptoms, signs and ill-defined conditions .780–799	593	6.0
Supplementary classifications .V001–V082	850	8.6
All other diagnoses[2]	508	5.2
Unknown diagnoses[3]	141	1.4

[1]Based on *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (3).
[2]Includes: diseases of the blood forming organs (280–289); diseases of the circulatory system (390–459); diseases of the respiratory system (460–519); diseases of the digestive system (520–579); complications of pregnancy, childbirth, and the puerperium (630–676); diseases of the skin and subcutaneous tissue (680–709); diseases of the musculoskeletal and connective tissue (710–739); congenital anomalies (740–759); certain conditions originating in the perinatal period (760–779); and injury and poisoning (800–999).
[3]Includes blank diagnoses, uncodable diagnoses, and illegible diagnoses.

Table 8. Average annual number, percent distribution, and cumulative percent of office visits to urologists, by principal diagnoses most frequently rendered by the physician: United States, 1989–90

Rank	Most common principal diagnoses and ICD–9–CM code[1]	Average annual number of visits in thousands	Percent distribution	Cumulative precent
	All principal diagnoses	9,852	100.0	---
1	Hyperplasia of prostate .600	1,257	12.8	12.8
2	Other disorders of urethra and urinary tract .599	994	10.1	22.9
3	Malignant neoplasm of prostate .185	695	7.1	30.0
4	Inflammatory diseases of prostate .601	536	5.4	35.4
5	Urethral stricture .598	535	5.4	40.8
6	Calculus of kidney and ureter .592	497	5.0	45.8
7	Symptoms involving urinary system .788	469	4.8	50.6
8	Cystitis .595	423	4.3	54.9
9	Sexual Deviations and disorders .302	325	3.3	58.2
10	Malignant neoplasm of bladder .188	233	2.4	60.6
11	Other postsurgical states .V045	217	2.2	62.8
12	Contraceptive management .V025	212	2.2	65.0
13	Urethritis, not sexually transmitted, and urethral syndrome .597	198	2.0	67.0
14	Orchitis and epididymitis .604	195	2.0	69.0
15	Disorders of penis .607	187	1.9	70.9
16	Other disorders of bladder .596	166	1.7	72.6
17	Other disorders of male genital organs .608	148	1.5	74.1
18	Other paralytic syndromes .344	148	1.5	75.6
19	Neoplasms of unspecified nature .239	120	1.2	76.8
20	Redundant prepuce and phimosis .605	103	1.0	77.8

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

Medication therapy

As shown in table 10, only about 40 percent of the visits made to urologists in 1989–90 were drug visits. A drug visit is one in which one or more medication(s) were prescribed or administered by the physician. In contrast, the majority of visits made to all physicians were drug visits (60 percent). Of the drug visits to urologists, about three-quarters were visits in which one drug was prescribed or administered. Of all the drugs prescribed or administered by ambulatory care physicians, the drugs prescribed or administered by urologists accounted for roughly 1 percent.

As shown in table 11, the estimated 5.5 million drug mentions by urologists are classified into therapeutic categories as defined by the *National Drug Code Directory* (4). The majority of drug mentions were antimicrobial agents (almost 52 percent), specifically sulfonamides and trimethoprim (about 13 percent), and urinary tract antiseptics (about 24 percent). No comparison is possible with the 1975–76 data because these data were not collected until 1980. The top 20 generic ingredients in order of frequency are listed in table 12. Trimethoprim, the first-listed generic ingredient, represented nearly 14 percent of the estimated 5.5 million drug mentions in 1989–90. Sulfamethoxazole and Ciprofloxacin HCL, the second- and third-listed generic ingredients, follow with approximately 12 percent and 8 percent, respectively. The 20 most frequent medication entries made by the physician on the Patient Record are listed in table 13. The physician is instructed to enter either the brand or generic name of the medication and to include both over-the-counter and prescription drugs that may be either prescribed or administered. Cipro and Macrodantin, two antibacterial medications, top the list with about 8 percent and 7 percent, respectively.

Duration and disposition

Of the visits made to urologists, approximately 60 percent lasted 15 minutes or less and approximately 35 percent lasted 16–30 minutes (table 14). The mean duration of a visit in 1989–90 was approximately 17 minutes, compared with approximately 16 minutes in 1975–76. Both means exclude visits of zero minutes. A visit of zero minutes is one in which the patient had no face-to-face contact with the physician but received care from a

Table 9. Average annual number and percent distribution of office visits to urologists and percent distribution for all physicians, by diagnostic service ordered or provided: United States, 1989–90

Diagnostic service ordered or provided	Visits to urologists		Visits to all physicians
	Average annual number of visits in thousands	Percent distribution	Percent distribution
Total visits	9,852	100.0	100.0
Pelvic exam	353	3.6	7.4
Blood pressure	1,105	11.2	36.7
Urinalysis	7,111	72.2	12.7
Digital rectal exam	1,954	19.8	3.6
Other blood test	605	6.1	13.0
Other listed services[1]	108	1.4	28.3
Other diagnostic services	3,280	33.3	25.2
None	1,446	14.7	37.2

[1]Includes pap test; breast palpation; mammogram; visual acuity; chest x ray; proctoscopy/sigmoidoscopy; stool blood exam; oral glucose tolerance test; cholesterol measure; HIV serology.

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

Table 10. Average annual number and percent distribution of office visits to urologists, by type of visit and number of medications ordered or prescribed: United States, 1989–90

Type of visit and number of medications	Average annual number of visits in thousands	Percent distribution
All visits	9,852	100.0
Type of visit		
Nondrug visit (0 medications)	5,759	58.5
Drug visit	4,092	41.5
Number of medications		
1	3,045	74.4
2	806	19.7
3 or more	242	5.9

Table 11. Average annual number and percent distribution of drug mentions to urologists by therapeutic category: United States, 1989–90

Therapeutic category[1]	Average annual number of visits in thousands	Percent distribution
All drug mentions	5,475	100.0
Antimicrobial agents	2,828	51.7
Sulfonamides and trimethoprim	719	13.1
Urinary tract antiseptics	1,285	23.5
Cardiovascular-renal drugs	564	10.3
Psychopharmacologic drugs	150	2.7
Gastrointestinal agents	133	2.4
Metabolic and nutrient agents	*62	*1.1
Hormones and agents affecting hormonal mechanisms	410	7.5
Skin/mucous membrane	111	2.0
Drugs used for relief of pain	358	6.5
Respiratory tract drugs	95	1.7
Unclassified and/or miscellaneous	600	11.0
All others[2]	163	3.0

[1]Therapeutic class based on the standard drug classification used in the *National Drug Code Directory*, 1985 Edition (4).

[2]Includes: anesthetic drugs, antidotes, hematologic agents, radiopharmaceutical contrast media, immunologic agents, neurologic drugs, oncolytics, ophthalmic drugs, otologic drugs, and antiparasitic agents.

member of the physician's staff. Visits of zero minutes accounted for approximately 1 percent of the visits, which was similar to that for all physicians (1.7 percent). The duration of visit does not include time spent waiting for the physician, waiting for test results, or time with someone else on the physician's staff.

As shown in table 14, most visits to the urologist had a disposition for the patient to return at a specific time (around 75 percent), which is statistically higher than for all physicians (about 62 percent). This was followed by instructions for the patient to return if needed (about 13 percent), which is approximately 42 percent less often than for all physicians. The 1989–90 disposition data are not statistically different than the 1975–76 disposition data.

References

1. Koch H. Office visits to urologists, National Ambulatory Medical Care Survey: United States, 1975–76. Advance data from vital health statistics; no 39. Hyattsville, Maryland: National Center for Health Statistics. 1978.
2. Schneider D, Appleton L, McLemore T. A reason for visit classification for ambulatory care. National Center for Health Statistics. Vital Health Stat 2(78). 1979.
3. Public Health Service and Health Care Financing Administration. International classification of diseases, 9th revision, clinical modification. Washington: Public Health Service. 1980.
4. Food and Drug Administration. National drug code directory, 1985 edition. Washington: Public Health Service. 1985.

Table 12. Average annual number and percent distribution of the top 20 generic ingredients most often utilized by urologists: United States, 1989–90

Rank	Generic ingredient	Average annual number of mentions in thousands[1]	Percent distribution
	All drugs mentions. .	5,475	100.0
1	Trimethoprim	740	13.5
2	Sulfamethoxazole. . .	663	12.1
3	Ciprofloxacin HCL . .	454	8.3
4	Nitrofurantoin	386	7.1
5	Norfloxacin.	346	6.3
6	Oxybutynin.	251	4.6
7	Hyoscyamine	174	3.2
8	Doxycycline	169	3.1
9	Phenazopyridine . . .	155	2.8
10	Testosterone.	146	2.7
11	Acetaminophen	127	2.3
12	Ibuprofen.	119	2.2
13	Atropine	108	2.0
14	Tetracycline	102	1.9
15	Oxycodone.	90	1.6
16	Methylene blue	90	1.6
17	Methenamine	89	1.6
18	Phenyl salicylate . . .	86	1.6
19	Yohimbene.	*71	1.3
20	Cephalexin.	*59	*1.1

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

Table 13. Average annual number and percent distribution of the top 20 medication entries made by urologists: United States, 1989–90

Rank	Entry name[1]	Average annual number of mentions in thousands	Percent distribution
	All drug mentions . . .	5,475	100.0
1	Cipro.	454	8.3
2	Macrodantin	381	7.0
3	Noroxin	346	6.3
4	Bactrim DS	305	5.6
5	Ditropan.	242	4.4
6	Septra DS.	145	2.7
7	Pyridium.	139	2.5
8	Bactrim.	113	2.1
9	Motrin	99	1.8
10	Tetracycline.	94	1.7
11	Urised	86	1.6
12	Septra	80	1.5
13	Depo-Testosterone . .	77	1.4
14	Yohimbene	*71	1.3
15	Doxycycline.	*64	1.2
16	Ampicillin	*59	*1.1
17	Testosterone	*56	*1.0
18	Percocet-5	*44	*0.8
19	Doryx.	*44	*0.8
20	Cystospaz.	*41	*0.8

[1]The entry name recorded on the Patient Record form could be either the trade or generic name of the medication.

Table 14. Average annual number and percent distribution of office visits to urologists, by duration and disposition: United States, 1989–90

Duration and disposition	Average annual number of visits in thousands	Percent distribution
Total	9,852	100.0
Duration of visit		
Zero minutes	92	0.9
1–5 minutes.	981	10.0
6–10 minutes	2,218	22.5
11–15 minutes	2,575	26.1
16–30 minutes	3,441	34.9
31 minutes or more . . .	546	5.5
Disposition of visit		
No followup planned . .	3,326	3.4
Return at specific time	7,406	75.2
Return if needed	1,307	13.3
Telephone followup planned.	238	2.4
Referred to other physician.	144	1.5
Referred to referring physician.	134	1.4
Admit to hospital	292	3.0
Other	438	4.4

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 is based on fewer than 20 births in numerator or denominator)

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 December 30, 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. The PSU's are counties, groups of counties, county equivalents (such as parishes or independent cities), or towns and townships (for some PSU's in New England). A sample of 2,535 non-Federal, office-based physicians was selected in 1989 and 2,528 non-Federal, office-based physicians were selected in 1990 from master files maintained by the American Medical Association and American Osteopathic Association. The sample included 118 urologists in both 1989 and 1990, of which 94 were eligible in 1989 and 96 were eligible in 1990. The physician response rate for the 1989 NAMCS was 74 percent; in 1990, it was 75 percent. Urologists had a response rate of 76 percent in 1989 and 72 percent in 1990. Sample physicians were asked to complete patient records (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 in 1989 and 43,469 in 1990. Urologists completed 1,569 Patient Record forms in 1989 and 1,584 in 1990. 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 (RSE's) 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. All frequencies in this report are average annual figures and must be doubled before a significance test can be performed. 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 coefficient from table IV.

$$\text{RSE}\ (x) = \sqrt{\text{A} + \frac{\text{B}}{x}} \times 100.0$$

Approximate relative standard errors for estimates of the percent of visits are shown in table III. The RSE's for percent may be calculated using the following general 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.

$$\text{RSE}\ (p) = \sqrt{\frac{\text{B}\ 1-(p)}{px}} \times 100.0$$

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

Table I. Relative standard errors for estimated numbers of office visits: National Ambulatory Medical Care Survey, 1989–90

Estimated number of office visits in thousands	*All specialties*	*Urologists*
	Relative standard error (RSE) in percent	
100	72.7	31.1
200	51.5	23.4
300	42.1	20.1
400	36.5	18.3
500	32.6	17.1
700	27.6	15.6
1,000	23.2	14.4
2,000	16.5	12.9
5,000	10.7	11.9
7,000	9.2	11.7
10,000	7.9	11.5
30,000	5.2	11.2
50,000	4.5	11.2
100,000	3.9	11.2
500,000	3.3	11.1
700,000	3.2	11.1
1,400,000	3.2	...

NOTE: Urologist 30 percent RSE = 110,000; all specialties 30 percent RSE = 593,000.

Example of use of table: An aggregate estimate of 5 million visits to a urologist has a relative standard estimate of 11.9 percent or a standard error of 595 thousand visits (11.9 percent of 5 million).

Table II. Relative standard errors for estimated numbers of drug mentions: National Ambulatory Medical Care Survey, 1989–90

Estimated number of drug mentions in thousands	*All specialties*	*Urologists*
	Relative standard error (RSE) in percent	
100	90.3	36.1
200	63.9	27.0
300	52.3	23.3
400	45.3	21.1
500	40.6	19.7
700	34.3	18.0
1,000	28.8	16.6
2,000	20.6	14.7
5,000	13.4	13.5
7,000	11.5	13.3
10,000	9.9	13.1
30,000	6.5	12.8
50,000	5.7	12.8
100,000	4.9	12.7
500,000	4.2	12.7
700,000	4.1	12.7
1,400,000	4.0	...

NOTE: Urologist 30 percent RSE = 155,000; all specialties 30 percent RSE = 922,000.

Example of use of table: An aggregate estimate of 2 million drug mentions by a urologist has a relative standard estimate of 14.7 percent or a standard error of 294 thousand drug mentions (14.7 percent of 2 million).

Table III. Standard errors for percents of estimated numbers of office visits for the National Ambulatory Medical Care Survey: United States, 1989–90

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					
100	2.9	6.3	8.7	11.6	13.3	14.6
200	2.1	4.5	6.2	8.2	9.4	10.3
500	1.3	2.8	3.9	5.2	6.0	6.5
700	1.1	2.4	3.3	4.4	5.0	5.5
1,000	0.9	2.0	2.8	3.7	4.2	4.6
2,000	0.6	1.4	2.0	2.6	3.0	3.3
5,000	0.4	0.9	1.2	1.7	1.9	2.1
7,000	0.4	0.8	1.0	1.4	1.6	1.7
10,000	0.3	0.6	0.9	1.2	1.3	1.5
20,000	0.2	0.5	0.6	0.8	1.0	1.0
30,000	0.2	0.4	0.5	0.7	0.8	0.8
50,000	0.1	0.3	0.4	0.5	0.6	0.7
80,000	0.1	0.2	0.3	0.4	0.5	0.6
100,000	0.1	0.2	0.3	0.4	0.4	0.5
500,000	0.0	0.1	0.1	0.2	0.2	0.2
1,400,000	0.0	0.1	0.1	0.1	0.1	0.1

Example of use of table: An estimate of 30 percent based on an aggregate estimate of 10 million visits in 1989–90 has a standard error of 4.2 percent or a relative standard error of 14.0 percent (4.2 percent divided by 30 percent).

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 inference is based on a two-sided *t*-test. The Bonferroni inequality was used to estimate the critical value for statistically significant differences (0.05 level of significance). Terms relating to differences such as "higher," "less," and so forth indicate that the differences are 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.

Table IV. Coefficients appropriate for determining relative standard errors, by type of estimate and physician specialty: National Ambulatory Medical Care Survey, 1989–90

Type of estimate and physician specialty	Coefficient	
	A	B
Visits		
Overall totals	0.00097549	52.77952184
Urologist	0.01236777	8.46452955
Drug mentions		
Overall totals	0.00157151	81.47054833
Urologist	0.01603845	11.42009284

Definition of terms

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

Drug mention—A drug mention is the 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.

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.

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 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.

Urologist—A urologist is a physician self-classified as a urological surgeon on the American Medical Association (AMA) or American Osteopathic Association (AOA) master files.

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.

Trade name disclaimer

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

Suggested citation

Woodwell DA. Office visits to urologists 1989–90, National Ambularoty Medical Care Survey. Advance data from vital and health statistics; no 234. Hyattsville, Maryland: National Center for Health Statistics. 1992.

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

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

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

DHHS Publication No. (PHS) 93-1250

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

Number 235 • July 28, 1993

Advance Data

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

Overview of Home Health and Hospice Care Patients

Preliminary Data From the 1992 National Home and Hospice Care Survey

by Genevieve W. Strahan, Division of Health Care Statistics

Introduction

Based on the 1992 National Home and Hospice Care Survey (NHHCS), this report presents preliminary statistics on an estimated 1.3 million current patients and 3.4 million discharges from about 8,000 home and hospice care agencies in the United States. The 1992 NHHCS, a segment of the Long-Term Care Component of the National Health Care Survey (1), is the first annual survey of home health agencies and hospices and their current patients and discharges. The National Center for Health Statistics instituted this nationwide sample survey in response to the rapid growth in the number of these agencies throughout the United States (2).

Estimates for this report are preliminary. Further editing of the data may produce estimates slightly different from the ones shown here. The 1,500 agencies included in the survey were selected from a universe of 8,036 agencies classified by the 1991 National Health Provider Inventory (NHPI) (3) as agencies providing home health and hospice care. Also included in the universe was a sample of potentially new agencies identified between the time the 1991 NHPI was conducted and June 1992. Data collection for the 1992 NHHCS was conducted between September and December 1992. Detailed information on sample design, selection methods, data collection procedures, and sampling errors is included in the Technical Notes.

Home health care agencies and hospices are usually defined in terms of the type of care that they provide. Home health care is provided to individuals and families in their places of residence for the purpose of promoting, maintaining, or restoring health or for maximizing the level of independence while minimizing the effects of disability and illness, including terminal illness. These agencies are often referred to today as "hospitals without walls" because advances in technology allow dozens of complex illnesses once treated almost exclusively in the hospital to be treated at home.

Hospice care is defined as a program of palliative and supportive care services providing physical, psychological, social, and spiritual care for dying persons, their families, and other loved ones. Hospice services are available in both the home and inpatient settings.

The focus of this report is on characteristics of patients receiving care from agencies that provide home health and hospice services. For the two types of agencies, estimates are presented for

- current patients—patients who were on the rolls of the agency as of midnight on the day immediately prior to the date of the survey.
- discharges—patients who had been removed from the rolls of the agency during a 12-month period ending on the last day of the month prior to the month of the survey, including patients whose episode of care ended because of death.

Estimates for current patients and discharges are presented by agency and demographic and diagnostic characteristics.

Future reports will present additional data on topics such as functional status, living arrangements, and primary caregivers of patients

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

CENTERS FOR DISEASE CONTROL AND PREVENTION

receiving home health or hospice care.

Agency characteristics

According to the National Association for Home Care, the number of Medicare-certified home health agencies grew by 250 percent over a 15-year period, from 1967 to 1992 (2). This growth was sparked by enactment in 1965 of the Medicare law, which paid for certain home health services thereby making them more available to the elderly. The growth was further enhanced in 1973 when certain disabled younger Americans also qualified as Medicaid recipients of care from this industry. According to the 1992 survey, about 85 percent of the estimated 7,000 agencies were Medicare and 86 percent were Medicaid certified.

Medicare added hospice benefits in 1983, and in 10 years the number of hospices increased by several hundred percent (2). About 65 percent of the estimated 1,000 hospices were Medicare certified, and 57 percent were Medicaid certified in 1992.

About the same percent of home health agencies were privately owned as were owned by nonprofit organizations (38 and 42 percent, respectively). Estimates from the survey show that almost all (94 percent) of the hospices were owned by voluntary nonprofit organizations. About 3 percent of the hospices were privately owned. The remaining 20 percent of the home health agencies and 3 percent of the hospices were owned by government agencies.

Almost two-thirds of all hospices and home health agencies are located in the South and in the Midwest. The southern states had 34 percent of the home health agencies and 33 percent of hospices. Fewer home health agencies were located in the West than in the other three regions and fewer hospices were in the Northeast than the Midwest or the South (table 1).

Table 1. Number and percent distribution of home health agencies and hospices by ownership, certification, and geographic region: United States, 1992

Agency characteristic	Type of agency		
	Total	Home health agency	Hospice
All agencies	8,000	7,000	1,000
Ownership		Percent distribution	
Proprietary	34.0	38.2	3.4
Voluntary nonprofit	48.0	41.7	93.5
Government and other	18.0	20.1	3.1
Certification			
Certified by Medicare	82.2	84.7	64.5
Certified by Medicaid	82.4	86.0	56.8
Region			
Northeast	22.1	23.0	16.0
Midwest	29.8	29.5	31.7
South	33.9	34.1	32.5
West	14.2	13.5	19.8

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

Patients by agency characteristics

Table 2 shows that the number of current patients receiving home care is also greater in the South and the Northeast. According to the 1992 survey, 67 percent of the 1.3 million current home health and hospice patients were located in the southern and northeastern States.

Most current patients and discharges received home and hospice care from voluntary nonprofit agencies. In 1992, about 60 percent of all home health and 86 percent of all hospice patients were being cared for by nonprofit agencies. Patients who were discharged were included in the survey if that discharge occurred during the 12-month period prior to the month of the survey. Home health agencies that were nonprofit delivered care to 67 percent of all home health patients who had been discharged while 91 percent of all discharged hospice patients received care from nonprofit agencies (tables 2 and 3). More than 90 percent of all current and discharged patients receiving home health care received that care from home health agencies certified by Medicare and/or Medicaid. Over 85 percent of the hospice current patients and discharges received their care from hospices certified by Medicare and/or Medicaid.

Patients by demographic characteristics

At the time of the 1992 survey, almost 1.3 million persons were on the rolls the night before the agency was surveyed as current patients receiving home health or hospice care. Almost 3.3 million persons had completed episodes of care in the 12-month period prior to the month of the survey (discharged patients).

The 1.2 million current patients receiving home health care were most likely to be elderly, female, white, and married or widowed. The likelihood of using home health services increased with age because usually functional status declines with age (4). In 1992, more than 75 percent of all current home health patients were 65 years or older. More women (67 percent) were receiving home health services than were their male (33 percent) counterparts partly because women outlive men. Only about 17 percent of current patients receiving home health care were divorced, separated, or never married, and 69 percent were married or widowed (table 4). The distribution of 3.1 million discharges by age, sex, race, and marital status was similar to

Table 2. Number and percent distribution of current patients receiving home health care and hospice care by type of agency ownership, certification, and geographic region: United States, 1992

Agency characteristic	Total	Percent distribution	Home health care		Hospice care	
			Total	Percent distribution	Total	Percent distribution
All agencies	1,284,200	100.0	1,237,100	100.0	47,200	100.0
Ownership						
Proprietary	348,400	27.1	343,400	27.8	4,900	10.5
Voluntary nonprofit	785,100	61.1	744,500	60.2	40,600	86.2
Government and others	150,700	11.7	149,200	12.1	1,600	3.3
Certification						
Certified by Medicare	1,173,800	91.4	1,130,300	91.4	43,500	92.3
Certified by Medicaid	1,178,300	91.8	1,137,700	92.0	40,600	86.1
Region						
Northeast	415,300	32.3	399,200	32.3	16,100	34.1
Midwest	269,800	21.0	260,500	21.1	9,300	19.7
South	438,900	34.2	423,300	34.2	15,500	33.0
West	160,200	12.5	154,000	12.4	6,200	13.2

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

Table 3. Number and percent distribution of discharges who received home health care and hospice care by type of agency ownership, certification, and geographic region: United States, 1992

Agency characteristic	Total	Percent distribution	Home health care		Hospice care	
			Total	Percent distribution	Total	Percent distribution
All agencies	3,273,300	100.0	3,066,300	100.0	207,000	100.0
Ownership						
Proprietary	798,700	24.4	785,700	25.6	13,000	6.3
Voluntary nonprofit	2,234,900	68.3	2,045,800	66.7	189,100	91.4
Government and others	239,700	7.3	234,800	7.7	4,900	2.4
Certification						
Certified by Medicare	3,155,400	96.4	2,961,900	96.6	193,500	93.5
Certified by Medicaid	3,060,100	93.5	2,880,000	93.9	180,000	87.0
Region						
Northeast	1,037,700	31.7	977,700	31.9	60,000	29.0
Midwest	637,700	19.5	593,200	19.3	44,400	21.5
South	956,900	29.2	894,000	29.2	62,900	30.4
West	641,000	19.6	601,400	19.6	39,600	19.1

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

the distribution of current patients as shown in table 5.

The 1,000 hospices were serving 47,200 patients at the time of the 1992 survey. Hospice patients currently receiving care, like home health patients, were elderly. More than 76 percent of them were 65 years or older. Unlike home health patients, however, hospice patients were nearly as likely to be male as female. Most current hospice patients were white and married. Hospice patients who had been discharged from care (usually because they died) had demographic characteristics similar to current patients (table 5).

Patients by diagnoses

Information on the primary and other diagnoses at the time of admission was collected from the medical records for each home health and hospice patient in the 1992 Survey. Diagnoses were coded according to the International Classification of Diseases, Clinical Modification, Ninth Revision (ICD–9–CM) (5). The first-listed diagnosis at admission for home health and hospice patients who are currently receiving care is shown in table 6 grouped by ICD–9–CM chapter.

More than 25 percent of the 1.2 million home health patients had conditions that are in the ICD–9–CM chapter, "Diseases of the Circulatory System Group" (390–459). Persons with heart disease, including congestive heart failure, made up 49 percent of all conditions in this group. Stroke,

Table 4. Number and percent distribution of current patients receiving home health and hospice care by age, sex, race, and marital status: United States, 1992

Patient characteristic	Total	Percent distribution	Home health care		Hospice care	
			Total	Percent distribution	Total	Percent distribution
All patients	1,284,200	100.0	1,237,100	100.0	47,200	100.0
Age						
Under 45 years	140,700	11.0	137,800	11.1	3,000	6.3
45–54 years	49,900	3.9	47,800	3.9	2,100	4.5
55–64 years	115,900	9.0	111,100	9.0	4,900	10.3
65 years and over	965,700	75.2	929,500	75.1	36,200	76.7
65–69 years	136,100	10.6	129,400	10.5	6,700	14.3
70–74 years	176,900	13.8	170,600	13.8	6,200	13.2
75–79 years	212,100	16.5	203,700	16.5	8,300	17.7
80–84 years	220,800	17.2	211,700	17.1	9,100	19.3
85 years and over	219,900	17.1	214,100	17.3	5,800	12.3
Unknown	12,000	0.9	10,900	0.9	*	*
Sex						
Male	432,600	33.7	411,300	33.2	21,300	45.1
Female	851,600	66.3	825,800	66.8	25,900	54.9
Race						
White	879,700	68.5	840,500	67.9	39,200	83.2
Black	169,200	13.2	165,600	13.4	3,600	7.6
Other or unknown	235,300	18.3	231,000	18.7	4,300	9.2
Marital status at admission						
Married	437,000	34.0	413,700	33.4	23,300	49.4
Widowed	455,000	35.4	438,800	35.5	16,200	34.3
Divorced or separated	60,200	4.7	57,900	4.7	2,400	5.0
Never married	153,300	11.9	150,300	12.1	3,100	6.5
Unknown	178,700	13.9	176,500	14.3	2,200	4.7

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

diabetes, and hypertension were also frequent admission diagnoses for current home health patients.

Most hospice patients (66 percent) had a first-listed diagnosis of neoplasms (140–239). Cancer of the lungs, colon, and prostate accounted for 50 percent of all neoplasms. The second largest group was diseases of the circulatory system, with congestive heart failure accounting for 45 percent of the admission diagnoses for this group. Hospice patients with human immunodeficiency virus (HIV) diagnoses were a major part (94 percent) of the ICD–9–CM chapter on infectious and parasitic diseases. Because hospice care is provided to patients who are in the terminal stage of their illnesses, it is not unexpected that these patients would have first-listed admission diagnoses of serious illnesses.

References

1. Institute of Medicine. Toward a national health care survey, a data system for the 21st century. Washington: National Academy Press. 1992.
2. National Association for Home Care. Basic statistics about home care. Information sheet. 1992.
3. Delfosse R. Hospice and home health agency characteristics: 1991 National Health Provider Inventory. National Center for Health Statistics. Vital Health Stat. In preparation.
4. Hing E, Bloom B. Long-term care for the functionally dependent elderly. National Center for Health Statistics. Vital Health Stat 13(104). 1990.
5. Public Health Service and Health Care Financing Administration. International Classification of Diseases, 9th Revision, Clinical Modification. Washington: Public Health Service. 1980.
6. National Center for Health Statistics. Development and maintenance of a national inventory of hospitals and institutions. Vital Health Stat 1(3). 1965.
7. Bureau of the Census. Summary report for the 1991 National Health Provider Inventory. Unpublished memo prepared by the Health Surveys Branch. 1992.
8. Massey JT, Moore TF, Parsons VL, Tadros W. Design and estimation for the National Health Interview Survey, 1985–94. National Center for Health Statistics. Vital Health Stat 2(110). 1989.
9. Hoffman K. Specifications for selecting NHHCS sample home health agencies and hospices. Unpublished memo. 1992.
10. Shah BV, Barnwell BG, Hunt PN, La Vange LM. SUDAAN user's manual, release 5.50. Research Triangle Park, North Carolina: Research Triangle Institute. 1991.

Table 5. Number and percent distribution of discharges by related patient characteristics, according to type of care received: United States, 1992

Patient characteristic	Total	Percent distribution	Home health care		Hospice care	
			Total	Percent distribution	Total	Percent distribution
All discharges	3,273,300	100.0	3,066,300	100.0	207,000	100.0
Age						
Under 45 years	400,200	12.2	386,700	12.6	13,500	6.5
45–54 years	162,600	5.0	143,800	4.7	18,800	9.1
55–64 years	263,300	8.0	237,400	7.7	25,900	12.5
65 years and over	2,421,500	74.0	2,274,500	74.2	147,000	71.0
65–69 years	373,400	11.4	344,500	11.2	28,900	14.0
70–74 years	453,800	13.9	418,200	13.6	35,600	17.2
75–79 years	574,900	17.6	542,800	17.7	32,100	15.5
80–84 years	521,700	15.9	498,600	16.3	23,200	11.2
85 years and over	497,600	15.2	470,400	15.3	27,200	13.2
Unknown	25,800	0.8	23,900	0.8	*	*
Sex						
Male	1,231,900	37.6	1,128,900	36.8	103,000	49.7
Female	2,041,500	62.4	1,937,400	63.2	104,000	50.3
Race						
White	2,245,200	68.6	2,067,600	67.4	177,600	85.8
Black	313,000	9.6	300,200	9.8	12,700	6.1
Other or unknown	715,200	21.8	698,400	22.8	16,800	8.1
Marital status at admission						
Married	1,239,400	37.9	1,145,900	37.4	93,500	45.1
Widowed	1,036,500	31.7	966,300	31.5	70,200	33.9
Divorced or separated	164,400	5.0	141,300	4.6	23,200	11.2
Never married	387,900	11.9	376,100	12.3	11,800	5.7
Unknown	445,100	13.6	436,700	14.2	8,400	4.1

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

Table 6. Number of current home health and hospice patients by first-listed diagnoses at admission: United States, 1992

ICD–9–CM procedure category and code		Home health patients	Hospice patients
Total		1,237,100	47,200
Infectious and parasitic diseases	001–139	21,000	2,000
Neoplasms	140–239	78,600	31,100
Endocrine, nutritional and metabolic diseases, and immunity disorders	240–279	121,000	*
Diseases of the blood and blood-forming organs	280–289	35,400	*
Mental disorders	290–319	38,500	*
Diseases of the nervous system and sense organs	320–389	76,900	1,300
Diseases of the circulatory system	390–459	316,500	5,900
Diseases of the respiratory system	460–519	80,000	*
Diseases of the digestive system	520–579	43,000	*
Diseases of the genitourinary system	580–629	27,700	*
Complications of pregnancy, childbirth, and the puerperium	630–676	1,900	–
Diseases of the skin and subcutaneous tissue	680–709	57,100	–
Diseases of the musculoskeletal system and connective tissue	710–739	115,200	*
Congenital anomalies	740–759	9,200	*
Certain conditions originating in the perinatal period	760–779	9,600	*
Symptoms, signs, and ill-defined conditions	780–799	62,300	*
Injury and poisoning	800–999	90,600	*
All other or unknown		52,500	*

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

Technical notes

Source of data

The sampling frame consisted of all home health agencies and hospices identified in the 1991 National Health Provider Inventory (NHPI) and all agencies opened for business between 1991 and June 30, 1992, as identified through the Agency Reporting System (6). The NHPI is a comprehensive census of nursing and related care homes, residential care homes, home health agencies, and hospices conducted periodically by the National Center for Health Statistics (7).

Sample design

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

The first stage utilized the selection procedures that obtained the 198 PSU's used for the National Health Interview Survey (NHIS), a survey of the civilian noninstitutionalized population of the United States (8). The PSU's are counties, groups of counties, county equivalents (such as parishes or independent cities), or towns and townships (for some PSU's in New England). Home health agencies and hospices were selected within the same PSU's included in the NHIS to minimize data collection costs and to establish linkage between the two surveys, allowing future research on availability and use of services (7).

The second stage involved the selection of agencies within six primary strata of agencies. These strata were formed in the 1992 sampling frame on the basis of type of agency [hospices versus home health agencies and mixed agencies (providing both types of care or unknown)], and type of PSU [self-representing (SR) versus non-self-representing (NSR), and within NSR PSU's: Metropolitan Statistical Area (MSA) versus non-MSA]. (MSA is a metropolitan statistical area defined by the U.S. Office of Management and Budget on the basis of the 1990 Census.) Within these sampling strata, agencies were arrayed by four regions, five types of ownership, two types of certification status, and finally by the number of patients currently being served by the agency. The number of agencies selected from each sampling stratum was based primarily on results of research into the optimum sample design for the 1992 NHHCS. Hospices in the NSR PSU's and home health agencies and mixed agencies in the non-MSA–NSR PSU's were selected with certainty. Hospices in the SR PSU's and home health agencies and mixed agencies in the MSA–NSR PSU's and the SR PSU's were selected with probability proportional to the current patient size (as reported in the NHPI sampling frame). A total sample of 1,500 agencies was selected; 384 were hospices, and the balance was home health agencies or mixed agencies (9).

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

Data collection procedures

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

Three questionnaires and two sampling lists were used to collect the data. The Agency Questionnaire was completed with the administrator or designee. The interviewer would next complete the Current Patient Sampling List (CPSL) and Discharged Patient Sampling List (DPSL). With the CPSL, the interviewer listed all patients on the register of the agency on the evening prior to the day of the survey. The DPSL was used to list all discharges from the agency during the 12 full months prior to the month of the survey. Sampling of current patients and discharged patients within agencies was done by using tables showing sets of sample line numbers for each possible count of current patients and discharged patients in the agency. The interviewer drew a sample of up to six current patients and up to six discharges.

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

Sampling errors

Because the statistics presented in this report are based on a sample, they will differ somewhat from figures that would have been obtained if a complete census had been taken using the same schedules, instructions, and procedure. The standard error is primarily a measure of the variability that occurs by chance because only a sample, rather than the entire universe, is surveyed. The standard error also reflects part of the measurement error, but it does not measure any systematic biases in the data. The chances are 95 out of 100 that an estimate from the sample differs from the value that would be obtained from a complete census by less than twice the standard error.

The standard errors used in this report were approximated using SUDAAN software. SUDAAN computes standard errors by using a first-order Taylor approximation of the deviation of estimates from their expected values. A description of the software and the approach it uses has been published (10). Exact standard error estimates were used in tests of

significance in this report. Standard errors for all estimates presented in this report are presented in tables I–VI.

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

Table I. Standard errors for number and percent distribution of home health agencies and hospices by ownership, certification, and geographic region: United States, 1992

Agency characteristic	Type of agency		
	Total	Home health agency	Hospice
		Number	
All agencies	247	225	103
		Percent distribution[1]	
Ownership			
Proprietary	1.9	2.1	0.6
Voluntary nonprofit	2.2	2.3	1.1
Government and other	2.0	2.3	0.8
Certification			
Certified by Medicare	1.7	1.6	6.1
Certified by Medicaid	1.7	1.6	5.6
Region			
Northeast	1.0	1.1	2.3
Midwest	1.4	1.5	4.1
South	1.6	1.7	4.2
West	1.3	1.1	6.2

[1]Standard errors for percents are based on an approximation by a multinominal distribution.

Table II. Standard errors for number and percent distribution of current patients receiving home health care and hospice care by type of agency ownership, certification, and geographic region: United States, 1992

Agency characteristic			Home health care		Hospice care	
	Total	Percent distribution[1]	Total	Percent distribution[1]	Total	Percent distribution[1]
All agencies	35,049	...	34,014	...	4,795	...
Ownership						
Proprietary	23,355	1.8	23,147	1.8	1,270	2.6
Voluntary nonprofit	32,035	2.0	30,996	2.1	4,548	2.9
Government and others	20,692	1.6	20,645	1.6	709	1.5
Certification						
Certified by Medicare	35,744	1.1	34,711	1.1	4,750	2.2
Certified by Medicaid	36,646	1.1	35,518	1.1	4,676	3.0
Region						
Northeast	20,054	1.3	18,339	1.3	3,877	5.8
Midwest	16,307	1.2	16,571	1.2	1,259	2.7
South	21,993	1.4	21,745	1.4	2,302	4.5
West	8,758	0.7	8,554	0.7	1,036	2.3

[1]Standard errors for percents are based on an approximation by a multinomial distribution.

Table III. Standard errors for number and percent distribution of discharges who received home health care and hospice care by type of agency ownership, certification, and geographic region: United States, 1992

Agency characteristic	Total	Percent distribution[1]	Home health care		Hospice care	
			Total	Percent distribution[1]	Total	Percent distribution[1]
All agencies	104,993	...	102,156	...	14,677	...
Ownership						
Proprietary	57,406	1.7	57,241	1.8	3,239	1.5
Voluntary nonprofit	97,072	1.9	93,615	2.0	14,311	1.7
Government and others	33,644	1.1	33,276	1.1	1,737	0.8
Certification						
Certified by Medicare	106,554	0.5	103,644	0.5	14,770	1.4
Certified by Medicaid	105,909	1.0	102,898	1.0	14,766	2.1
Region						
Northeast	62,272	1.6	59,248	1.7	8,393	3.3
Midwest	36,874	1.1	36,872	1.2	4,040	2.0
South	65,655	1.6	64,207	1.7	8,920	3.4
West	38,414	1.2	37,992	1.2	7,006	3.0

[1]Standard errors for percents are based on an approximation by a multinomial distribution.

Table IV. Standard errors for number and percent distribution of current patients receiving home health and hospice care by age, sex, race, and marital status: United States, 1992

Patient characteristic	Total	Percent distribution[1]	Home health care		Hospice care	
			Total	Percent distribution[1]	Total	Percent distribution[1]
All patients	35,049	...	34,014	...	4,795	...
Age						
Under 45 years	12,911	1.0	12,892	1.0	624	1.3
45–54 years	4,252	0.3	4,246	0.4	298	0.7
55–64 years	7,733	0.6	7,712	0.6	697	1.6
65 years and over	28,664	1.0	27,690	1.1	4,442	3.0
65–69 years	8,388	0.6	8,226	0.6	1,507	2.9
70–74 years	7,952	0.6	7,892	0.6	1,270	2.6
75–79 years	11,263	0.8	10,635	0.8	2,015	3.2
80–84 years	12,424	0.8	12,043	0.8	2,164	3.4
85 years and over	10,754	0.8	10,691	0.8	913	2.0
Unknown	2,499	0.2	2,334	0.2	893	1.8
Sex						
Male	17,107	0.9	16,887	1.0	2,518	3.3
Female	25,351	0.9	24,668	1.0	3,208	3.3
Race						
White	30,878	1.6	29,778	1.6	4,507	3.1
Black	15,372	1.2	15,348	1.2	981	2.0
Other or unknown	20,382	1.6	20,166	1.6	1,193	2.4
Marital status at admission						
Married	17,362	1.1	16,974	1.1	2,715	3.1
Widowed	19,014	1.2	18,479	1.2	2,546	3.3
Divorced or separated	4,738	0.4	4,693	0.4	667	1.3
Never married	11,078	0.8	11,065	0.9	516	1.1
Unknown	13,494	1.0	13,381	1.0	839	1.7

[1]Standard errors for percents are based on an approximation by a multinominal distribution.

Table V. Standard errors for number and percent distribution of discharges by selected patient characteristics, according to type of care received: United States, 1992

Patient characteristic	Total	Percent distribution[1]	Home health care		Hospice care	
			Total	Percent distribution[1]	Total	Percent distribution[1]
All discharges	104,993	...	102,156	...	14,677	...
Age						
Under 45 years	31,174	0.9	31,129	1.0	2,037	1.0
45–54 years	15,552	0.5	14,793	0.5	4,934	2.1
55–64 years	16,910	0.5	16,628	0.6	2,914	1.4
65 years and over	87,026	1.1	84,855	1.1	12,119	2.4
65–69 years	27,564	0.7	26,908	0.8	4,888	1.9
70–74 years	26,139	0.7	25,143	0.7	5,421	2.2
75–79 years	31,612	0.8	30,923	0.8	4,905	2.0
80–84 years	30,802	0.8	30,606	0.8	2,931	1.4
85 years and over	26,215	0.8	25,778	0.8	4,186	1.8
Unknown	5,183	0.2	5,145	0.2	623	0.3
Sex						
Male	49,228	1.0	47,500	1.0	9,322	2.7
Female	73,672	1.0	72,273	1.0	9,294	2.7
Race						
White	81,410	1.7	77,730	1.8	13,998	1.8
Black	30,858	0.9	30,790	1.0	2,168	1.0
Other or unknown	60,282	1.7	60,199	1.8	2,936	1.4
Marital status at admission						
Married	51,862	1.1	51,015	1.2	7,235	2.6
Widowed	41,471	1.0	39,231	1.1	8,045	2.8
Divorced or separated	14,212	0.4	13,121	0.4	5,466	2.2
Never married	27,067	0.8	26,953	0.8	2,169	1.0
Unknown	39,597	1.1	39,472	1.1	2,343	1.1

[1] Standard errors for percents are based on an approximation by a multinomial distribution.

Table VI. Standard errors of number of current home health and hospice patients by first-listed diagnosis at admission: United States, 1992

ICD–9–CM procedure category and code	Home health patients	Hospice patients
Total	34,014	4,795
Infectious and parasitic diseases 001–139	3,792	564
Neoplasms 140–239	7,076	3,069
Endocrine, nutritional and metabolic diseases, and immunity disorders 240–279	8,420	*
Diseases of the blood and blood-forming organs 280–289	3,792	*
Mental disorders 290–319	4,179	*
Diseases of the nervous system and sense organs 320–389	6,402	249
Diseases of the circulatory system 390–459	13,959	1,402
Diseases of the respiratory system 460–519	5,983	*
Diseases of the digestive system 520–579	3,820	*
Diseases of the genitourinary system 580–629	3,470	*
Complications of pregnancy, childbirth, and the puerperium 630–676	908	–
Diseases of the skin and subcutaneous tissue 680–709	5,820	–
Diseases of the musculoskeletal system and connective tissue 710–739	9,031	*
Congenital anomalies 740–759	1,911	*
Certain conditions originating in the perinatal period 760–779	3,031	*
Symptoms, signs, and ill-defined conditions 780–799	5,102	*
Injury and poisoning 800–999	6,252	*
All other or unknown	7,422	*

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

Number 236 • November 4, 1993 Reprinted 11/93

Advance Data

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

Negative Moods as Correlates of Smoking and Heavier Drinking: Implications for Health Promotion

by Charlotte A. Schoenborn, M.P.H., and John Horm, M.Sc.

Highlights

- Of the five negative moods reported (depression, loneliness, restlessness, boredom, and upset), the most prevalent among women was depression (11.4 percent) and among men restlessness (10.9 percent).
- About 40 million adults were often depressed, lonely, restless, bored, and/or upset in the past 2 weeks.
- Over 8 million adults—3 million men and 5 million women—experienced three or more of these negative moods in the past 2 weeks.
- Adults who were often depressed were about 40–50 percent more likely to smoke than adults who were never depressed.
- Men and women who were often lonely were about 60–70 percent more likely to smoke than persons who were never lonely.
- On a negative mood scale ranging from 0 to 20, women with the highest negative mood score were almost three times as likely to smoke as women who had a score of zero.
- Men with the highest negative mood score were almost twice as likely to smoke as men with no negative moods.
- Men who were often lonely or bored were almost twice as likely to drink heavily as men who never felt this way.
- Odds of being a heavier drinker more than tripled between men who had no negative moods and those with the highest levels of negative moods; no relationship was found between negative moods and heavier drinking for women.
- Men with the highest levels of negative moods were four times as likely to combine smoking with heavier drinking (three or more drinks daily) than were men reporting no negative moods.

Introduction

History of health promotion

Since 1912, the United States Public Health Service has taken the lead protecting and promoting the health of the American people (1). In the early part of the 20th century, prevention of acute, infectious diseases such as tuberculosis, diphtheria, and typhoid fever, were at the forefront of public health concerns. The techniques for bringing about change largely involved quarantine, improved sanitation, and later, immunization programs (2).

In the past several decades, with management of most infectious diseases (with the notable exception of AIDS) largely under control, public health officials have increasingly turned attention to prevention of chronic diseases such as heart disease and cancer—which often result in years of disability, reduced productivity, and premature death. Multiple causal agents and a long lag time between exposure and first manifestations of disease make identification of the etiology of many chronic diseases very complex. Numerous epidemiological investigations have been devoted to identifying causal relationships between environmental factors and morbidity or mortality outcomes (3). Studies have also examined the role that personal health behaviors have in increasing risks for disease, disability, and death (4–11). Public health efforts today are becoming increasingly broader based, encompassing environmental regulation, health education, and behavior change programs in order to reduce risks of adverse health outcomes (2).

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

CENTERS FOR DISEASE CONTROL AND PREVENTION

In 1978, the World Health Organization hosted an International Conference on Primary Health Care at Alma-Ata, U.S.S.R. (12). An outgrowth of this conference was the establishment of a worldwide goal of achieving "health for all by the year 2000" (13). This declaration was the start of a formalized goal-setting strategy for health promotion by numerous governments and international organizations (14). In accordance with this new strategy, the U.S. Department of Health and Human Services began a process of establishing national health promotion objectives for the United States, setting specific target dates for their accomplishment. The first U.S. health promotion objectives, commonly referred to as the 1990 Health Objectives for the Nation, were established in 1980, with a target date of 1990 (15). In 1990, the status of progress in these objectives was evaluated (16). Simultaneously, drawing on lessons of the 1980's, a new set of objectives were established for the next decade. These are the National Health Promotion Objectives for the Year 2000, also referred to as *Healthy People 2000* (17). Although the objectives were developed under the sponsorship of the Public Health Service, the project was a national, not a Federal, effort. Both the process of setting health promotion goals and working toward achieving them involves representatives from Federal, State, and local governments, nonprofit and for-profit organizations, as well as consumers of health services.

Significance of smoking, alcohol, and mental health issues

Tobacco and alcohol use were prominent in both the 1990 and year 2000 health promotion objectives. Cigarette smoking and alcohol consumption have been the subject of extensive scientific investigation for many years. Since 1964, with the establishment of a National Clearinghouse on Smoking (18) (which later became the Office on Smoking and Health) and the first Surgeon General's Report on Smoking and Health (19), more than 20 reports to Congress have been prepared on the health consequences of smoking and other tobacco use. Similarly, since 1971, seven major reports to Congress have been prepared by the National Institute on Alcoholism and Alcohol Abuse (NIAAA) outlining the current state of knowledge of the causes and consequences of alcohol abuse and dependence (20).

Attention to mental health as a national health priority came somewhat later. Mental health was first included as a priority area for health objectives for the year 2000. Since 1983, the National Institute of Mental Health (NIMH) has published five reports to Congress, entitled *Mental Health, United States,* summarizing the most current information available on the Nation's mental health care delivery system (21,22). In 1989, the National Health Interview Survey (NHIS) included, for the first time, a special section on prevalence of chronic mental illness in the U.S. adult, noninstitutionalized population (22,23).

Interrelationships: smoking, drinking, and mental health

In the national health promotion objectives for the year 2000, tobacco use, alcohol use, and mental health are treated as discrete entities; their interrelationships are not addressed. However, this is not to say that these have been ignored by the scientific community. Heavy alcohol consumption and cigarette smoking have repeatedly been shown to be associated: Smokers are more likely to be heavy drinkers and heavy drinkers are more likely to smoke (24–27). The relationships between mental health and these behaviors have also been studied (28–32). Greater knowledge of these interrelationships provides a foundation for developing more effective public health education campaigns and advancing progress toward meeting the health objectives for the year 2000.

Rationale

In a climate of increased knowledge of the adverse health consequences of smoking and heavy drinking, a decrease has been observed in the prevalence of these behaviors in the adult population. Some of this reduction may be due to people quitting smoking and drinking because of health problems known to be associated with these behaviors. Some people have quit as a result of their knowledge of the risks they pose, while others who otherwise might have taken them up, resisted doing so. Thus, those individuals who still smoke and drink heavily, in today's environment of widespread knowledge of the associated health risks, may be people who find it more difficult than others to avoid these harmful behaviors. Assessment of the relationships between harmful health practices and selected negative moods may provide important clues for reaching these individuals. It is hypothesized that emotional health status may play an important role in people's decisions to engage in behaviors that they know pose certain health risks. Unfortunately, with cross-sectional data (33) such as the 1991 National Health Interview Survey of Health Promotion and Disease Prevention (1991 NHIS–HPDP), the direction of causality cannot be determined. However, whether it is the negative mood that is causing the behavior, the behavior that is causing the negative mood, or both being triggered by a common third factor, evidence of their co-occurrence would suggest that mental health issues should be addressed in tandem with more traditional health education and behavior modification approaches.

Contents of this report

This report presents prevalence estimates for the adult U.S. population for five negative mood states (frequency of being depressed, lonely, restless, bored, and upset) drawn from the classic Bradburn Affect Balance Scale (34) and used in earlier population-based studies of

mental health (35). The report then describes the relationship between each of these moods and cigarette smoking and heavy drinking. It goes on to examine the relationship between a total negative mood score (an additive score composed of responses to all five items), and smoking and drinking, individually and combined. The term "negative mood" is used throughout this report to describe these five measures of negative affect, also termed "negative feelings" by Bradburn.

Methods

The 1991 NHIS–HPDP was developed to gather baseline data for tracking the year 2000 national health promotion objectives, in order to assess success or progress in achieving the objectives by the turn of the century. The 1991 NHIS–HPDP was a component of the ongoing NHIS, which has gathered information on the health of the U.S. resident household population each year since 1956 (36). In 1990, the National Health Interview Survey of Health Promotion and Disease Prevention (1990 NHIS–HPDP) was fielded to measure achievement of the 1990 Health Promotion Objectives for the Nation (37). Although similarly titled and both devoted to health promotion issues, these two surveys contained many different questions because their purposes were to measure progress toward different sets of objectives.

The 1991 NHIS–HPDP contained a wide range of questions on personal health behaviors, including tobacco and alcohol use. The survey also included a short section on mental health, composed of the negative affect items of the Bradburn Affect Balance Scale (34).

The questions related to negative moods in the 1991 NHIS–HPDP were prefaced by telling respondents that they were going to be asked questions about how they had been feeling emotionally. Respondents were then asked how often in the past 2 weeks they had felt depressed, lonely, restless, bored, or upset. These emotions have been shown to be associated with other indicators of mental health status such as anxiety, marital tension, and job dissatisfaction (34–35,38), but are not the same as psychiatric diagnoses. For example, a person who reported being often depressed in the 1991 NHIS–HPDP may or may not be clinically depressed according to psychiatric diagnostic criteria (39–41). Instruments exist to assess clinical depression in population-based surveys—most notably the Diagnostic Interview Schedule, which has been used in the National Health and Nutrition Examination Survey (42). The items included in the 1991 NHIS–HPDP are simply respondent reports of the experience of negative emotions or moods.

Like the questions related to negative moods, the reference period for the questions on alcohol consumption was also the past 2 weeks; smoking status was based on smoking practices at the time of interview (see technical notes for description of these variables).

One adult per family was randomly selected from the full NHIS sample for personal interview with the health promotion questionnaire. A total of 43,732 adults aged 18 years and older responded to the 1991 NHIS–HPDP. The overall response rate was 87.8 percent, which is the product of the response rate for the basic NHIS household survey (95.7 percent) and the response rate for those persons identified in the household as being eligible for the HPDP component (91.7 percent). Self-response was required for all questions in the HPDP.

Statistics shown and discussed in this report were generated using Software for Survey Data Analysis (SUDAAN) (43). SUDAAN is a software package, designed specifically for analysis of complex survey data, that takes into account the effects of the complex sample design in the calculation of standard errors. The SUDAAN Proc Descript procedure was used to generate prevalence estimates and their associated standard errors for each of the five negative moods for men and women. Logistic regression, using SUDAAN Proc Logistic with unequal probabilities of selection, was then run in order to test the hypothesis that cigarette smoking and heavy alcohol consumption were related to severity of negative mood. Sociodemographic and health characteristics known to be associated with these behaviors (age, education, income, race, marital status, and physical health status) were controlled in order to assess the net effect of negative moods. Response categories for the negative moods consisted of five levels ranging from "never" to "very often." The two highest and two lowest categories were combined in each case for clearer presentation and because the differences between "very often" and "often" as well as between "rarely" and "never" are analytically relatively unimportant. For clarity in the discussion, the term "often" is used for the category "often or very often" and the term "never" is used for the category "rarely or never."

Beta coefficients and their associated standard errors were then transformed into the odds ratios ($OR = e^{\beta}$) and their associated 95 percent confidence limits (95% CI $= e^{(\beta \pm 1.96 \cdot SE^{\beta})}$) (44) and are shown in tables 1 and 2. The frequencies shown in these tables represent the weighted population estimates for each of the negative moods, excluding any cases for whom data for the particular health behavior were missing. This presentation allows the reader to estimate at a glance, not only the prevalence of each negative mood, but also, with a simple calculation (that is, prevalence of the behavior multiplied by the population estimate for a given mood), derive the number of people in the adult U.S. population with combined risks. For example, 6,006,000 men were often depressed, and 41.5 percent of these men were current smokers. Thus, 2,493,000 men (6,006,000 • 41.5 percent) were both often depressed and current cigarette smokers. Similarly, 10,639,000 women

were often depressed, and 33.3 percent of these women were current smokers. Thus, 3,543,000 women (10,639,000 • 33.3 percent) had both of these characteristics.

Findings

Prevalence of negative moods

Negative moods were experienced by a substantial proportion of U.S. men and women in 1991 (figure 1). Depression was the most prevalent negative mood among women and rates of depression were higher for women (11.4 percent) than for men (7.1 percent). Restlessness was the most prevalent negative mood among men (10.9 percent); and rates of restlessness were about the same for women (10.3 percent). Boredom ranked second for both women (11.2 percent) and men (9.4 percent).

Feelings of loneliness and frequent upset were less common than the other moods studied. Like depression and boredom, prevalence estimates for loneliness and upset were higher for women than for men: 5.8 percent of women often felt lonely compared with 3.4 percent of men, and 4.5 percent of women reported often feeling upset compared with 2.7 percent of men. These estimates are unadjusted for any other characteristics.

Rates shown in figure 1 were transformed into population estimates in figure 2. The estimates represent the numbers of persons often experiencing specific negative moods in the past 2 weeks; a person may have had more than one of these moods. The percent and number of men and women by total number of negative moods experienced often or very often in the past 2 weeks are shown in figure 3.

Overall, almost 17 million adults said they often felt depressed in the past 2 weeks: 10.7 million women and 6.1 million men (figure 2). Al out 19 million men and women often felt bored or restless. Loneliness was experienced by about 3 million men and almost 5.5 million women.

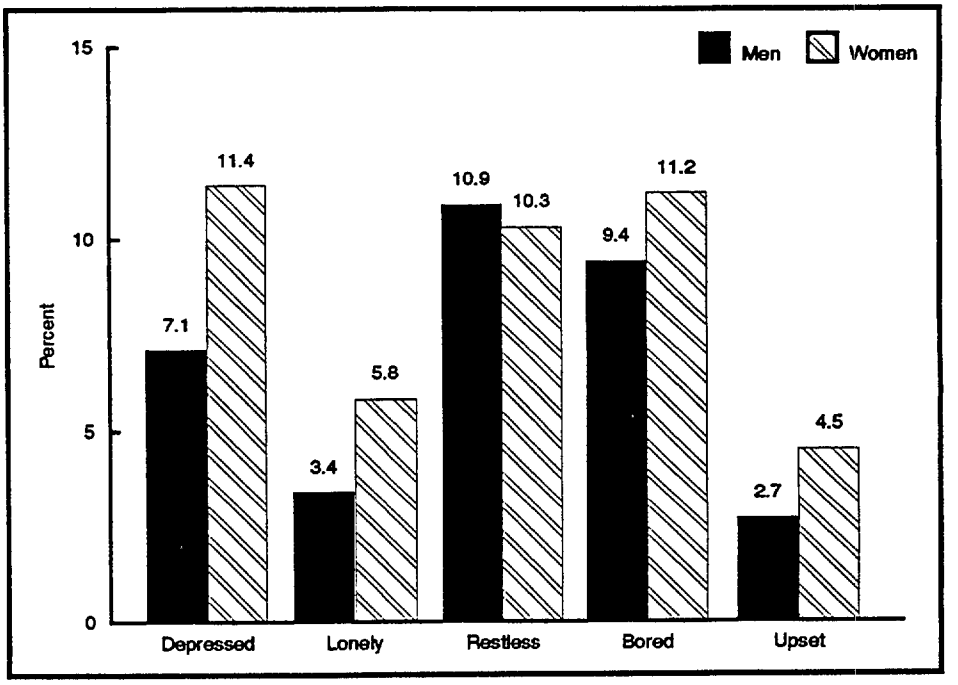


Figure 1. Percent of men and women who often or very often felt depressed, lonely, restless, bored, or upset in the past 2 weeks: United States, 1991

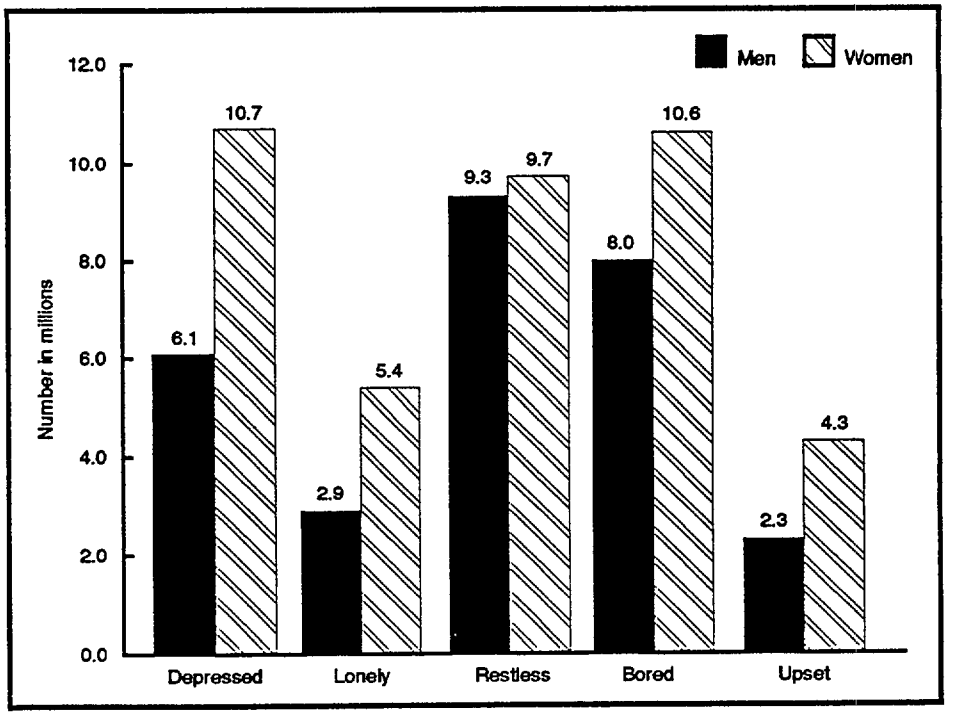


Figure 2. Number of men and women who often or very often felt depressed, lonely, restless, bored, or upset in the past 2 weeks: United States, 1991

Frequent feelings of upset affected fewer adults than any of the other negative moods; almost twice as many women (4.3 million) as men (2.3 million) said they were often upset.

Figure 3 indicates that almost 40 million adults—17 million men and 22.5 million women—often experienced at least one of these negative moods during the 2 weeks preceding the NHIS interview, and over 8 million adults experienced three or more negative moods often during this period.

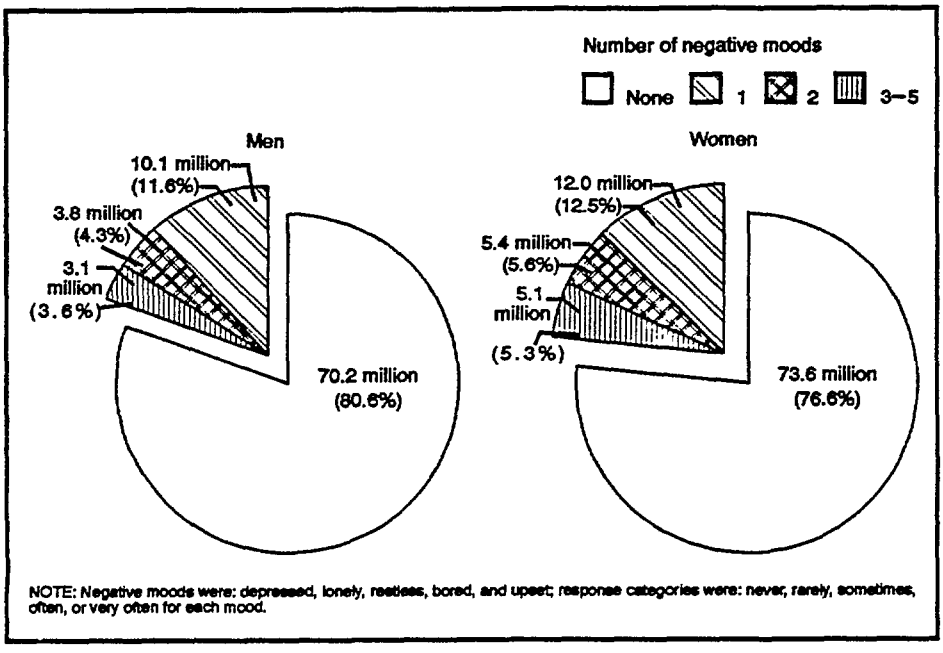


Figure 3. Number and percent of men and women by total number of negative moods experienced often or very often in the past 2 weeks: United States, 1991

Negative moods and smoking

Table 1 shows the percent of U.S. men and women who smoked cigarettes according to level of depression, loneliness, restlessness, boredom, and feeling upset. Smoking prevalence was markedly higher among persons who often experienced these negative moods than among persons who never experienced them. Smoking rates for persons who sometimes had these feelings were also higher than for those who never had them. Of the negative moods studied, loneliness was the strongest predictor of smoking for men and boredom was the strongest predictor for women. The prevalence estimates shown in table 1 are unadjusted for other characteristics that might influence smoking behavior.

Many studies have shown that smoking varies by sex, age, race, income, education, and marital status (37,45–46). Smoking also affects and is affected by physical health status (47–48). To better assess the relationship between negative moods and smoking, the influence of these other factors must be neutralized. This was accomplished by calculating odds ratios, controlling for these other characteristics (44). The odds ratio is used as an approximation of relative risk. Relative risk is defined as the incidence rate among exposed individuals divided by the incidence rate among nonexposed individuals (49). In this analysis, the exposed groups are those with the negative moods and the nonexposed are those without the negative moods.

The odds ratios presented in table 1 show the probability that persons who have recently experienced particular negative moods will be smokers compared with persons who have not had these moods, after controlling for the effects of sex, age, race, education, income, marital status, and health status. Confidence limits, shown next to each odds ratio, indicate whether or not the increased probability is sufficiently large that it is not likely to occur by chance. When the lower confidence limit is greater than one, the odds ratio is statistically significant.

Men and women who often felt depressed had an odds ratio of 1.4 and 1.5, respectively, for smoking compared with men and women who never felt depressed. In other words, frequently depressed adults were about 40–50 percent more likely to smoke than those who were never depressed. Women who sometimes felt depressed also had a higher risk of smoking than nondepressed women (OR = 1.3); the odds ratio for men with this level of depression (OR = 1.1) was not statistically significant at the $p \leq .05$ level.

Frequent loneliness was a strong predictor of smoking for both men (OR = 1.7) and women (OR = 1.6); occasional loneliness also predicted smoking for women (OR = 1.2). Although the odds ratio for men who were sometimes lonely was also 1.2, this was not statistically significant.

Women who were often restless or bored had the highest odds ratio for smoking (OR = 1.7). Frequent boredom was similarly predictive of smoking for men (OR = 1.6); frequent restlessness was less so (OR = 1.3).

Figure 4 shows the odds ratios for smoking by men and women, according to level of negative mood, after adjusting for the effects of age, race, education, income, marital status, and health status. For women, the odds of smoking cigarettes almost tripled between those with the lowest and those with the highest negative mood scores (OR = 2.7 for women with a score of 20). The odds of smoking also went up for men as negative mood scores increased, although the relationship was not as dramatic as for women: men with a maximum score of 20 on the negative mood index had an odds ratio of 1.8, indicating that men with a lot of negative moods were about 80 percent more likely to smoke than men who had no such moods.

Negative moods and drinking

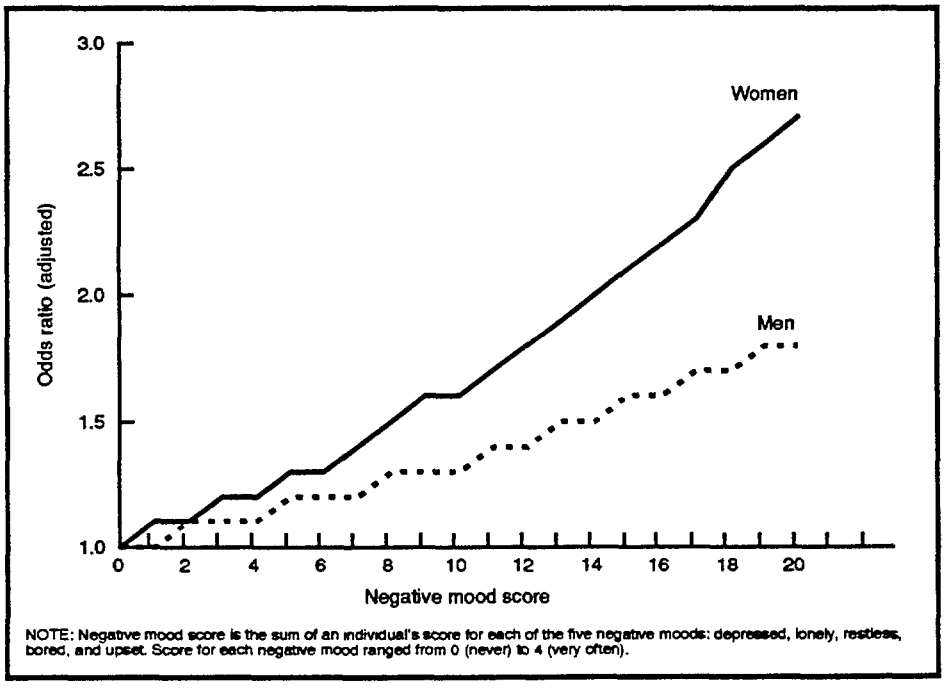
Table 2 shows prevalence rates of heavier drinking for men and women according to levels of depression, loneliness, restlessness, boredom, and feeling upset. Odds ratios, described

Table 1. Prevalence (unadjusted) of cigarette smoking for men and women, by selected negative moods and odds ratios adjusted for age, race, education, income, marital status, and health status: United States, 1991

Negative moods	Men				Women			
	Population (in thousands)	Prevalence	Odds ratio	95-percent confidence limits	Population (in thousands)	Prevalence	Odds ratio	95-percent confidence limits
Depressed								
Very often or often	6,006	41.5	1.4	1.2,1.7	10,639	33.3	1.5	1.4,1.7
Sometimes	12,824	31.8	1.1	1.0,1.2	20,423	27.2	1.3	1.2,1.4
Rarely or never	65,514	26.9	1.0	...	62,379	21.4	1.0	...
Lonely								
Very often or often	2,842	44.9	1.7	1.4,2.1	5,405	35.7	1.6	1.4,1.9
Sometimes	5,479	36.2	1.2	1.0,1.4	9,868	28.0	1.2	1.1,1.3
Rarely or never	76,090	27.5	1.0	...	78,182	22.7	1.0	...
Restless								
Very often or often	9,220	39.2	1.3	1.1,1.5	9,637	35.8	1.7	1.5,1.9
Sometimes	13,040	29.9	1.0	0.9,1.2	13,977	28.1	1.3	1.1,1.4
Rarely or never	61,956	26.8	1.0	...	69,708	21.6	1.0	...
Bored								
Very often or often	7,886	42.8	1.6	1.4,1.9	10,455	36.4	1.7	1.5,1.9
Sometimes	16,810	32.3	1.2	1.1,1.4	19,169	26.6	1.2	1.1,1.3
Rarely or never	59,479	25.8	1.0	...	63,660	21.3	1.0	...
Upset								
Very often or often	2,271	38.0	1.2	0.9,1.6	4,215	34.2	1.3	1.1,1.5
Sometimes	7,506	31.8	1.0	0.9,1.2	10,840	24.0	0.9	0.8,1.0
Rarely or never	74,504	28.1	1.0	...	78,225	23.5	1.0	...

NOTES: The population columns represent the number of men or women with specified levels of selected negative moods. Population estimates for smoking among these individuals can be derived by multiplying the population estimate for a particular negative mood category by the prevalence estimates.

above, are also shown. Heavier drinking was defined as an average of three or more drinks per day for men and an average of two or more drinks per day for women. Because alcohol affects women's bodies more quickly (thus taking less alcohol to make a woman drunk) (50–53) and because consumption of large amounts of alcohol is considerably less common among women than among men (20,37,54–55), the number of drinks defined as "heavier drinking" was set lower for women. Even with this lower cutoff, prevalence of heavier drinking remained consistently lower for women (less than 3 percent) than for men across all categories and levels of negative moods. The highest odds ratios, 1.4 for women who were often bored or restless, failed to reach statistical signficance at $p \leq .05$.



NOTE: Negative mood score is the sum of an individual's score for each of the five negative moods: depressed, lonely, restless, bored, and upset. Score for each negative mood ranged from 0 (never) to 4 (very often).

Figure 4. Odds ratios for smoking according to negative mood score, by sex, adjusted for age, race, education, income, marital status, and health status: United States, 1991

Findings for men and alcohol use present quite a different picture. Nearly 5 percent of men who did not experience these negative moods consumed an average of three drinks or more daily. Among men who often felt depressed, lonely, restless, bored, or upset, rates of heavier drinking were considerably higher. Among men who were often lonely, over 9 percent drank heavily; among those who were often restless or bored, about 8 percent could be classified as heavier drinkers. Prevalence of

Table 2. Prevalence (unadjusted) of heavier drinking for men and women by selected negative moods and odds ratios adjusted for age, race, education, income, marital status, and health status: United States, 1991

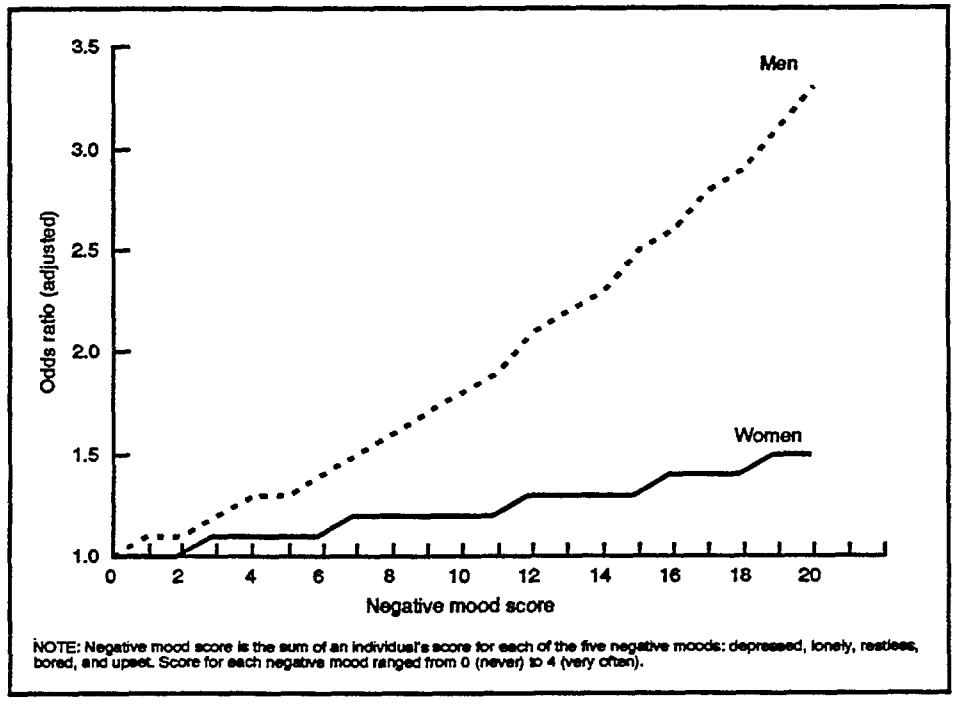
Negative moods	Men				Women			
	Population	Prevalence	Odds ratio	95-percent confidence limits	Population	Prevalence	Odds ratio	95-percent confidence limits
Depressed								
Very often or often	5,960	7.1	1.6	1.2,2.1	10,618	2.5	1.1	0.8,1.5
Sometimes	12,788	5.4	1.2	0.9,1.5	20,456	2.3	1.1	0.8,1.4
Rarely or never	65,594	4.7	1.0	...	62,570	2.3	1.0	...
Lonely								
Very often or often	2,819	9.4	1.9	1.3,2.7	5,409	2.8	1.3	0.9,2.1
Sometimes	5,499	6.0	1.2	0.9,1.6	9,870	1.9	1.0	0.7,1.4
Rarely or never	76,092	4.8	1.0	...	78,383	2.3	1.0	...
Restless								
Very often or often	9,186	7.7	1.7	1.3,2.1	9,625	2.9	1.4	1.0,1.8
Sometimes	13,004	4.8	1.1	0.9,1.4	14,074	1.9	0.9	0.7,1.2
Rarely or never	62,029	4.6	1.0	...	69,824	2.3	1.0	...
Bored								
Very often or often	7,840	8.2	1.9	1.5,2.4	10,452	2.9	1.4	1.0,1.8
Sometimes	16,742	5.3	1.2	1.0,1.5	19,227	1.9	0.8	0.6,1.1
Rarely or never	59,600	4.5	1.0	...	63,804	2.3	1.0	...
Upset								
Very often or often	2,256	6.8	1.4	0.9,2.2	4,223	2.6	1.3	0.8,2.0
Sometimes	7,487	6.4	1.3	1.0,1.7	10,891	2.2	1.1	0.8,1.5
Rarely or never	74,543	4.8	1.0	...	78,379	2.3	1.0	...

NOTES: The population columns represent the number of persons with specified levels of negative moods. Population estimates for heavier drinking (men: three or more drinks per day; women: 2 or more drinks per day) among these individuals can be derived by multiplying the population in a particular negative mood category by the prevalence estimates.

heavier drinking among men who were often depressed or upset was about 7 percent.

Odds ratios shown in table 2 confirm that men who often experienced selected negative moods were considerably more likely to be heavier drinkers than men who had not had these moods, even after adjusting for the effects of age, race, education, income, marital status, and health status. After controlling for these other factors, men who were often lonely or often bored were almost twice as likely to drink heavily as men who had not felt these negative emotions in the past 2 weeks (OR = 1.9).

Figure 5 graphs the relationship between total negative mood score and heavier drinking in men and women. As with the individual problems, heavier drinking was related to total score for men but not for women. After adjusting for possible confounding characteristics, the odds of being a heavier drinker more than tripled between men with no negative moods and those with a



NOTE: Negative mood score is the sum of an individual's score for each of the five negative moods: depressed, lonely, restless, bored, and upset. Score for each negative mood ranged from 0 (never) to 4 (very often).

Figure 5. Odds ratios for heavier drinking among men (3 or more drinks daily) and women (2 or more drinks daily), by negative mood score, adjusted for age, race, education, income, marital status, and health status: United States, 1991

maximum score of 20 (OR =3.3). Among women, the odds ratio did not rise significantly between those with the lowest and highest negative mood scores (OR =1.5).

Negative moods and combined smoking and drinking—men

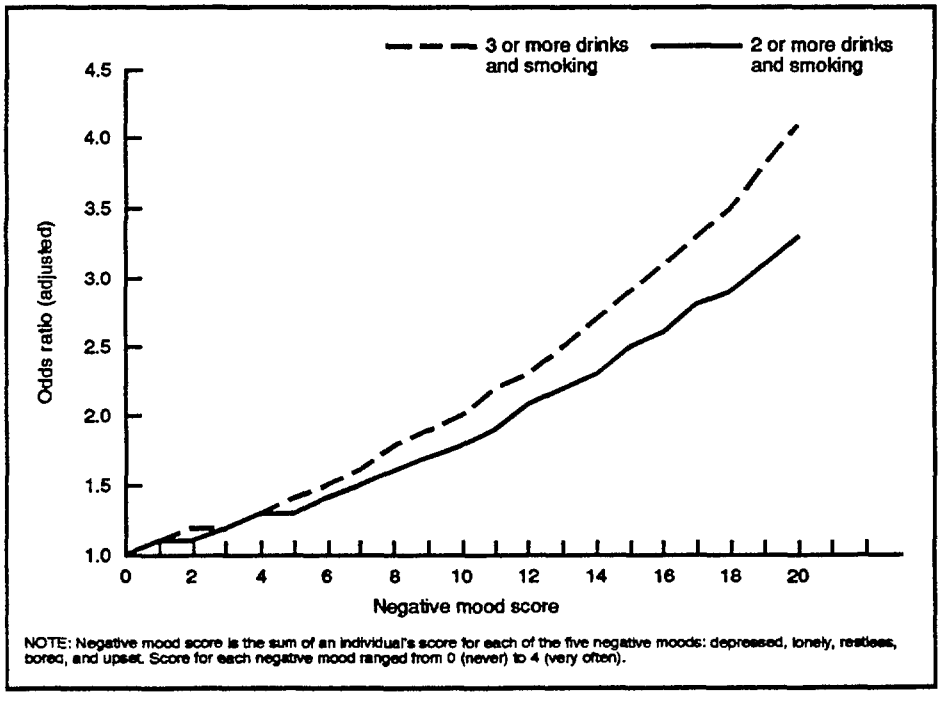
A combination of smoking and alcohol consumption has been identified as significantly increasing risks of life-threatening illnesses, primarily cancers at various sites (56–57). The association between negative mood score and the co-occurrence of these behaviors is shown for men in figure 6 for two levels of alcohol consumption: three or more drinks defined as heavier drinking earlier in this report and a somewhat more moderate level of two or more drinks per day. Results are consistent with other findings presented: men with high negative mood scores were at increased risk of engaging in both of these behaviors simultaneously. Men with the maximum negative mood score of 20 were four times more likely to combine smoking with drinking an average of three or more drinks per day (OR =4.1) than men with no negative moods. Odds ratios for combining smoking with drinking an average of two or more drinks daily, also were substantially higher for men with the highest negative mood scores (OR =3.3).

Discussion

These findings suggest that emotional well-being may play a role in cigarette smoking and heavy drinking. If this is the case, it is likely that programs designed to promote behavior change could be made more successful by addressing issues related to emotional well-being. The link found between negative moods and these behaviors also lends support to the suggestion by other researchers that physicians could use information on smoking and drinking practices, routinely gathered in clinical practice, as clues to probe for underlying emotional or mental conditions that may deserve attention in their own right as well as a means of improving the prognosis for improvements in physical health (58).

The issue of the direction of causality in this analysis is problematic. Certainly, engaging in personal behaviors detrimental to health can be seen as a sign of less than optimal mental health. Indeed, both nicotine dependence and alcohol abuse and dependence are classified as psychiatric diagnoses in the *Diagnostic and Statistical Manual, Third Edition, Revised (DSM–III–R),* published by the American Psychiatric Association. On the other hand, it is entirely logical that emotional status can be influenced by these health behaviors as well. The neurological effects of alcohol abuse have been well documented (20). Further, in today's antismoking climate, stress associated with the smoking habit may be sufficient to have consequences for emotional well-being of smokers.

The NHIS–HPDP, being a cross-sectional survey, cannot address the issue of causality. While the Survey design would allow longitudinal followup, there are no current plans to conduct such an investigation. Thus, the question posed can only be addressed in its most basic form: Are emotional health status and addictive personal health behaviors sufficiently related to warrant increased public health initiatives that attempt to address both issues together rather than one at a time. Evidence suggests that they are.



NOTE: Negative mood score is the sum of an individual's score for each of the five negative moods: depressed, lonely, restless, bored, and upset. Score for each negative mood ranged from 0 (never) to 4 (very often).

Figure 6. Odds ratios for combined smoking and heavy drinking among men, by negative mood score adjusted for age, race, education, income, marital status, and health status: United States, 1991

Conclusions

These findings have important implications for current health promotion activities and for setting and attaining future health promotion goals. Since the early days of public sanitation and quarantine, activities surrounding promotion of the public's health have continued to evolve. Initial efforts to establish national (1990) health promotion objectives resulted in a set of 15 broad groups of objectives, only some of which were readily quantifiable. In the next generation of health promotion objectives (year 2000), very specific, quantifiable goals were set that encompassed not only a wider range of health problems, but also dealt

with objectives related to special populations, such as children, the aged, racial-ethnic minorities, and the disabled. Findings such as those presented here suggest that current health promotion activities designed to reduce prevalence of harmful health behaviors—such as smoking and heavy drinking—might have increased success if they could address emotional (and by extension, mental) health issues at the same time. Such a step could help accelerate progress toward attaining current objectives to reduce prevalence of harmful behaviors and increase the health of the Nation's population. Beyond this, in developing the next generation of health objectives for the Nation, establishment of cross-cutting objectives that address harmful personal health behaviors in the context of emotional and mental well-being should be seriously considered.

References

1. Fee E. The origins and development of public health in the United States. In: Holland WW, Detels R, Knox G, eds. Oxford textbook of public health, 2d ed., vol 1, Influences of public health. New York: Oxford University Press. 1991.
2. Richmond JB, Kotelchuck M. Co-ordination and development of strategies and policy for public health promotion in the United States. In: Holland WW, Detels R, Knox G, eds. Oxford textbook of public health, 2d ed., vol 1, Influences of public health. New York: Oxford University Press, 441–54. 1991.
3. Hashimoto M. Physical environment. In: Holland WW, Detels R, Knox G, eds. Oxford textbook of public health, 2d ed., vol 1, Influences of public health. New York: Oxford University Press, 135–49. 1991.
4. Green LW, Simons-Morton DG. Education and lifestyle determinants of health and disease. In: Holland WW, Detels R, Knox G, eds. Oxford textbook of public health, 2d ed., vol 1, Influences of public health. New York: Oxford University Press, 181–95. 1991.
5. Blaxter M. Health and lifestyles. Tavistock-Routledge: London. 1990.
6. Breslow L, Enstrom JE. Persistence of health habits and their relationship to mortality. Prev Med 9:469–83. 1980.
7. Camacho TC, Kaplan GA, Cohen RD. Alcohol consumption and mortality in Alameda County. J Chron Dis 40(3):229–36. 1987.
8. Abbott RD, Yin Y, Reed DM, Yano K. Risk of stroke in male cigarette smokers. New Eng J Med 315(12): 717–20. 1986.
9. Rosenberg L, Schwingl PJ, Kaufman DW, et al. Breast cancer and cigarette smoking. New Eng J Med 310:92–94. 1984.
10. Willett WC, Green A, Stampfer MJ, et al. Relative and absolute excess risks of coronary heart disease among women who smoke cigarettes. New Eng J Med 317(21):1303–9. 1987.
11. Friedman LA, Kimball AW. Coronary heart disease mortality and alcohol consumption in Framingham. Amer J Epidemiology 124(3):481–9.
12. World Health Organization. Alma-Ata 1978. Primary health care. Report of the international conference on primary health care. Alma-Ata, U.S.S.R. Geneva: World Health Organization. September 6–12. 1978.
13. World Health Organization. Global strategy for health for all by the year 2000. Geneva: World Health Organization. 1981.
14. Abelin T. Health promotion. In: Holland WW, Detels R, Knox G, eds. Oxford textbook of public health, 2d ed., vol 3, Influences of public health. New York: Oxford University Press, 457–89. 1991.
15. U.S. Department of Health and Human Services. Promoting health/preventing disease: Objectives for the Nation. Washington: Public Health Service. 1980.
16. National Center for Health Statistics. Prevention profile. Health, United States, 1991. Hyattsville, Maryland: Public Health Service. 1992.
17. U.S. Department of Health and Human Services. Healthy people 2000: National health promotion and disease prevention objectives. Washington: Public Health Service. 1991.
18. U.S. Department of Health and Human Services. Reducing the health consequences of smoking: 25 years of progress. A Report of the Surgeon General. Public Health Service, Centers for Disease Control. 1989.
19. U.S. Public Health Service. Smoking and health. Report of the Advisory Committee to the Surgeon General of the Public Health Service. U.S. Department of Health Education and Welfare. Public Health Service, Centers for Disease Control. 1964.
20. U.S. Department of Health and Human Services. Seventh special report to the U.S. Congress on alcohol and health. Public Health Service. Alcohol, Drug, and Mental Health Administration. National Institute on Alcoholism and Alcohol Abuse. 1990.
21. National Institute of Mental Health. Mental health, United States, 1983. Taube CA, Barrett SA, eds. Rockville, Maryland: National Institute of Mental Health. 1983.
22. Center for Mental Health Services and National Institute of Mental Health. Mental Health, United States, 1992. Manderscheid RW, Sonnenschein MA, eds. Washington, DC: Superintendent of Documents, U.S. Government Printing Office. 1992.
23. Barker PR, Manderscheid RW, Hendershot GE, et al. Serious mental illness and disability in the adult household population: United States, 1989. Advance data from vital and health statistics; no 218. Hyattsville, Maryland: National Center for Health Statistics. 1992.
24. DiFranza JR, Guerrera MP. Alcoholism and smoking. J Studies Alcohol 51(2):130–5.
25. Bien TH, Burge R. Smoking and drinking: A review of the literature. Int J Addict 25(12):1429–54. 1990.
26. Zacny JP. Behavioral aspects of alcohol-tobacco interactions. Recent Dev Alcohol 8:205–19. 1990.
27. Bradstock K, Forman MR, Binkin NJ, et al. Alcohol use and health behavior lifestyles among U.S.

women: The behavioral risk factor surveys. Addict Behav 13(1):61–71. 1988.
28. Glassman AH, Helzer JE, Covey LS, et al. Smoking, smoking cessation, and major depression. JAMA 264(12):1546–9. 1990.
29. Schuckit MA, Monteiro MG. Alcoholism, anxiety, and depression. Br J Addict 83(12):1373–80. 1988.
30. Simonsick EM. Personal health habits and mental health in a national probability sample. Am J Prev Med 7(6):425–37. 1991.
31. Cohen S, Schwartz JE, Bromet EJ, Parkinson DK. Mental health, stress, and poor health behaviors in two community samples. Prev Med 20:306–15. 1991.
32. Frederick T, Frericks RR, Clark VA. Personal health habits and symptoms of depression at the community level. Prev Med 17:173–82. 1988.
33. Abramson JH. Cross-sectional studies. In: Holland WW, Detels R, Knox G, eds. Oxford textbook of public health, 2d ed., vol 2, Influences of public health. New York: Oxford University Press, 107–20. 1991.
34. Bradburn NM, Caplovitz D. Reports on happiness. A pilot study of behavior related to mental health. Chicago: Aldine Publishing Company. 1965.
35. Berkman P. Measurement of mental health in a general population survey. Am J Epidemiol 94(2):105–11. 1971.
36. Adams PF, Benson V. Current estimates from the National Health Interview Survey, 1991. National Center for Health Statistics. Vital Health Stat 10(184). 1992.
37. Piani A, Schoenborn C. Health promotion and disease prevention: United States, 1990. National Center for Health Statistics. Vital Health Stat 10(185). 1993.
38. McDowell I, Newell C. Measuring health: A guide to rating scales and questionnaires, 120–5. New York: Oxford University Press. 1987.
39. American Psychiatric Association. Diagnostic and statistical manual of mental disorders, 3d revision. Washington: American Psychiatric Association. 1987.
40. World Health Organization. The international statistical classification of diseases and related health problems, 10th revision, vol 1–3. Geneva: World Health Organization. 1992.
41. World Health Organization. The ICD–10 classification of diseases of mental and behavioural disorders: clinical descriptions and diagnostic guidelines. Geneva: World Health Organization. 1992.
42. National Center for Health Statistics. Plan and operation of the third Health and Nutrition Examination Survey, 1988–94. National Center for Health Statistics: Vital and Health Stat. In preparation.
43. Shah BV, Barnwell BG, Hunt P, et al. SUDAAN user's manual, release 5.50. Research Triangle Park: Research Triangle Institute. 1992.
44. Hosmer DW, Lemeshow S. Applied logistic regression. New York: John Wiley and Sons. 1989.
45. Schoenborn CA, Boyd G. Smoking and other tobacco use: United States, 1987. National Center for Health Statistics. Vital Health Stat 10(169). 1989.
46. Pierce JP, Fiore MC, Novotny TE, et al. Trends in cigarette smoking in the United States. Education differences are increasing. JAMA 261(1):56–60. 1989.
47. U.S. Department of Health and Human Services. Reducing health consequences of smoking: 25 years of progress. A report of the Surgeon General. Chapter 2: Advances in knowledge of the health consequences of smoking. Public Health Service, Centers for Disease Control, Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. 89–8411. 1989.
48. Colsher PL, Wallace RB, Pomrehn, PR, et al. Demographic and health characteristics of elderly smokers: Results from established populations for epidemiologic studies of the elderly. Am J Prev Med 6(2):61–70. 1990.
49. Mausner JS, Baum AK. Epidemiology: An introductory text. Philadelphia: Saunders. 316–7. 1974.
50. Jones BM, Jones MK. Women and alcohol: Intoxication, metabolism and the menstrual cycle. In: Greenblatt M, Schuckit MA, eds. Alcoholism problems in women and children. New York: Grune and Stratton. 1976.
51. Jones BM, Jones MK. Alcohol effects in women during the menstrual cycle. Ann NY Acad Sci 273:567–87. 1976.
52. Mello N. Some behavioral and biological aspects of alcohol problems in women. In: Kalant OJ, ed. Alcohol and drug problems in women. Research advances in alcohol and drug problems, vol 5. New York: Plenum Press. 1986.
53. Roman PM. Biological features of women's alcohol use: A review. Public Health Reports 103(6):628–37. 1988.
54. Schoenborn CA, Cohen BH. Trends in smoking, alcohol consumption, and other health practices among U.S. adults, 1977 and 1983. Advance data from vital and health statistics; no 118. Hyattsville, Maryland: National Center for Health Statistics. 1986.
55. Schoenborn CA. Health promotion and disease prevention, United States, 1985. National Center for Health Statistics. Vital Health Stat 10(163). 1988.
56. Driver HE, Swann PF. Alcohol and human cancer (review). Anticancer Res 7:309–20. 1987.
57. McCoy GD, Wynder EL. Etiological and preventive implications in alcohol carcinogenesis. Cancer Res 39:2844–50. 1979.
58. Parchman ML. Recognition of depression in patients who smoke. J Family Prac 33(3):255–8. 1991.
59. Levy PS, Lemeshow S. Sampling of populations: Methods and applications. New York: John Wiley and Sons. 1991.
60. Massey JT, Moore TF, Parsons VL, Tadros W. Design and estimation for the National Health Interview Survey, 1985–94. National Center for Health Statistics. Vital Health Stat 2(110). 1989.

Technical notes

Target population

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.

Description of the survey

The NHIS consists of two parts: a basic health and demographic questionnaire that remains almost the same from year to year and is completed for each household member, and special topic questionnaires that vary from year to year and usually are asked of just one person in each family. In 1991, the special topics included health promotion and disease prevention, encompassing environmental health; tobacco; nutrition; immunization and infectious disease; occupational safety and health; heart disease and stroke; other chronic and disabling conditions; clinical and preventive services; physical activity and fitness; alcohol; mental health; and oral health. Other special topics in 1991 were pregnancy and smoking; child health; Acquired Immunodeficiency Syndrome (AIDS) knowledge and attitudes; and drug and alcohol use. With the exception of the questions on drug use, all 1991 special topic questionnaires were administered in a face-to-face interview, with telephone followup as needed. Self-response was required for all items. The drug questionnaire was self-administered with no telephone followup permitted. Data tapes for these surveys are available from the Division of Health Interview Statistics and can be linked for investigation of cross-cutting research issues.

Response rates

The total sample interviewed for 1991 for the basic health questionnaire consisted of 46,761 households containing 120,032 individuals. The response rate for the basic health and demographic questionnaire was about 95.7 percent, with proxy responses accepted for household members not home at the time of interview. For the NHIS–HPDP, one adult per family aged 18 years or over was selected for interview and self-response was required. A total of 43,732 HPDP questionnaires were completed, representing 91.7 percent of respondents identified as eligible at the time of the household interview and an overall response rate of 87.8 percent (the product of the response rate for the basic questionnaire and the response rate for the special topic questionnaire). Item nonresponse ranged from 1.3 to 2.1 percent for the questions discussed in this report.

Sample design and statistical testing

Because the estimates shown in this report are based on a sample, they are subject to sampling error. The standard errors for the statistics shown in this report were calculated using Software for Survey Data Analysis (SUDAAN), developed by the Research Triangle Institute (43). SUDAAN is a software package, designed specifically for analysis of complex survey data, which takes into account the effects of the complex sample design in the calculation of standard errors (59). The sampling design of the NHIS has been fully described elsewhere (60). Briefly, the NHIS has a multistage sampling design with stratification and clustering. The first stage of the NHIS sample selection is the selection of 198 primary sampling units (PSU's) from approximately 1,900 geographically defined PSU's. Within the sample PSU area, segments are systematically selected, and then clusters of housing units are selected within the sample segments. Finally, a sample person within each household is selected for the HPDP survey. Generally, variances and standard errors are larger for such designs than for simple random samples of the same size. The SUDAAN procedures used were Proc Descript and Proc Logistic 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.

Definition of terms

Negative mood score—Additive score of five negative moods experienced in the 2 weeks preceding the interview: depressed, lonely, restless, bored, and upset. Response options for each were: 0 = never; 1 = rarely; 2 = sometimes; 3 = often; 4 = very often.

Smokers—Persons who had smoked at least 100 cigarettes in their lifetime and currently smoked any amount.

Heavier drinkers—Average daily consumption of alcohol was determined by multiplying the number of days drank any alcoholic beverages in the 2 weeks preceding the interview by the number of drinks consumed on the days drank divided by 14 days. Although the total amount of alcohol consumed in a 2-week period was averaged over 14 days, consumption was not necessarily spread out evenly over this period. Heavier drinking was defined as an average of three or more drinks per day for men and an average of two or more drinks per day for women.

Odds ratio—The odds ratio is an approximation of relative risk. Relative risk is defined as the

probability of a particular outcome (smoking or heavier drinking) among exposed individuals (persons experiencing negative moods), divided by the probability of this outcome among unexposed individuals (persons experiencing no or lower levels of negative moods). In mathematical terms, it is the exponential of the beta coefficient generated by SUDAAN's logistic regression procedure (Proc Logist). That is, $OR = e^{\beta}$.

95-percent confidence limits of the odds ratio—In 95 percent of the cases, the true odds ratio will fall within these limits. When the lower limit exceeds 1.0, the odds ratio is statistically significant. In other words, those in the exposed group (with negative moods) are more likely to smoke and/or drink than those in the unexposed group (without negative moods). In mathematical terms, these limits were calculated as the exponential of [the beta coefficient (generated by Proc Logist) $\pm$ 1.96 • the standard error of the beta coefficient], or $CI = e^{(\beta \pm 1.96 \cdot SE^{\beta})}$.

Number 237 • December 28, 1993

Advance Data

nchs

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

Office Visits to Psychiatrists: United States, 1989–90

by Susan M. Schappert, M.A., Division of Health Care Statistics

Introduction

During the 2-year period 1989–90, an estimated 37.6 million visits were made to nonfederally employed, office-based physicians in the United States who specialized in psychiatry—an average of 18.8 million visits per year. This report summarizes data pertaining to these visits in terms of patient characteristics, physician practice characteristics, and visit characteristics. Two earlier reports provide data on office visits to psychiatrists for the years 1975–76 and 1985 (1,2).

The information presented in this report is based on data collected by means of the National Ambulatory Medical Care Survey (NAMCS), a national probability sample survey conducted by the Division of Health Care Statistics of the National Center for Health Statistics, Centers for Disease Control and Prevention. This survey was conducted yearly from 1973 through 1981, and again in 1985. It resumed an annual schedule with the 1989 survey.

The 1989 and 1990 National Ambulatory Medical Care Surveys shared identical survey instruments, definitions, and procedures. The resulting 2 years of data have been combined to provide more reliable estimates, and the reader should note that the estimates, percent distributions, and rates presented in this report reflect average annual estimates based on the combined 1989 and 1990 data. The Patient Record, the survey instrument used by participating physicians to record information about their patients' office visits, is shown in figure 1.

The estimates presented in this report are based on a sample, rather than on the entire universe, of office visits and, as such, are subject to sampling variability. The Technical notes found at the back of this report include a brief discussion of the sample design, sampling errors, and guidelines for judging the precision of NAMCS estimates. Also located in the Technical notes are definitions of terms used in this report, including the definition of a psychiatrist for NAMCS purposes.

Several limitations of the data should be emphasized. These include the small number of psychiatrists who participated in the 1989 and 1990 surveys (see the Technical notes for additional discussion of sample size), and the exclusion from participation in the survey of all physicians who were not primarily engaged in office-based patient care as defined by the American Medical Association. Psychiatrists who are not classified by the American Medical Association as spending the majority of their professional time in office-based patient care may nevertheless spend a significant proportion of their time engaged in this type of activity in addition to their "principal" activity. Also excluded by the survey design are psychiatrists who see patients at community mental health centers and other government-operated facilities.

It has been estimated that the current NAMCS survey design captures about 84 percent of all ambulatory medical visits to psychiatrists (3). Continuing evaluation of the survey design may result in a broader definition of eligibility for participation in the survey to better reflect the spectrum of ambulatory medical care visits.

Several other publications summarize overall findings from the 1989 and 1990 National Ambulatory Medical Care Surveys (4–6), and reports on visits to other physician specialties and related topics are also available.

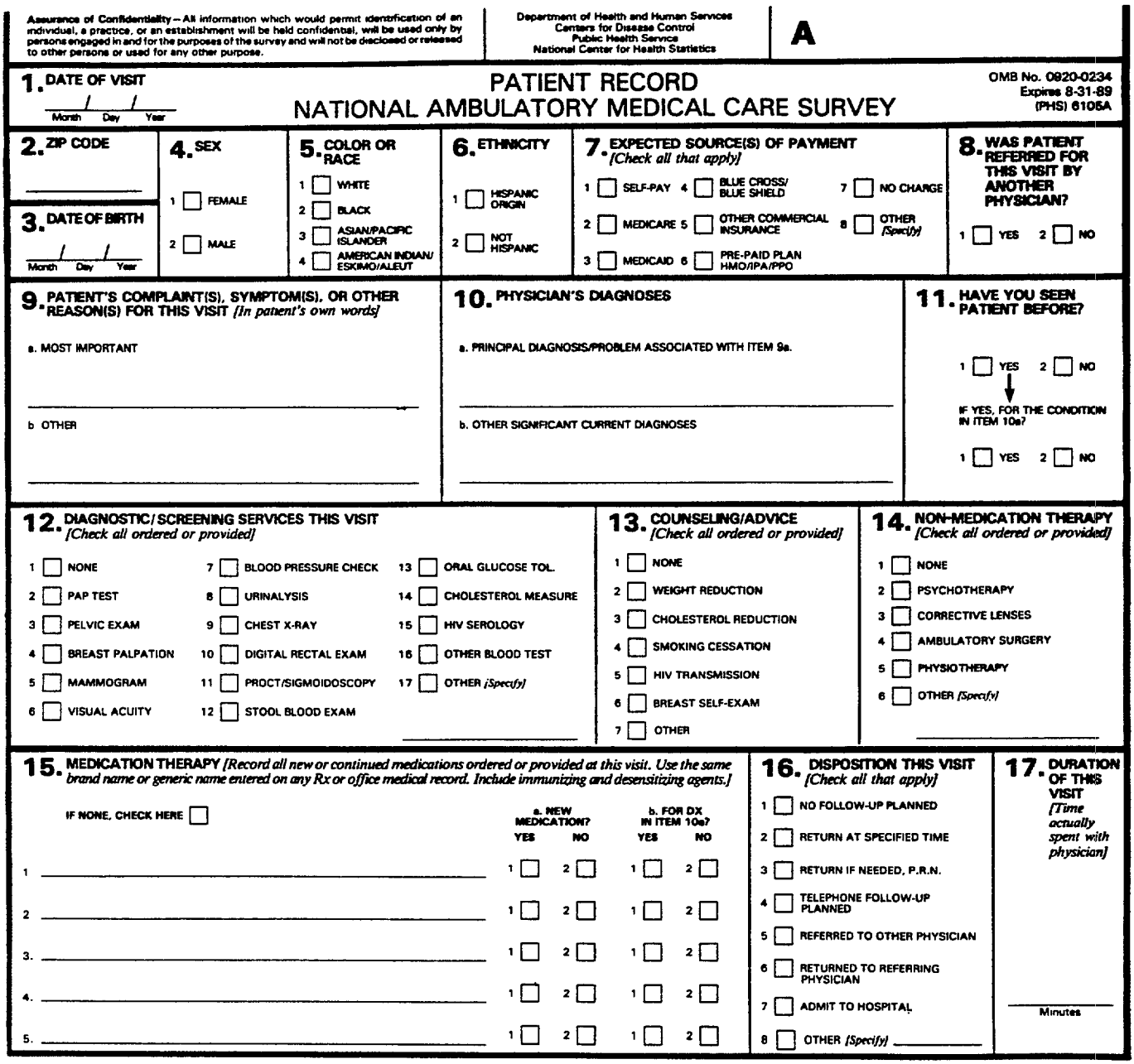
To obtain a list of NAMCS publications, readers may contact the Ambulatory Care Statistics Branch at (301) 436-7132.

Patient characteristics

Visits to psychiatrists by patient's age, sex, and race are displayed in

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

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION



Assurance of Confidentiality – All information which would permit identification of an individual, a practice, or an establishment will be held confidential, will be used only by persons engaged in and for the 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

A

1. DATE OF VISIT — Month / Day / Year

PATIENT RECORD
NATIONAL AMBULATORY MEDICAL CARE SURVEY

OMB No. 0920-0234
Expires 8-31-89
(PHS) 6105A

2. ZIP CODE

3. DATE OF BIRTH — Month / Day / Year

4. SEX
1 FEMALE
2 MALE

5. COLOR OR RACE
1 WHITE
2 BLACK
3 ASIAN/PACIFIC ISLANDER
4 AMERICAN INDIAN/ ESKIMO/ALEUT

6. ETHNICITY
1 HISPANIC ORIGIN
2 NOT HISPANIC

7. EXPECTED SOURCE(S) OF PAYMENT [Check all that apply]
1 SELF-PAY
2 MEDICARE
3 MEDICAID
4 BLUE CROSS/ BLUE SHIELD
5 OTHER COMMERCIAL INSURANCE
6 PRE-PAID PLAN HMO/IPA/PPO
7 NO CHARGE
8 OTHER [Specify]

8. WAS PATIENT REFERRED FOR THIS VISIT BY ANOTHER PHYSICIAN?
1 YES 2 NO

9. PATIENT'S COMPLAINT(S), SYMPTOM(S), OR OTHER REASON(S) FOR THIS VISIT [In patient's own words]
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 YES 2 NO
IF YES, FOR THE CONDITION IN ITEM 10a?
1 YES 2 NO

12. DIAGNOSTIC/SCREENING SERVICES THIS VISIT [Check all ordered or provided]
1 NONE
2 PAP TEST
3 PELVIC EXAM
4 BREAST PALPATION
5 MAMMOGRAM
6 VISUAL ACUITY
7 BLOOD PRESSURE CHECK
8 URINALYSIS
9 CHEST X-RAY
10 DIGITAL RECTAL EXAM
11 PROCT/SIGMOIDOSCOPY
12 STOOL BLOOD EXAM
13 ORAL GLUCOSE TOL.
14 CHOLESTEROL MEASURE
15 HIV SEROLOGY
16 OTHER BLOOD TEST
17 OTHER [Specify]

13. COUNSELING/ADVICE [Check all ordered or provided]
1 NONE
2 WEIGHT REDUCTION
3 CHOLESTEROL REDUCTION
4 SMOKING CESSATION
5 HIV TRANSMISSION
6 BREAST SELF-EXAM
7 OTHER

14. NON-MEDICATION THERAPY [Check all ordered or provided]
1 NONE
2 PSYCHOTHERAPY
3 CORRECTIVE LENSES
4 AMBULATORY SURGERY
5 PHYSIOTHERAPY
6 OTHER [Specify]

15. MEDICATION THERAPY [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.]
IF NONE, CHECK HERE

	a. NEW MEDICATION? YES	a. NEW MEDICATION? NO	b. FOR DX IN ITEM 10a? YES	b. FOR DX IN ITEM 10a? NO
1	1	2	1	2
2	1	2	1	2
3.	1	2	1	2
4.	1	2	1	2
5.	1	2	1	2

16. DISPOSITION THIS VISIT [Check all that apply]
1 NO FOLLOW-UP PLANNED
2 RETURN AT SPECIFIED TIME
3 RETURN IF NEEDED, P.R.N.
4 TELEPHONE FOLLOW-UP PLANNED
5 REFERRED TO OTHER PHYSICIAN
6 RETURNED TO REFERRING PHYSICIAN
7 ADMIT TO HOSPITAL
8 OTHER [Specify]

17. DURATION OF THIS VISIT [Time actually spent with physician]
Minutes

Figure 1. Patient Record form

table 1. Overall, this specialty received an average of 7.7 office visits per 100 persons per year for 1989 and 1990, not significantly different from visit rates noted in 1975–76 and 1985 (2). Visit rates were highest among persons 25–44 years of age and 45–64 years of age. These age groups together accounted for more than three-quarters (79.9 percent) of all psychiatrists' visits, with persons in the age group 25–44 years accounting for nearly half of all visits (48.2 percent). Visit rates for these two groups did not differ significantly from each other, at 11.4 visits and 12.8 visits per 100 persons, respectively.

Persons 15–24 years of age and 65 years and over visited psychiatrists significantly less frequently than did persons 25–44 and 45–64 years of age, with 4.2 and 4.6 visits per 100 persons, respectively. Persons under 15 years had the lowest visit rate of the five age groups, with only 1.7 visits per 100 persons. These three age groups (under 15 years, 15–24 years, and 65 years and over) together accounted for only 20.1 percent of visits to this specialty. The age distribution of visits to psychiatrists is contrasted with that of visits to all other physicians in figure 2.

Females accounted for more than half of the visits (59.1 percent) to office-based psychiatrists in 1989–90, significantly higher than the 40.9 percent of visits made by males. However, there was no significant difference found in the rate of visits

Table 1. Annual number, percent distribution, and rate of office visits to psychiatrists by selected patient characteristics and geographic region, averaged over a 2-year period: United States, 1989–90

Patient characteristic	Number of visits in thousands	Percent distribution	Visit rate per 100 persons[1]
Age			
All ages	18,790	100.0	7.7
Under 15 years	940	5.0	1.7
15–24 years	1,484	7.9	4.2
25–44 years	9,065	48.2	11.4
45–64 years	5,950	31.7	12.8
65 years and over	1,351	7.2	4.6
Sex and age			
Female, all ages	11,100	59.1	8.8
Under 15 years	229	1.2	0.9
15–24 years	918	4.9	5.2
25–44 years	5,497	29.3	13.6
45–64 years	3,466	18.4	14.4
65 years and over	990	5.3	5.7
Male, all ages	7,690	40.9	6.5
Under 15 years	712	3.8	2.6
15–24 years	565	3.0	3.2
25–44 years	3,568	19.0	9.2
45–64 years	2,484	13.2	11.2
65 years and over	361	1.9	2.9
Race			
White	17,355	92.4	8.4
Black	1,050	5.6	3.5
Asian and Pacific Islander	201	1.1	---
American Indian, Eskimo, and Aleut	58	0.3	---
Unspecified	126	0.7	---
Geographic region			
Northeast	6,325	33.7	12.8
Midwest	4,132	22.0	6.9
South	5,359	28.5	6.4
West	2,974	15.8	5.7

[1]Visit rates are based on U.S. Bureau of the Census estimates of the civilian noninstitutionalized U.S. population for July 1 of 1989 and 1990, averaged over the 2-year period.

to psychiatrists by females and males during this period (8.8 visits per 100 females per year compared with 6.5 visits per 100 males).

By age group, a somewhat different profile emerged. Males under the age of 15 were significantly more likely to visit a psychiatrist than were females under the age of 15. No significant differences were noted between males and females 15–24 years, 25–44 years, and 45–64 years of age, but the visit rate for females 65 years of age and over was significantly higher than the rate for males in the same age group.

Between 1985 and 1990 no statistical differences were found in visit rates by age and sex. However, significant increases were noted in the percent of visits made by persons 45–64 years of age and 65 years and over, along with a corresponding decrease in the percent of visits by persons 25–44 years of age.

White persons made 92.4 percent of all visits to psychiatrists during 1989–90, while black persons accounted for 5.6 percent. Asians and Pacific Islanders represented only 1.1 percent of these visits. Correspondingly, the visit rate for white persons was higher (8.4 visits per 100 persons per year) than for black persons (3.5 visits per 100 persons).

Physician practice characteristics

Psychiatrists received an average of 2.7 percent of the office visits made to ambulatory care physicians for 1989–90, making them the ninth most visited physician specialty overall (table 2). However, psychiatry was the fifth most visited specialty among persons 25–44 years of age, receiving an annual average of 9.1 million visits by persons in this age group, or 4.5 percent of all visits made by persons 25–44 years of age during 1989–90.

Between 1975 and 1990, the number of visits made to psychiatrists went from a 2-year total of 30.6 million visits during 1975–76 to a 2-year total of 37.6 million visits in 1989–90, but this was not a statistically significant change. The 1975–76 total represented 2.6 percent of all visits to office-based physicians during that period. This was not significantly different from their 1989–90 share.

Visit characteristics

Referral status and prior-visit status

Only 2.1 percent of office visits to psychiatrists were the result of a referral by another physician, significantly lower than the 5.6 percent for visits to all other physicians. The chronic nature of psychiatric illness is underscored by the fact that more than 90 percent of the visits to this specialty were made by patients who were returning to the physician for care of a previously treated condition, compared with 60.2 percent for visits to all other physicians. Only 6.0 percent of psychiatric visits were made by new patients. Visits by referral status and prior-visit status are summarized in table 3.

Expected source of payment

Self-payment was the expected source of payment listed most frequently at visits to psychiatrists (63.5 percent). In contrast, self-payment was cited at only 30.3 percent of visits to all other physicians. Private insurance (including commercial insurance and

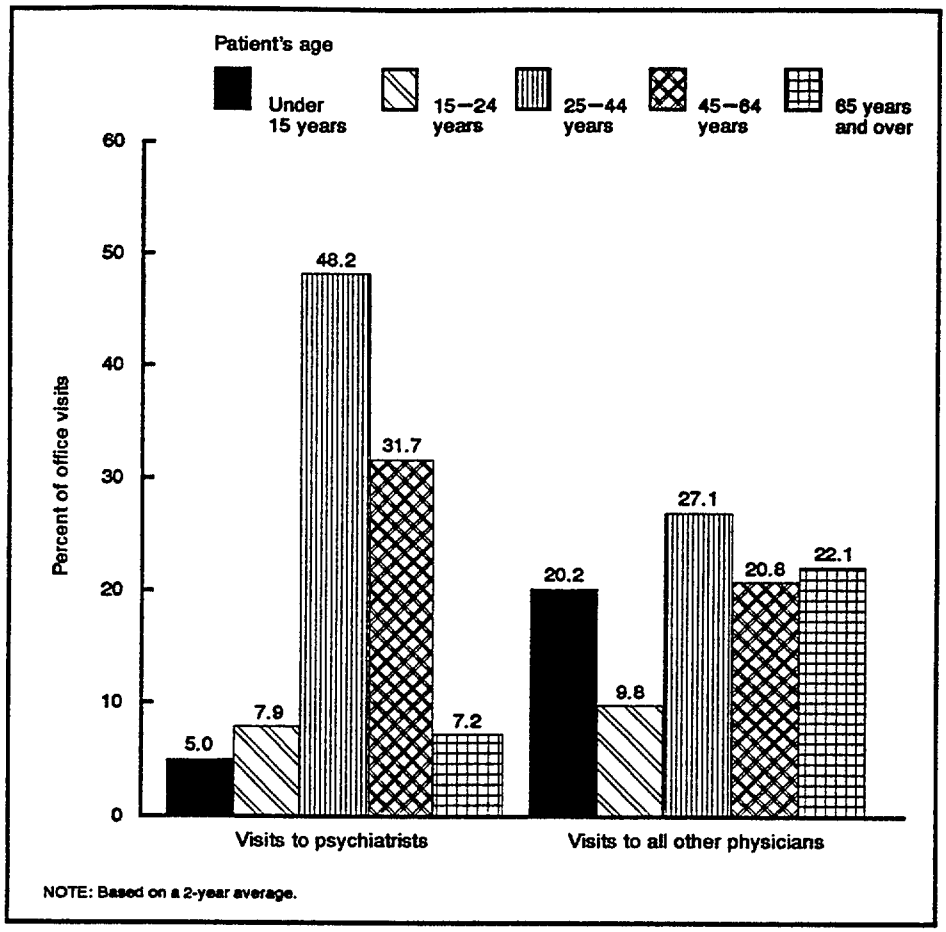


Figure 2. Percent distribution of office visits to psychiatrists and to all other physicians, by patient's age: United States, 1989–90

Blue Cross/Blue Shield) was listed at 41.6 percent of psychiatrists' visits. It should be noted that physicians were able to report more than one expected source of payment per visit. Visits to psychiatrists by expected source of payment are displayed in table 4.

Table 2. Annual number, percent distribution, and rate of office visits by physician specialty, averaged over a 2-year period: United States, 1989–90

Physician specialty	Number of visits in thousands	Percent distribution	Visit rate per 100 persons[1]
All visits	698,653	100.0	285.4
General and family practice	208,045	29.8	85.0
Internal medicine	87,719	12.6	35.8
Pediatrics	84,280	12.1	34.4
Obstetrics and gynecology	59,812	8.6	[2]24.4
Ophthalmology	41,302	5.9	16.9
Orthopedic surgery	34,033	4.9	13.9
Dermatology	25,164	3.6	10.3
General surgery	23,891	3.4	9.8
Psychiatry	18,790	2.7	7.7
Otolaryngology	16,957	2.4	6.9
Cardiovascular diseases	11,040	1.6	4.5
Urological surgery	9,852	1.4	4.0
Neurology	6,167	0.9	2.5
Other	71,603	10.2	29.2

[1]Visit rates are based on U.S. Bureau of the Census estimates of the civilian noninstitutionalized population of the United States for July 1 of 1989 and 1990, averaged over the 2-year period.
[2]Visit rate is 47.2 visits per 100 females. Females made 99.4 percent of the visits to obstetricians and gynecologists during this 2-year period.

Patient's principal reason for visit

Data in table 5 summarize the patient's principal reason for visiting the physician, according to the eight reason for visit modules, or groups of reasons, outlined in *A Reason for Visit Classification for Ambulatory Care* (RVC) (7). Principal reason for visit (item 9a on the Patient Record) is the patient's most important complaint, symptom, or other reason(s) for this visit expressed in the patient's (or patient surrogate's) own words. Up to three reasons per visit may be coded based on the classification system found in the RVC. It should be noted that the principal reason for visit reported at office visits to psychiatrists may be characterized by the psychiatrist based on his or her assessment of the patient's condition, especially when the visit is part of an ongoing course of psychiatric treatment.

Two-thirds (67.8 percent) of all visits to this specialty were due to a symptomatic problem or complaint, with the largest percent of symptoms falling into the category of psychological and mental disorders (62.3 percent). Also prominent was the treatment module, cited at one-quarter (25.9 percent) of the visits.

Specific reasons for visit are listed in table 6. The single most frequently mentioned principal reason for visiting the psychiatrist was depression, recorded at 28.2 percent of visits. Anxiety or nervousness was the second most frequent reason, mentioned at 15.9 percent of visits. It is important to note that the rank ordering found in this and other tables in this report may not always be reliable, because near estimates may not differ from one another because of sampling variability.

Diagnostic and screening services

About 7 percent of visits to psychiatrists included one or more

Table 3. Annual number and percent distribution of office visits to psychiatrists and to all other physicians by patient's referral status and prior-visit status, averaged over a 2-year period: United States, 1989–90

Visit characteristic	Visits to psychiatrists		Visits to all other physicians	
	Number of visits in thousands	Percent distribution	Number of visits in thousands	Percent distribution
All visits	18,790	100.0	679,863	100.0
Patient's referral status				
Patient was referred to this visit by another physician	395	2.1	37,830	5.6
Patient was not referred to this visit by another physician	18,395	97.9	642,033	94.4
Patient's prior-visit status				
New patient	1,121	6.0	113,288	16.7
Old patient, new problem	132	0.7	157,506	23.2
Old patient, old problem	17,537	93.3	409,069	60.2

Table 4. Annual number and percent distribution of office visits to psychiatrists and to all other physicians, by patient's expected source of payment, averaged over a 2-year period: United States, 1989–90

Expected source of payment[1]	Visits to psychiatrists		Visits to all other physicians	
	Number of visits in thousands	Percent distribution	Number of visits in thousands	Percent distribution
All visits	18,790	100.0	679,863	100.0
Self-pay	11,922	63.5	206,139	30.3
Commercial insurance	5,077	27.0	154,188	22.7
Blue Cross/Blue Shield	2,743	14.6	78,876	11.6
Medicare	1,695	9.0	131,339	19.3
Medicaid	1,156	6.2	55,487	8.2
Prepaid plan/HMO/IPA/PPO[2]	922	4.9	102,420	15.1
No charge	163	0.9	12,746	1.9
Other	1,245	6.6	37,007	5.4
Unknown	107	0.6	14,015	2.1

[1]Numbers may not add to totals because more than one source of payment may be coded for each visit.
[2]HMO is health maintenance organization, IPA is indepedent practice association, and PPO is preferred provider organization.

Table 5. Annual number and percent distribution of office visits to psychiatrists by patient's principal reason for visit, averaged over a 2-year period: United States, 1989–90

Principal reason for visit and RVC code[1]	Number of visits in thousands	Percent distribution
All visits	18,790	100.0
Symptom module .S001–S999	12,743	67.8
General symptoms .S001–S099	347	1.8
Symptoms referable to psychological and mental disorders .S100–S199	11,711	62.3
Symptoms referable to the nervous system (excluding sense organs) .S200–S259	295	1.6
Symptoms referable to the digestive system .S500–S639	197	1.0
Symptoms referable to the musculoskeletal system .S900–S999	93	0.5
All other symptoms .S260–S499,S640–S899	99	0.6
Disease module .D001–D999	585	3.1
Diagnostic, screening, and preventive module .X100–X599	98	0.5
Treatment module .T100–T899	4,875	25.9
Injury and adverse effects module .J001–J999	85	0.5
Other[2] .R100–R700,A100–A140,U990–U999	403	2.3

[1]Based on *A Reason for Visit Classification for Ambulatory Care* (RVC) (7).
[2]Includes test results and administrative modules, blanks, problems, and complaints not elsewhere classified, entries of "none," and illegible entries.

diagnostic or screening services ordered or provided by the psychiatrist, compared with 64.3 percent of visits to all other physicians. The "other" category was checked most frequently (5.4 percent). The mental status exam, often used as a diagnostic tool at the patient's initial visit to the psychiatrist, was included in the list of specific diagnostic and screening services on the 1991 NAMCS Patient Record, where it was cited at 40.3 percent of all visits to psychiatrists. It did not appear as a separate category in the NAMCS for 1989 or 1990.

Physician's diagnoses

Data on principal diagnoses rendered at office visits are obtained from item 10a of the Patient Record, which asks physicians to record the principal diagnosis associated with the patient's most important reason for the visit. Diagnoses are classified and coded according to the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (8).

About 9 of every 10 visits to psychiatrists resulted in a principal diagnosis that was classifiable to a mental disorder (ICD–9–CM codes 290–319). Principal diagnoses are presented throughout this report according to a classification system suggested by the American Psychiatric Association (APA) for use with NAMCS data (see Technical notes) (9). Grouped principal diagnoses according to patient's age and sex are presented in tables 7 and 8.

The most frequently reported diagnostic category was mood disorders, including bipolar and depressive disorders, which were reported at 43.1 percent of all visits, for an estimated average of 8.1 million office visits per year for 1989 and 19[illegible]. Within this group, depressive disorders predominated, accounting for 6.9 million visits, or 36.8 percent of all visits to office-based psychiatrists.

Table 6. Annual number and percent distribution of office visits to psychiatrists by the 20 most frequently mentioned principal reasons for visit, averaged over a 2-year period: United States, 1989–90

Principal reason for visit and RVC code[1]	Number of visits in thousands	Percent distribution
All visits	18,790	100.0
Depression .S110	5,303	28.2
Anxiety or nervousness .S100	2,983	15.9
Psychotherapy .T410	1,300	6.9
Other signs or symptoms relating to psychological and mental disorders .S165	1,030	5.5
Marital problems .T705	690	3.7
Behavioral disturbances .S130	610	3.2
Medication, other and unspecified kinds .T115	441	2.3
Parent-child problems .T710	372	2.0
Anger .S115	357	1.9
Disturbances of sleep .S135	321	1.7
Social adjustment problems .T730	319	1.7
Occupational problems .T725	294	1.6
Psychosexual disorders .S160	233	1.2
Problems with identity and self-esteem .S120	227	1.2
Fears and phobias .S105	223	1.2
Other problems of family relationship .T715	219	1.2
Delusions or hallucinations .S155	212	1.1
Functional psychoses .D305	209	1.1
Counseling, not otherwise specified .T605	194	1.0
Tiredness, exhaustion .S015	184	1.0
All other reasons	3,070	16.3

[1]Based on *A Reason for Visit Classification for Ambulatory Care* (RVC) (7).

Anxiety disorders accounted for an average of 2.5 million office visits per year for 1989 and 1990, or 13.4 percent of the total. The most common diagnoses within this group were generalized anxiety disorder (ICD–9–CM code 300.02) with an average of 693,000 visits per year and anxiety state, unspecified (ICD–9–CM code 300.00) with 500,000 visits per year.

Also prominent among the grouped diagnoses were personality disorders. There was an annual average of 1.9 million visits in this category, or 10.2 percent of the total.

Figure 3 illustrates the distribution of secondary diagnoses at visits to office-based psychiatrists. Secondary diagnoses were recorded at 6.8 million visits, or 36.3 percent of the total. The largest group of secondary diagnoses was personality disorders, mentioned at 1.9 million visits, or 27.3 percent of all visits with secondary diagnoses. Depressive disorders were listed at 1.2 million visits, accounting for 17.0 percent of the secondary diagnoses. Ill-defined signs and symptoms and nonpsychiatric medical conditions (1.8 million visits) and anxiety disorders (1.7 million visits) were also prominent among secondary diagnoses.

Visits to other physicians for depression and anxiety

Pyschiatrists, as mentioned earlier, received an annual average of 5.3 million visits at which the patient's reason for visiting the physician was depression, and another 3.0 million visits for anxiety or nervousness during 1989–90. However, an additional 4.0 million visits per year for depression and anxiety were made to physicians other than psychiatrists over the same period. Listed in table 9 are office visits made for selected reasons for visit and diagnoses, according to physician specialty. The data indicate that primary care physicians receive a significant number of visits for many problems that may be psychiatric in nature. An analysis of visits made for depression, anxiety, and related problems to physicians other than psychiatrists is beyond the scope of this report, but is scheduled to be the topic of a later publication in this series.

Therapeutic services

Data on therapeutic services, including the use of medication, ordered or provided at office visits to psychiatrists are shown in tables 10–14. As used in the NAMCS, the term "drug" is interchangeable with the term "medication" and includes all new or continued medications ordered or provided at the visit. This includes prescription and nonprescription preparations, immunizing agents, and desensitizing agents. "Drug mentions" refers to the total number of medications listed in item 15 of the Patient Record. Physicians may record more than one medication per visit, so that the total number of drug mentions may exceed the total number of visits. "Drug visits" refers to visits with at least one mention of medication ordered or provided by the physician. An earlier report describes the method and instruments used in the collection and processing of NAMCS drug data (10).

Table 10 presents data on the range of therapeutic services ordered or provided at visits to office-based psychiatrists. Psychotherapy was the type of therapeutic service mentioned most frequently, at 89.5 percent of the visits. More than one-third (38.6 percent) of psychiatric visits included some form of counseling or advice. This was most often reported in the "other" category (36.7 percent); of the specific types of counseling mentioned on the Patient Record, weight reduction was cited most often, at 2.2 percent of visits.

Medication therapy was mentioned at half of the visits (50.2 percent), somewhat less than the 60.5 percent of visits to all other physicians. More than half of all visits made by females included medication therapy (54.4 percent), significantly higher than the 44.1 percent of visits by males. Overall, the proportion of visits that included medication

Table 7. Annual number and percent distribution of visits to office-based psychiatrists by grouped principal diagnoses, according to patient's sex, averaged over a 2-year period: United States, 1989–90

Grouped principal diagnoses[1]	Patient's sex		
	Total	Female	Male
	Number of visits in thousands		
All visits	18,790	11,100	7,690
Mental retardation, developmental disorders, and other childhood disorders	522	93	429
Hyperkinetic syndrome of childhood	352	56	296
Other	170	*37	133
Delirium, dementia, and other mental disorders due to a general medical condition	81	64	*17
Substance-related disorders	284	80	204
Schizophrenia and other (nonmood) psychotic disorders	1,651	974	676
Mood disorders	8,100	5,420	2,680
Bipolar disorders	1,160	797	363
Depressive disorders	6,920	4,603	2,317
Major depressive disorder	2,820	1,826	994
Dysthymia	3,054	2,011	1,043
Other depressive disorders	1,046	766	280
Other mood disorders	*20	*20	–
Anxiety disorders	2,511	1,503	1,008
Panic disorders	417	289	128
Obsessive-compulsive disorder	410	245	165
Other anxiety disorders	1,684	969	715
Adjustment disorders	1,457	756	700
Personality disorders	1,913	867	1,046
Other mental disorders	1,115	606	509
Other conditions that may be a focus of treatment	470	295	174
Ill-defined signs and symptoms and other nonpsychiatric medical conditions	558	375	183
Unknown	128	66	62
	Percent distribution		
All visits	100.0	100.0	100.0
Mental retardation, developmental disorders, and other childhood disorders	2.8	0.8	5.6
Hyperkinetic syndrome of childhood	1.9	0.5	3.9
Other	0.9	*0.3	1.7
Delirium, dementia, and other mental disorders due to a general medical condition	0.4	0.6	*0.2
Substance-related disorders	1.5	0.7	2.7
Schizophrenia and other (nonmood) psychotic disorders	8.8	8.8	8.8
Mood disorders	43.1	48.8	34.9
Bipolar disorders	6.2	7.2	4.7
Depressive disorders	36.8	41.5	30.1
Major depressive disorder	15.0	16.5	12.9
Dysthymia	16.3	18.1	13.6
Other depressive disorders	5.6	6.9	3.6
Other mood disorders	*0.1	*0.2	–
Anxiety disorders	13.4	13.5	13.1
Panic disorders	2.2	2.6	1.7
Obsessive-compulsive disorder	2.2	2.2	2.1
Other anxiety disorders	9.0	8.7	9.3
Adjustment disorders	7.8	6.8	9.1
Personality disorders	10.2	7.8	13.6
Other mental disorders	5.9	5.5	6.6
Other conditions that may be a focus of treatment	2.5	2.7	2.3
Ill-defined signs and symptoms and other nonpsychiatric medical conditions	3.0	3.4	2.4
Unknown	0.7	0.6	0.8

[1]Diagnostic groupings are based on a classification system developed for the American Psychiatric Association by Michael B. First, M.D., of the New York State Psychiatric Institute, for use with NAMCS data.

therapy was not significantly different from the 46.3 percent noted in 1985.

Table 11 examines psychotherapy and medication therapy used separately or in combination at psychiatrists' office visits according to grouped principal diagnoses. Again, principal diagnoses are combined according to the APA's suggested classification system.

Medication therapy was most often used as an adjunct to psychotherapy; 45.6 percent of all visits listed both psychotherapy and medication therapy ordered or provided by the psychiatrist, while an additional 43.9 percent listed psychotherapy without medication.

Psychotherapy without medication was provided more often than not at visits for adjustment disorders (74.6 percent of visits); personality disorders (72.6 percent); substance-related disorders (64.1 percent); anxiety disorders excluding panic disorder and obsessive-compulsive disorder (56.1 percent); and depressive disorders excluding major depressive disorder (55.4 percent).

About three-quarters (78.6 percent) of visits with diagnoses of major depressive disorder reported the use of psychotherapy and medication. This treatment option was also frequently cited at visits with diagnoses of bipolar disorders (72.9 percent); panic disorder (71.7 percent); hyperkinetic syndrome of childhood (68.7 percent); and schizophrenia and other nonmood psychotic disorders (64.2 percent).

Additional data relating to the utilization of medication at psychiatrists' office visits are shown in tables 12–14. Among visits to psychiatrists, there was an average of 15.9 million drug mentions per year for 1989–90, yielding about 1.7 mentions per drug visit and about 8 mentions for every 10 visits in general. Data pertaining to selected drug characteristics are shown in table 12. Most of the drugs mentioned at visits to office-based psychiatrists were available by prescription only (95.0 percent), were composed of a single ingredient (93.3 percent), were prescribed using a trade name

Table 8. Annual number, percent distribution, and cumulative percent of visits to office-based psychiatrists by grouped principal diagnoses, according to patient's age, averaged over a 2-year period: United States, 1989–90

Grouped principal diagnoses[1]	Number of visits in thousands	Percent distribution	Cumulative percent
Under 15 years			
All visits	940	100.0	...
Mental retardation, developmental disorders, and other childhood disorders	359	38.2	38.2
Hyperkinetic syndrome of childhood	289	30.8	...
Other	70	7.4	...
Adjustment disorders	171	18.1	56.3
Mood disorders	158	16.8	73.1
Depressive disorders	158	16.8	...
All other	252	26.8	100.0
15–24 years			
All visits	1,484	100.0	...
Mood disorders	535	36.1	36.1
Bipolar disorders	63	4.2	...
Depressive disorders	473	31.9	...
Adjustment disorders	228	15.3	51.4
Anxiety disorders	205	13.8	65.2
Mental retardation, developmental disorders, and other childhood disorders	104	7.0	72.2
All other	412	27.8	100.0
25–44 years			
All visits	9,065	100.0	...
Mood disorders	3,764	41.5	41.5
Bipolar disorders	605	6.7	...
Depressive disorders	3,152	34.8	...
Other mood disorders	*8	*0.1	...
Anxiety disorders	1,419	15.7	57.2
Panic disorders	199	2.2	...
Obsessive-compulsive disorder	194	2.1	...
Other anxiety disorders	1,026	11.3	...
Personality disorders	1,041	11.5	68.7
Schizophrenia and other (nonmood) psychotic disorders	786	8.7	77.4
Adjustment disorders	699	7.7	85.1
All other	1,356	15.0	100.0
45–64 years			
All visits	5,950	100.0	...
Mood disorders	2,795	47.0	47.0
Bipolar disorders	397	6.7	...
Depressive disorders	2,398	40.3	...
Anxiety disorders	699	11.8	58.8
Personality disorders	735	12.3	71.1
Adjustment disorders	322	5.4	76.5
All other	1,399	23.5	100.0
65 years and over			
All visits	1,351	100.0	...
Mood disorders	847	62.7	62.7
Bipolar disorders	95	7.1	...
Depressive disorders	740	54.8	...
Other mood disorders	12	0.9	...
All other	504	37.3	100.0

[1]Diagnostic groupings are based on a classification system developed for the American Psychiatric Association by Michael B. First, M.D., of the New York State Psychiatric Institute, for use with NAMCS data.

(77.5 percent), and were not classified as a controlled substance by the Drug Enforcement Agency (74.0 percent).

Data in table 13 summarize the number of drug mentions by therapeutic classification, adapted from therapeutic categories used in the *National Drug Code directory,* 1985 edition (11). In cases where a particular drug was classifiable to more than one therapeutic category, it was listed under the category for which it was most frequently prescribed. As expected, psychopharmacologic drugs were prescribed most frequently (82.8 percent of drug mentions). Within this category, antidepressants (39.7 percent of the mentions), antipsychotic drugs (21.2 percent), and antianxiety agents (15.6 percent) figured most prominently.

The generic substances used most frequently in medications ordered or provided at psychiatric office visits are shown in table 14. Fluoxetine hydrochloride (Prozac) was the most commonly mentioned generic ingredient, with 2.0 million mentions, accounting for 12.7 percent of the total. It should be noted that drugs containing more than one ingredient are listed in the data for each ingredient.

Disposition of visit

Visits to psychiatrists were more likely to include instructions to return at a specific time (93.3 percent) than were visits to all other physicians (60.8 percent). Data on disposition of visit are displayed in table 15.

Duration of visit

More than half (53.6 percent) of all office visits to psychiatrists lasted 41 to 50 minutes (table 16). Average duration of psychiatric visits was 42.7 minutes compared with 15.5 minutes for visits to all other physicians. Average duration is based on the time spent in direct, face-to-face contact between the physician and the patient. It does not include visits of "0"-minutes duration, that is, visits in which the patient did not meet with the physician directly.

References

1. Cypress BK. Office visits to psychiatrists: National Ambulatory Medical Care Survey: United States, 1975–76. Advance data from vital and health statistics; no. 38. Hyattsville, Maryland: National Center for Health Statistics. 1978.

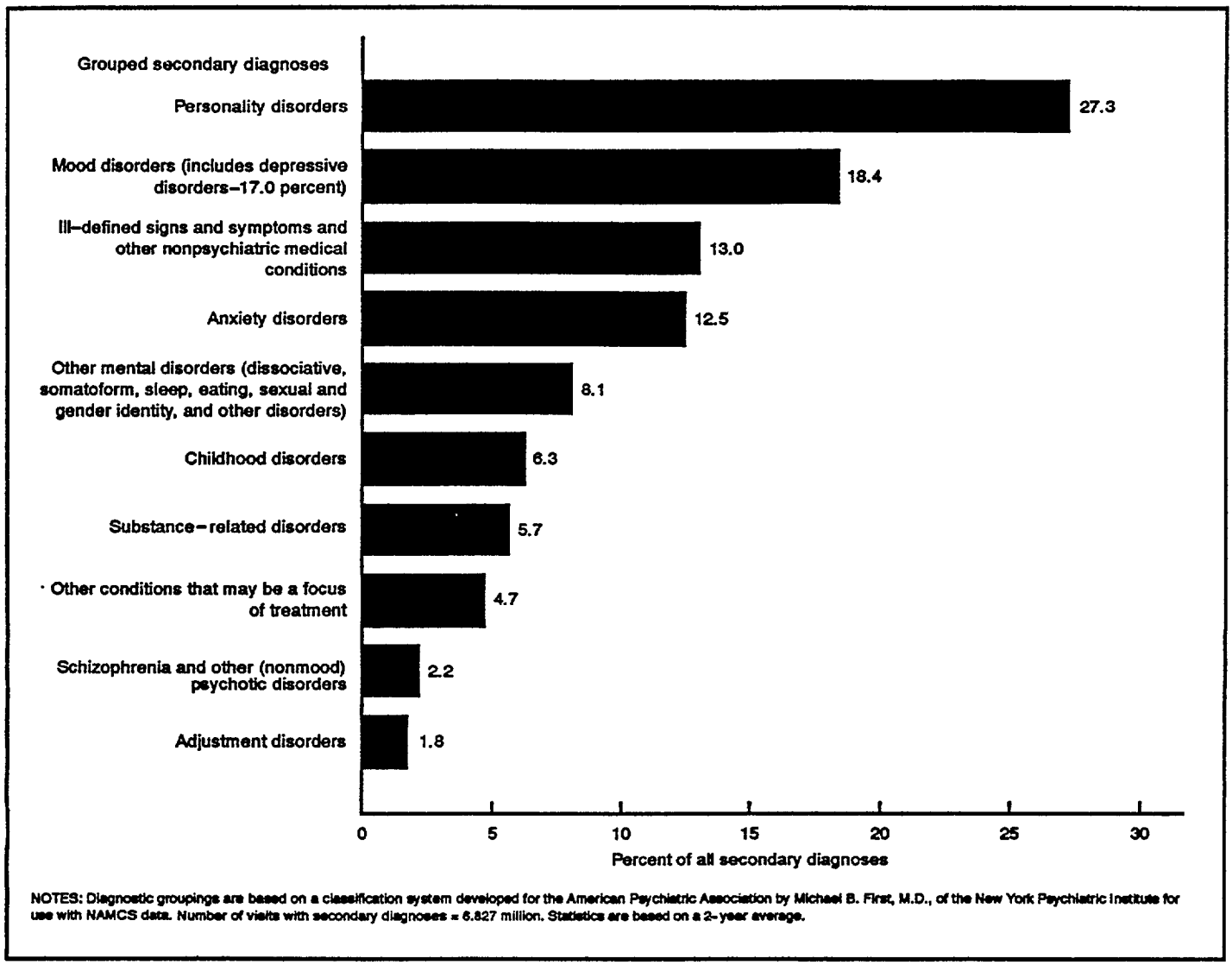


Figure 3. Percent distribution of secondary diagnoses at psychiatrists office visits by diagnostic group: United States, 1989–90

2. Gardocki GJ. Office visits to psychiatrists; United States, 1985. National Center for Health Statistics. Vital Health Stat 13(94). 1988.
3. Gardocki GJ, McLemore T, DeLozier JE. The National Ambulatory Medical Care Complement Survey; United States, 1980. National Center for Health Statistics. Vital Health Stat 13(77). 1984.
4. 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.
5. Schappert SM. National Ambulatory Medical Care Survey: 1989 Summary. National Center for Health Statistics. Vital Health Stat 13(110). 1992.
6. Schappert SM. National Ambulatory Medical Care Survey: 1990 Summary. Advance data from vital and health statistics; no. 213. Hyattsville, Maryland: National Center for Health Statistics. 1992.
7. Schneider D, Appleton L, McLemore T. A reason for visit classification for ambulatory care. National Center for Health Statistics. Vital Health Stat 2(78). 1979.
8. Public Health Service and Health Care Financing Administration. International Classification of Diseases, 9th Revision, clinical modification. Washington: Public Health Service. 1980.
9. First MB. Proposed groupings of ICD–9–CM codes for NAMCS reporting. New York State Psychiatric Institute. Private communication.
10. Koch H, Campbell W. The collection and processing of drug information. National Ambulatory Medical Care Survey, 1980. National Center for Health Statistics. Vital Health Stat 2(90). 1982.
11. Food and Drug Administration. National Drug Code directory, 1985 edition. Washington: Public Health Service. 1985.
12. National Center for Health Statistics. Public Use Data Tape Documentation, 1989 National Ambulatory Medical Care Survey. Hyattsville, Maryland. 1991.

Table 9. Annual number and percent distribution of office visits for selected principal reasons for visit and grouped principal diagnoses by physician specialty, averaged over a 2-year period: United States, 1989–90

Visit characteristic	Number of visits in thousands	Total	Physician specialty		
			Psychiatry	Primary care[1]	All other specialties
			Percent distribution		
All visits	698,653	100.0	2.7	54.5	42.8
Principal reason for visit and RVC code[2]					
All symptoms referable to psychological and mental disorders .S100–S199	18,945	100.0	61.8	30.4	7.8
Depression .S110	6,956	100.0	76.2	20.7	*3.1
Anxiety and nervousness .S100	5,336	100.0	55.9	37.5	6.6
Disturbances of sleep .S135	1,522	100.0	21.1	64.6	*14.3
Other signs or symptoms relating to psychological and mental disorders .S165	1,365	100.0	75.5	19.9	*4.6
Behavioral disturbances .S130	999	100.0	61.0	32.3	*6.7
Psychosexual disorders .S160	891	100.0	26.1	*17.4	56.5
Anger .S115	357	100.0	100.0	–	–
Fears and phobias .S105	246	100.0	90.6	*9.4	–
Problems with identity and self-esteem .S120	234	100.0	96.9	*3.1	–
Delusions or hallucinations .S155	225	100.0	94.3	*2.8	*2.9
Grouped principal diagnoses[3]					
Mental retardation, developmental disorders, and other childhood disorders	1,490	100.0	35.0	60.8	*4.2
Delirium, dementia, and other mental disorders due to a general medical condition	412	100.0	*19.7	44.0	*36.2
Substance-related disorders	988	100.0	28.7	65.3	*6.0
Schizophrenia and other (nonmood) psychotic disorders	2,100	100.0	78.6	18.3	*3.1
Mood disorders	10,914	100.0	74.2	21.8	4.0
Bipolar disorders	1,175	100.0	98.7	*1.3	–
Depressive disorders	9,718	100.0	71.2	24.3	4.4
Major depressive disorder	3,014	100.0	93.6	*5.9	*0.6
Dysthymia	3,757	100.0	81.3	16.5	*2.3
Other depressive disorders	2,947	100.0	35.5	53.3	*11.2
Other mood disorders	*21	100.0	*95.1	–	*4.9
Anxiety disorders	4,876	100.0	51.5	41.6	*6.9
Adjustment disorders	1,792	100.0	81.3	17.1	*1.6
Personality disorders	1,935	100.0	98.9	*1.1	*0.1
Other mental disorders	3,713	100.0	30.0	45.4	24.5
Other conditions that may be a focus of treatment	2,016	100.0	23.3	40.1	36.6
Ill-defined signs and symptoms and other nonpsychiatric medical conditions	654,311	100.0	0.1	55.5	44.5
Unknown	14,106	100.0	*0.9	54.6	44.5

[1]Includes visits to general and family practitioners, internists, and pediatricians.
[2]Based on *A Reason for Visit Classification for Ambulatory Care* (RVC) (7).
[3]Diagnostic groupings are based on a classification developed for the American Psychiatric Association by Michael B. First, M.D., of the New York State Psychiatric Institute, for use with NAMCS data.

13. National Center for Health Statistics. Public Use Data Tape Documentation, 1990 National Ambulatory Medical Care Survey. Hyattsville, Maryland. 1992.

Table 10. Annual number and percent distribution of office visits to psychiatrists by therapeutic service ordered or provided, averaged over a 2-year period: United States, 1989–90

Therapeutic service ordered or provided at visit[1]	Number of visits in thousands	Patient's sex		
		Total	Female	Male
		Percent distribution		
All visits	18,790	100.0	100.0	100.0
New or continuing medication:				
No drug mentions	9,353	49.8	45.6	55.9
One drug mention	5,106	27.2	28.5	25.2
Two drug mentions	2,862	15.2	17.5	11.9
Three drug mentions	988	5.3	5.5	4.9
Four or five drug mentions	481	2.6	2.9	2.1
Counseling/advice:				
None	11,535	61.4	60.1	63.2
Weight reduction	407	2.2	2.3	2.0
Smoking cessation	121	0.6	0.5	0.8
HIV transmission	62	0.3	*0.1	0.7
Other[2]	6,904	36.7	38.2	34.7
Other nonmedication therapy:				
None	1,055	5.6	4.7	6.9
Psychotherapy	16,819	89.5	91.6	86.6
Other[2]	1,796	9.6	7.7	12.2

[1]Numbers may not add to totals because more than one type of therapy may be ordered or provided at each visit.
[2]None of the specific therapeutic services listed in this category had frequencies large enough to meet NCHS reliability standards.

Table 11. Annual number and percent distribution of visits to office-based psychiatrists by type of therapy ordered or provided, according to grouped principal diagnoses, averaged over a 2-year period: United States, 1989–90

Grouped principal diagnoses[1]	Number of visits in thousands	Type of therapy ordered or provided			
		Total	Psychotherapy with medication	Psychotherapy without medication	Medication without psychotherapy[2]	Neither psychotherapy nor medication[3]
			Percent distribution			
All visits	18,790	100.0	45.6	43.9	4.6	5.9
Mental retardation, developmental disorders, and other childhood disorders	522	100.0	57.9	25.7	11.0	*5.4
Hyperkinetic syndrome of childhood	352	100.0	68.7	14.5	12.6	*4.1
Other	170	100.0	35.5	48.8	*7.6	*8.1
Delirium, dementia, and other mental disorders due to a general medical condition	81	100.0	55.1	37.0	*7.9	...
Substance-related disorders	284	100.0	27.5	64.1	*1.9	*6.4
Schizophrenia and other (nonmood) psychotic disorders	1,651	100.0	64.2	16.7	16.8	*2.4
Mood disorders	8,100	100.0	58.5	35.6	3.8	*2.1
Bipolar disorders	1,160	100.0	72.9	21.5	5.6	...
Depressive disorders	6,920	100.0	56.0	38.1	3.5	2.4
Major depressive disorder	2,820	100.0	78.6	12.8	6.4	2.1
Dysthymia	3,054	100.0	39.1	58.2	*1.0	1.7
Other depressive disorders	1,046	100.0	44.2	47.3	*3.3	5.2
Other mood disorders	*20	100.0	100.0	–	–	–
Anxiety disorders	2,511	100.0	47.1	47.1	2.3	3.4
Panic disorders	417	100.0	71.7	21.2	*7.1	–
Obsessive-compulsive disorder	410	100.0	53.2	35.9	*2.9	*7.9
Other anxiety disorders	1,684	100.0	40.1	56.1	*1.0	2.8
Adjustment disorders	1,457	100.0	18.2	74.6	*3.1	4.1
Personality disorders	1,913	100.0	13.0	72.6	*0.9	13.5
Other mental disorders	1,115	100.0	22.9	58.2	*0.5	18.4
Other conditions that may be a focus of treatment	470	100.0	30.6	47.6	*3.4	18.4
Ill-defined signs and symptoms and other nonpsychiatric medical conditions	558	100.0	37.2	33.3	5.8	23.6
Unknown	128	100.0	30.4	*22.7	29.3	*17.6

[1]Diagnostic groupings are based on a classification system developed for the American Psychiatric Association by Michael B. First, M.D., of the New York Psychiatric Institute, for use with NAMCS data.
[2]An average of 870,000 visits included medication without mention of psychotherapy. Of these, 47.7 percent reported other counseling advice ordered or provided at the visit, and 20.1 percent reported other nonmedication therapy at the visit.
[3]An average of 1.1 million visits did not include psychotherapy or medication therapy. However, 67.3 percent of these cited other nonmedication therapy, and 24.8 percent reported that other counseling/advice was ordered or provided.

Table 12. Annual number and percent distribution of drug mentions at office visits to psychiatrists by selected characteristics, averaged over a 2-year period: United States, 1989–90

Selected characteristics	Number of drug mentions in thousands	Percent distribution
All mentions	15,933	100.0
Entry status		
Generic name	3,012	18.9
Trade name	12,342	77.5
Undetermined	579	3.6
Prescription status		
Prescription drug	15,133	95.0
Nonprescription drug	221	1.4
Undetermined	579	3.6
Composition status		
Single ingredient drug	14,858	93.3
Combination drug	495	3.1
Undetermined	579	3.6
Control status[1]		
Controlled drug	3,564	22.4
Schedule I	–	–
Schedule II	323	2.0
Schedule III	*116	*0.7
Schedule IV	3,125	19.6
Schedule V	–	–
Uncontrolled drug	11,790	74.0
Undetermined	579	3.6

[1]Refers to whether the medication is controlled by the Drug Enforcement Agency (DEA). The DEA classifies drugs into five categories of control depending on therapeutic use and potential for addiction or habituation, with Schedule I drugs having no currently accepted medical use and the highest potential for abuse. Schedule II–V drugs all have currently accepted medical uses, with potential for abuse ranging from high for Schedule II to low relative to more restricted control classes for Schedules III, IV, and V.

Table 13. Annual number and percent distribution of drug mentions at office visits to psychiatrists by therapeutic classification, averaged over a 2-year period: United States, 1989–90

Therapeutic classification[1]	Number of drug mentions in thousands	Percent distribution
All mentions	15,933	100.0
Psychopharmacologic drugs	13,191	82.8
Antidepressants	6,331	39.7
Antipsychotic drugs	3,375	21.2
Antianxiety agents	2,484	15.6
Sedatives and hypnotics	619	3.9
CNS stimulants, anorexiants	382	2.4
Neurologic drugs	1,018	6.4
Anticonvulsants	590	3.7
Drugs used in extrapyramidal movement disorders	428	2.7
Pain relief	287	1.8
Cardiovascular-renal drugs	264	1.7
Gastrointestinal agents	*198	1.2
Hormones and agents affecting hormonal mechanisms	*170	*1.1
Metabolic, nutrient agents	*76	*0.5
Respiratory tract drugs	*52	*0.3
Antimicrobial agents	*38	*0.2
Hematologic agents	*20	*0.1
Other[2]	*40	*0.3
Unclassified, miscellaneous	579	3.6

[1]Therapeutic classification is based on the standard drug classification used in the *National Drug Code directory*, 1985 edition (11).
[2]Includes anesthetics, antidotes, and otologic drugs.

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

Table 14. Annual number, percent distribution, and therapeutic classification of drug mentions at office visits to psychiatrists by the 20 most frequently used generic substances, averaged over a 2-year period: United States, 1989–90

Generic substance	Number of drug mentions in thousands[1]	Percent distribution	Therapeutic classification[2]
All mentions	15,933	100.0	...
Fluoxetine hydrochloride	2,016	12.7	Antidepressants
Lithium	1,269	8.0	Antipsychotic drugs
Alprazolam	951	6.0	Antianxiety agents
Amitriptyline	851	5.3	Antidepressants
Imipramine	606	3.8	Antidepressants
Trazadone	558	3.5	Antidepressants
Thioridazine	553	3.5	Antipsychotic drugs
Nortriptyline	551	3.5	Antidepressants
Diazepam	526	3.3	Antianxiety agents
Desipramine	521	3.3	Antidepressants
Lorazepam	436	2.7	Antianxiety agents
Doxepin	433	2.7	Antidepressants
Trifluoperazine	420	2.6	Antipsychotic drugs
Haloperidol	344	2.2	Antipsychotic drugs
Perphenazine	308	1.9	Antidepressants
Chlorpromazine	293	1.8	Antipsychotic drugs
Temazepam	262	1.6	Sedatives and hypnotics
Benztropine	262	1.6	Drugs used in extrapyramidal movement disorders
Maprotiline	*248	*0.0	Antidepressants
Clonazepam	*245	*0.0	Anticonvulsants

[1]Frequency of mention combines single-ingredient agents with mentions of the agent as an ingredient in a combination drug.
[2]Therapeutic classification is based on the standard drug classification used in the *National Drug Code directory*, 1985 edition (11). In cases where a generic substance had more than one therapeutic classification, it was listed in the category for which it was most frequently prescribed.

Table 15. Annual number and percent distribution of office visits to psychiatrists and to all other physicians, by disposition of visit, averaged over a 2-year period: United States, 1989–90

Disposition of visit[1]	Visits to psychiatrists		Visits to all other physicians	
	Number of visits in thousands	Percent distribution	Number of visits in thousands	Percent distribution
All visits	18,790	100.0	679,863	100.0
Return at specified time	17,526	93.3	413,531	60.8
Return if needed	648	3.5	159,043	23.4
No followup planned	402	2.1	66,941	9.8
Telephone followup planned	226	1.2	25,858	3.8
Admit to hospital	133	0.7	6,849	1.0
Refer to other physician	120	0.6	21,385	3.1
Return to referring physician	*51	*0.3	6,624	1.0
Other disposition	233	1.2	13,292	2.0

[1]Numbers may not add to totals because more than one disposition may be coded for each visit.

Table 16. Annual number and percent distribution of office visits to psychiatrists by duration of visit, averaged over a 2-year period: United States, 1989–90

Duration of visit[1]	Number of visits in thousands	Percent distribution
All visits	18,790	100.0
0 minutes[2]	–	–
1–20 minutes	2,543	13.5
21–40 minutes	3,450	18.4
41–50 minutes	10,077	53.6
51 minutes and over	2,720	14.5

[1]Mean duration of physician-patient contact was 42.7 minutes.
[2]Visits of 0-minutes duration are those in which there was no face-to-face contact between the physician and the patient.

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) over a 2-year period from 1989 through 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. The PSU's are counties, groups of counties or county equivalents (such as parishes or independent cities), or towns and townships (for some PSU's in New England). Physicians were stratified into 15 specialty groups during the second stage of the survey design. Detailed descriptions of the 1989 and 1990 survey design have been published (4,12,13), and the reader is urged to consult these sources for further technical information.

The 1989 NAMCS physician sample included 2,535 physicians selected from master files maintained by the American Medical Association (AMA) and the American Osteopathic Association (AOA); 104 of these were psychiatrists. Physicians were screened at the time of the survey to ensure that they were eligible for survey participation, based on a set of design criteria; of those screened, 608 physicians, including 30 psychiatrists, were ruled ineligible (out-of-scope), because they were retired; employed primarily in teaching, administration, or research; or other reasons. Of the remaining 1,927 physicians, 74 percent responded to the survey, including 58 psychiatrists, or 78 percent of those surveyed.

Sample physicians were asked to complete Patient Records (see figure 1) for a systematic random

sample of their office visits occurring during a randomly assigned 1-week reporting period. Responding physicians completed 38,384 forms, including 1,184 forms completed by psychiatrists.

For 1990, a sample of 3,063 non-Federal, office-based physicians was selected from master files maintained by the AMA and AOA. Of this number, 127 were psychiatrists. The overall response rate for the 2,269 in-scope physicians was 74 percent; the rate was 71 percent for the 91 in-scope psychiatrists. Responding physicians completed 43,469 patient records, including 1,455 forms from psychiatrists.

Characteristics of the physician 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, Health Care Survey Section, Research Triangle Park, North Carolina.

The 1989 and 1990 National Ambulatory Medical Care Surveys were identical in terms of survey instruments, definitions, and procedures. The resulting 2 years of data have been combined to provide more reliable estimates. All estimates, percent distribution, and rates presented here, unless otherwise noted, reflect 1989 and 1990 data, which were averaged over the 2-year period.

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. Table I shows relative standard errors for estimated numbers of office visits for 1989–90, and table II presents relative standard errors for estimated numbers of drug mentions. Standard errors for estimated percents of visits are shown in table III. Readers wishing to utilize these tables should note that they refer to combined years of data rather than average annual estimates.

Table I. Relative standard errors for estimated numbers of office visits to all specialists and to psychiatrists: National Ambulatory Medical Care Survey, 1989–90

Estimated numbers of office visits	All visits[1]	Visits to psychiatrists[2]
	Relative standard error in percent	
100	72.7	31.1
200	51.5	23.4
500	32.6	17.1
1,000	23.2	14.4
2,000	16.5	12.9
5,000	10.7	11.9
10,000	7.9	11.9
20,000	6.0	11.3
50,000	4.5	11.2
100,000	3.9	11.2
200,000	3.5	11.1
500,000	3.9	11.1
1,000,000	3.2	11.1
1,400,000	3.2	11.1

[1]For visits overall, the smallest reliable estimate is 593,000 visits. Estimates below this figure have a relative standard error greater than 30 percent.
[2]For visits to psychiatrists, the smallest reliable estimate is 110,000 visits.

Example of use of table: An aggregate estimate of 2 million visits to psychiatrists has a relative standard error of 12.9 percent, or a standard error of 258,000 visits (12.9 percent of 2 million).

Alternatively, relative standard errors for aggregate estimates may be calculated using the following general formula, where x is the aggregate of interest in thousands, and A and B are the appropriate coefficients from table IV.

$$\mathrm{RSE}(x)=\sqrt{A+\frac{B}{x}} \bullet 100.0$$

Similarly, relative standard errors for percents may be calculated using the following general 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.

$$\mathrm{RSE}\ (p)=\sqrt{\frac{B \bullet (1-p)}{p \bullet x}} \bullet 100.0$$

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 inference is based on the t-test. The Bonferroni inequality was used to establish the critical value for statistically significant differences (0.05 level of confidence). Terms relating to differences such as "greater than" or "less than" indicate that the difference is statistically significant. A lack of comment regarding the difference between any two estimates does not mean that the difference was tested and found to be not significant.

In the tables, estimates of 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.

Diagnostic classification system used in this report

Physicians' diagnoses were grouped throughout this report according to a classification system suggested by the American Psychiatric Association (APA). Table V shows the proposed groupings of diagnostic codes that were developed for the APA by Michael B. First, M.D. for use with NAMCS data. Diagnostic codes used in this system are based on the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (8).

Table II. Relative standard errors for estimated numbers of drug mentions at visits to psychiatrists: National Ambulatory Medical Care Survey, 1989–90

Estimated number of drug mentions in thousands[1]	Relative standard error in percent
100	58.2
200	42.9
500	30.3
1,000	24.6
2,000	21.2
5,000	18.9
10,000	18.1
20,000	17.7
50,000	17.4
100,000	17.3
200,000	17.3
500,000	17.2
1,000,000	17.2
1,400,000	17.2

[1]The smallest reliable estimate of drug mentions at visits to psychiatrists is 514,000. Estimates below this figure have a relative standard error greater than 30 percent.

Example of use of table: An aggregate estimate of 10 million drug mentions has a relative standard error of 18.1 percent or a standard error of 1,810,000 mentions (18.1 percent of 10 million).

Table IV. Coefficients appropriate for determining relative standard errors by type of estimate and physician groups: National Ambulatory Medical Care Survey, 1989–90

Type of estimate and physician group	Coefficient (for estimates in thousands) A	B
Visits		
Overall totals	0.00097549	52.77952184
General and family practice, internal medicine	0.00456412	37.27953208
Pediatrics, obstetrics and gynecology	0.00755165	23.43030623
Doctors of osteopathy, general surgery, orthopedic surgery, cardiovascular diseases, psychiatry, urological surgery, dermatology, neurology, ophthalmology, otolaryngology	0.01236777	8.46452955
All other	0.01169917	39.38793804
Drug mentions		
Overall totals	0.00157151	81.47054833
General and family practice, internal medicine	0.00589721	59.72807201
Psychiatry	0.0296738	30.9506771
Doctors of osteopathy, general surgery, orthopedic surgery, cardiovascular diseases, urological surgery, dermatology, neurology, ophthalmology, otolaryngology, obstetrics and gynecology, pediatrics	0.01603845	11.42009384
All other	0.01877082	70.35063675

Table III. Standard errors for percents of estimated numbers of office visits to psychiatrists: National Ambulatory Medical Care Survey: 1989–90

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	2.1	4.5	6.2	8.2	9.4	10.3
500	1.3	2.8	3.9	5.2	6.0	6.5
1,000	0.9	2.0	2.8	3.7	4.2	4.6
2,000	0.6	1.4	2.0	2.6	3.0	3.3
5,000	0.4	0.9	1.2	1.7	1.9	2.1
10,000	0.3	0.6	0.9	1.2	1.3	1.5
20,000	0.2	0.5	0.6	0.8	1.0	1.0
50,000	0.1	0.3	0.4	0.5	0.6	0.7
100,000	0.1	0.2	0.3	0.4	0.4	0.5
600,000	<.1	0.1	0.1	0.2	0.3	0.4

Example of use of table: An estimate of 30 percent based on an aggregate estimate 10 million visits has a standard error of 1.3 percent or a relative standard error of 4.3 percent (1.3 percent divided by 30 percent).

Table V. Proposed groupings of ICD–9–CM codes for use with National Ambulatory Medical Care Survey data

Grouped principal diagnoses[1]	ICD–9–CM codes[2]
Mental retardation, developmental disorders, and other childhood disorders	299,307.0,307.2–307.3,307.52–307.53,307.6–307.7, 309.21,312.0–312.2, 312.4–315,317–319
Hyperkinetic syndrome of childhood	314
Other	299,307.0,307.2–307.3,307.52–307.53,307.6–307.7, 309.21,312.0–312.2,312.4–313,315,317–319
Delirium, dementia, and other mental disorders due to a general medical condition	290,293–294,310
Substance-related disorders	291–292,303–305
Schizophrenia and other (nonmood) psychotic disorders	295,297,298
Mood disorders	296.0–296.9,300.4,301.13,311
Bipolar disorders	296.0–296.1,296.4–296.81,296.89,301.13
Depressive disorders	296.2–296.3,296.82,300.4,311
Major depressive disorder	296.2–296.3
Dysthymia	300.4
Other depressive disorders	296.82,311
Other mood disorders	296.6
Anxiety disorders	300.0–300.9,300.2–300.3,308,309.81,309.89
Adjustment disorders	309.0–309.1,309.23–309.3,309.4,309.82–309.83,309.9
Personality disorders	301.0–301.12,301.2–301.50,301.59–301.9
Other mental disorders[3]	300.10–300.19,300.5–300.9,302,306,307.1,307.4, 307.50,307.51,307.54,307.59,307.8,307.9,312.3, 316,648.4,780.5
Other conditions that may be a focus of treatment[4]	V11,V17.0,V60–V63,V65–2,995.2,995.5,995.81
Ill-defined signs and symptoms and other nonpsychiatric medical conditions	001–289,320–648.3,648.5–780.4,780.6–995.1,995.3, 995.4,995.89–999.9,V01–V10,V12–V16,V17.1–V59.9, V64–V65.1,V65.3–V82
Unknown	Includes blank, illegible, and uncodable diagnoses.

[1]Diagnostic groupings are based on a classification developed for the American Psychiatric Association by Michael B. First, M.D., of the New York State Psychiatric Institute, for use with National Ambulatory Medical Care Survey data.

[2]Diagnostic codes are based on the *International Classification of Diseases, 9th Revision, Clinical Modification, ICD–9–CM* (8).

[3]Includes dissociative disorders, somatoform disorders, sleep disorders, eating disorders, disorders of sexual and gender identity, impulse control disorders, and other disorders.

[4]Includes housing, household, and economic circumstances; other family circumstances (family disruption, marital problems, parent-child problems, etc.); other psychosocial circumstances; and other conditions.

Definition of terms

Ambulatory patient—An ambulatory patient is an individual seeking personal health services who is not 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 in office-based practice and who spends some time caring for ambulatory patients. Excluded from 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.

Psychiatrist—A physician described in this report as a psychiatrist has self-designated a practice specialty of psychiatry, psychoanalysis, or child psychiatry on the AMA's Physicians' Professional Activities Questionnaire. The physician's specialty is also verified during the NAMCS interview. About 72 percent of the visits to office-based psychiatrists were made to physicians who were certified by the American Board of Psychiatry and Neurology.

Office—An office is the space that physicians identify as a location for their ambulatory practice. Offices 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.

Suggested citation

Schappert SM. Office visits to psychiatrists: United States, 1989–90. Advance data from vital and health statistics; no 237. Hyattsville, Maryland: National Center for Health Statistics. 1993.

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

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

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

DHHS Publication No. (PHS) 94-1250

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

Number 238 • December 22, 1993

Advance Data

nchs

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

Human Immunodeficiency Virus Antibody Testing in Women 15–44 Years of Age: United States, 1990

by Jacqueline B. Wilson, M.P.H., Division of Vital Statistics

Highlights

In 1990, an estimated 20.4 million women 15–44 years of age had been tested at some time in their lives for antibodies to human immunodeficiency virus (HIV), the virus that causes acquired immunodeficiency syndrome (AIDS). This includes 5.5 million women who had donated blood since March 1985 but did not recognize that this donation also involved a test for HIV infection. Women 20–29 years of age were most likely to have been tested, as were formerly married women and women with the most education. Women with specific risk characteristics were also more likely to have been tested for HIV infection: never-married women who had a positive history of sexually transmitted diseases (STD's), and formerly and never-married women with six or more sexual partners in their lifetimes.

Most women reported that they had been tested through the American Red Cross or other blood bank or by a doctor in a private practice or a health maintenance organization (HMO). Women who reported that they were tested in clinics were more often black and had lower incomes than women tested at other locations. A majority of women reported that the test was done when they saw a doctor for some reason other than an HIV test, usually as part of the blood donation process or a medical examination. Testing for antibodies to HIV infection among women at risk for infection remains an important part of the Centers for Disease Control and Prevention's program to prevent the spread of HIV (1).

Introduction

The findings presented here are from the National Survey of Family Growth (NSFG) 1990 telephone reinterview, conducted by the National Center for Health Statistics (NCHS). This survey was not focused exclusively on AIDS-related behavior; rather, it was designed to provide data on a wide range of topics related to childbearing, including pregnancies and their outcomes, contraception, infertility, use of medical services for family planning, infertility and prenatal care, and other selected aspects of maternal and infant health. Questions on AIDS-related behaviors, including testing for HIV infection, were included in the 1990 interview in response to requests for AIDS-related information from other agencies in the U.S. Public Health Service.

The 1988 NSFG was based on a national sample of 8,450 women 15–44 years of age. The women were interviewed in person at home by professional female interviewers between January and August 1988. This sample was obtained from households participating in the National Health Interview Survey (NHIS) between October 1985 and March 1987. A complete description of the 1988 survey methodology has been provided elsewhere (2). The findings on AIDS-related knowledge and behavior for 1988 were summarized in a previous report (3).

Between July and November 1990, 5,686 women were interviewed for the NSFG telephone reinterview. The overall response rate was 67.5 percent. All interviews were conducted by telephone; 5,359 were reinterviews of women previously interviewed in person in 1988. The other 327 were first-time interviews with women 15–17 years of age, who had reached the age of 15 in the 2½ years since the 1988 interview.

The average length of interview in 1990 was 20 minutes, compared

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

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

with 70 minutes in 1988. In order to minimize the interview time and make room for additional questions, the 1990 sample was split into two "half-samples." About 10 of the 20 minutes of the interview time was devoted to questions that were asked of all respondents. In the other 10 minutes of the interview time, one-half of the sample (2,854 respondents, called "half-sample I") were asked detailed questions about the use of contraception and family-planning services. The other half of the sample (2,832 respondents, called "half-sample II") were asked a series of detailed questions related to HIV and AIDS. However, women were not asked about intravenous drug use or types of sexual intercourse. This report includes analyses on half-sample II only (which includes 2,672 women who were reinterviewed and 160 young women from the teenager supplement), because only these respondents were asked questions on HIV testing and other AIDS-related behaviors. Further details on the methodology of the telephone reinterview survey are provided in the Technical notes section of this report. The nonresponse adjustments and procedures for weighting the data for the 1990 survey are described in detail in a separate paper (4).

Data on HIV antibody testing are also collected in the NHIS for men and women 18 years of age and over. Although the NHIS sample is considerably larger than the NSFG sample and the questions are worded somewhat differently, NSFG data offer an opportunity to see how some characteristics not covered in the NHIS are associated with HIV testing. These include data on history of STD's, lifetime number of sexual partners, and age at first sexual intercourse. A comparison of NHIS and NSFG data on HIV testing appears later in this report.

The data presented in this report cover four areas related to HIV testing:

- HIV testing by demographic characteristics including age, race, education, marital status, region of residence (in 1988), and residence in a metropolitan statistical area (MSA) (in 1988)
- Location of testing and reasons for testing
- Behaviors and conditions associated with HIV testing—ever having an STD, ever having pelvic inflammatory disease (PID), lifetime number of sexual partners, and age at first sexual intercourse
- Attitudes and perceptions, including ever knowing someone with HIV, perception of chances of becoming infected with HIV, and level of knowledge about transmission of HIV or AIDS.

Data are shown by race and Hispanic origin in the tables and figures. This does not imply that differences shown are racial or genetic per se. Differences between non-Hispanic white women on the one hand and black women (regardless of Hispanic origin) on the other are often associated with the lower income and educational levels of minority women, their limited access to health care and health insurance, the neighborhoods in which they live, and other factors. The causes of these differences merit further investigation in future research; describing characteristics of subgroups of the population can help focus AIDS education and prevention efforts more effectively.

Findings

In the NSFG 1990 telephone reinterview, all women in half-sample II were asked: "Have you ever had your blood tested for infection with the AIDS virus?" Table 1 shows the percent tested for HIV infection by selected demographic characteristics. About 26 percent answered "yes" to this question. Positive responses to this question are labeled as "self-reported tests" in table 1.

Since March 1985, the U.S. blood supply has been screened for HIV infection (5). If a respondent did not report that she had ever had her blood tested for infection with the AIDS virus, she was still counted as having been tested if she answered "yes" to the question: "Have you donated blood since March 1985?" Including tests done as part of the blood donation process since 1985, 35 percent of women have been tested for HIV infection (these tests are included in table 1, the "all tests" column). In the remainder of this report, past experience with HIV testing includes all women tested for HIV infection, including those who did not report ever having been tested but who had donated blood since 1985. A description of the reasons for including blood donors in the total count of women receiving HIV antibody testing is included in the Technical notes section of this report.

Non-Hispanic white women were slightly but not significantly more likely to have been tested for HIV infection than any other group of women (36 percent, versus 30 percent for Hispanic women and 35 percent for non-Hispanic black women). These results are similar to demographic data on HIV testing from the NHIS (6).

Women with 13 or more years of education were significantly more likely to have been tested than women with less education (40 percent versus 31 percent). Published data from the NHIS also show that persons with more education are more likely to be tested for HIV infection; however, these data are not shown separately for women (6).

Formerly married women were more likely than women of any other marital status to have been tested for HIV infection. This may be because formerly married women were more likely to have been sexually active for a longer period of time and to have had more sexual partners.

Women 20–29 years of age were also more likely to report testing for HIV infection, and the largest proportions tested were for women 20–39 years of age. This is important because two-thirds of female AIDS patients are women 20–39 years of age (63 percent are non-Hispanic white women 20–39 years of age, and 66 percent are non-Hispanic black women 20–39 years of age) (7).

In short, demographic characteristics are not highly

Table 1. Number of women 15–44 years of age and percent ever tested for human immunodeficiency virus infection, by source of test information and selected demographic characteristics: United States, 1990

Characteristic	Number of women in thousands	Percent ever tested	
		Self-reported tests[1]	All tests[2]
All women[3]	58,381	25.6	34.9
Race and ethnic origin			
Hispanic	5,547	23.8	29.8
Black, not Hispanic	7,526	28.5	34.8
White, not Hispanic	42,836	25.4	35.8
Education[4]			
Less than 12 years	5,618	24.6	31.0
12 years	17,247	23.1	31.3
13 years or more	27,033	28.6	39.9
Marital status			
Never married	20,123	26.0	35.7
Married	31,417	23.6	32.5
Formerly married	6,841	33.5	43.4
Age			
15–19 years	8,483	21.5	28.7
20–24 years	9,154	27.0	40.8
25–29 years	10,637	33.4	40.9
30–34 years	11,091	27.5	37.1
35–39 years	10,111	22.0	31.5
40–44 years	8,905	20.3	28.5
Residence in metropolitan area[5]			
MSA, central city	12,727	31.9	39.9
MSA, other	29,981	26.1	36.4
Non-MSA	11,979	21.4	32.4
Region[5]			
Northeast	11,226	28.2	36.9
South	18,603	28.0	39.5
Midwest	14,453	23.8	34.0
West	10,405	25.4	33.5
Poverty-level income[6]			
0–149 percent	7,918	28.1	35.5
150 percent or more	41,980	25.9	36.0

[1]Includes only tests reported in response to the question: "Have you ever had your blood tested for infection with the AIDS virus?"
[2]Category includes all tests for HIV infection, including those done in connection with blood donation.
[3]Includes "other" races and women whose HIV testing status was unknown; not shown separately because of small sample size.
[4]Women 20–44 years of age only.
[5]This variable was collected during the 1988 survey.
[6]Ratio of total family income to poverty level. Women 20–44 years of age only.

NOTES: MSA is metropolitan statistical area. AIDS is acquired immunodeficiency syndrome. HIV is human immunodeficiency virus.

associated with HIV testing. However, the groups most likely to be tested are the college-educated, the formerly married, women 20–29 years of age, and women from a central city of an MSA.

Location of testing

Women who indicated that they had been tested for HIV infection were asked: "Where did you go to have that test done?" More than one-half (55 percent) of the tests were done through the American Red Cross or other blood bank (table 2). Other, less common sources included private doctors (20 percent), clinics (14 percent), hospitals or emergency rooms (12 percent), health departments (10 percent), and other locations (5 percent) (figure 1). (Women could report more than one location, if applicable.) In this report, testing at community and public health departments was counted separately from testing at other types of clinics because health departments provide partner notification and other services related to testing for HIV infection that some other clinics do not (8).

Among non-Hispanic respondents, black women were 2½ times as likely as white women to report having been tested at clinics (27 percent versus 11 percent, table 2). Conversely, black women were less likely than white women to have been tested at the Red Cross (34 percent compared with 60 percent, respectively). There were no clear patterns of difference by age in the sources of tests, but teenagers had higher levels of testing at health departments (21 percent for women 15–19 years of age) than did women of other ages. (See table 2.)

Women who did not finish high school were much more likely (28 percent) to have been tested at a hospital or emergency room than were women with 12 years of education (11 percent) and 13 or more years of education (10 percent), and much less likely to be tested at the Red Cross (30 percent, versus 52 and 62 percent, respectively).

Income appeared to play an important role in the location of HIV testing: Lower income women were more likely than higher income women to have received testing at a clinic, hospital or emergency room, or health department, and much less likely to have received testing through the Red Cross or other blood bank. For example, 37 percent of tested low-income women received their tests at the Red Cross or other blood banks, compared with 59 percent of higher income women. There was no difference by income in the percent tested at private doctors' offices.

In summary, women with less education and income were more likely to get their HIV tests at clinics, hospitals, or emergency rooms, and less likely to be tested at the Red Cross or other blood bank than were

Table 2. Number of women 15–44 years of age ever tested for human immunodeficiency virus infection and percent tested at specified locations, by selected demographic characteristics: United States, 1990

Characteristic	Number of women in thousands	Location of test: Clinic[1]	Hospital or emergency room	Private doctor's office	Red Cross or other blood bank	Health department[2]	Other[3]
All women[4]	20,363	13.6	12.1	19.5	54.7	9.7	4.7
Race and ethnic origin							
Hispanic	1,653	*13.2	*11.8	29.0	50.0	17.9	*0.8
Black, not Hispanic	2,619	26.5	15.0	19.8	34.4	17.9	*1.4
White, not Hispanic	15,348	10.8	11.7	19.4	59.8	6.5	5.5
Education[5]							
Less than 12 years	1,743	21.2	27.9	18.8	29.6	*6.9	*1.2
12 years	5,399	14.5	10.9	23.9	52.2	8.8	*4.0
13 years or more	10,784	12.4	10.4	17.6	61.5	8.0	6.5
Marital status							
Married	10,209	12.0	12.7	19.9	58.1	7.5	6.3
Formerly married	2,967	17.5	11.9	19.4	50.3	10.0	*5.5
Never married	7,187	14.2	11.4	18.9	51.5	12.6	*1.9
Age							
15–19 years	2,437	*10.7	11.4	18.5	47.7	20.7	---
20–24 years	3,735	17.1	*7.0	22.5	53.9	9.9	*2.6
25–29 years	4,347	14.1	15.0	23.1	51.5	11.5	*3.9
30–34 years	4,120	12.2	8.9	17.7	55.9	10.6	7.7
35–39 years	3,184	15.4	15.6	13.5	58.7	*4.0	8.9
40–44 years	2,539	*9.8	16.6	20.2	60.7	*1.0	*3.2
Residence[6]							
MSA, central city	5,083	19.1	10.1	19.3	45.9	13.9	5.8
MSA, other	10,917	11.6	11.6	19.1	60.7	6.3	5.0
Non–MSA	3,883	11.2	13.6	21.8	55.4	10.4	*2.8
Region[6]							
Northeast	4,140	14.7	15.5	16.5	53.4	*4.6	*6.5
South	7,352	12.6	8.0	23.1	57.1	10.4	6.1
Midwest	4,910	12.6	16.0	18.7	56.5	6.9	*2.2
West	3,481	14.9	8.6	17.6	55.3	14.7	*3.6
Poverty-level income[7]							
0–149 percent	2,811	23.7	18.3	19.2	37.4	13.2	*1.7
150 percent or more	15,115	12.1	11.1	19.7	59.0	7.3	6.0

[1]Includes acquired immunodeficiency syndrome (AIDS) clinic, hospital clinic, company clinic, and other types of clinics.
[2]Includes community health department and public health department.
[3]Includes testing by an insurance company, at school or work, and testing somewhere not mentioned in previous categories.
[4]Total includes "other" races not shown separately because of small sample size.
[5]Women 20–44 years of age only.
[6]This variable was collected only in the 1988 survey.
[7]Ratio of total family income to poverty level. Women 20–44 years of age only.

NOTE: MSA is metropolitan statistical area.

women with higher education or income.

Reasons for testing

In 1990, women who reported testing for HIV infection were asked: "When you went to (place where you were tested) to have the AIDS test done that time, was that your only reason for going?" If that was not the only reason for the visit, they were then asked: "Did you have the test done as part of a routine medical examination, as part of a family-planning visit, as part of the procedure when you donate blood, or as part of some other kind of visit?"

As table 3 shows, only 16 percent of ever-tested women reported testing as the sole reason for such a visit. By far, the most common occasion for an HIV test was during blood donation (55 percent). About 1 in 4 tested women received the test as part of a routine medical examination (23 percent). Only 5 percent of women ever tested had their tests done during family-planning visits.

Non-Hispanic black women were much more likely to receive an HIV test as part of a medical examination than were non-Hispanic white women (36 percent versus 20 percent) and much less likely than non-Hispanic white women to have been tested

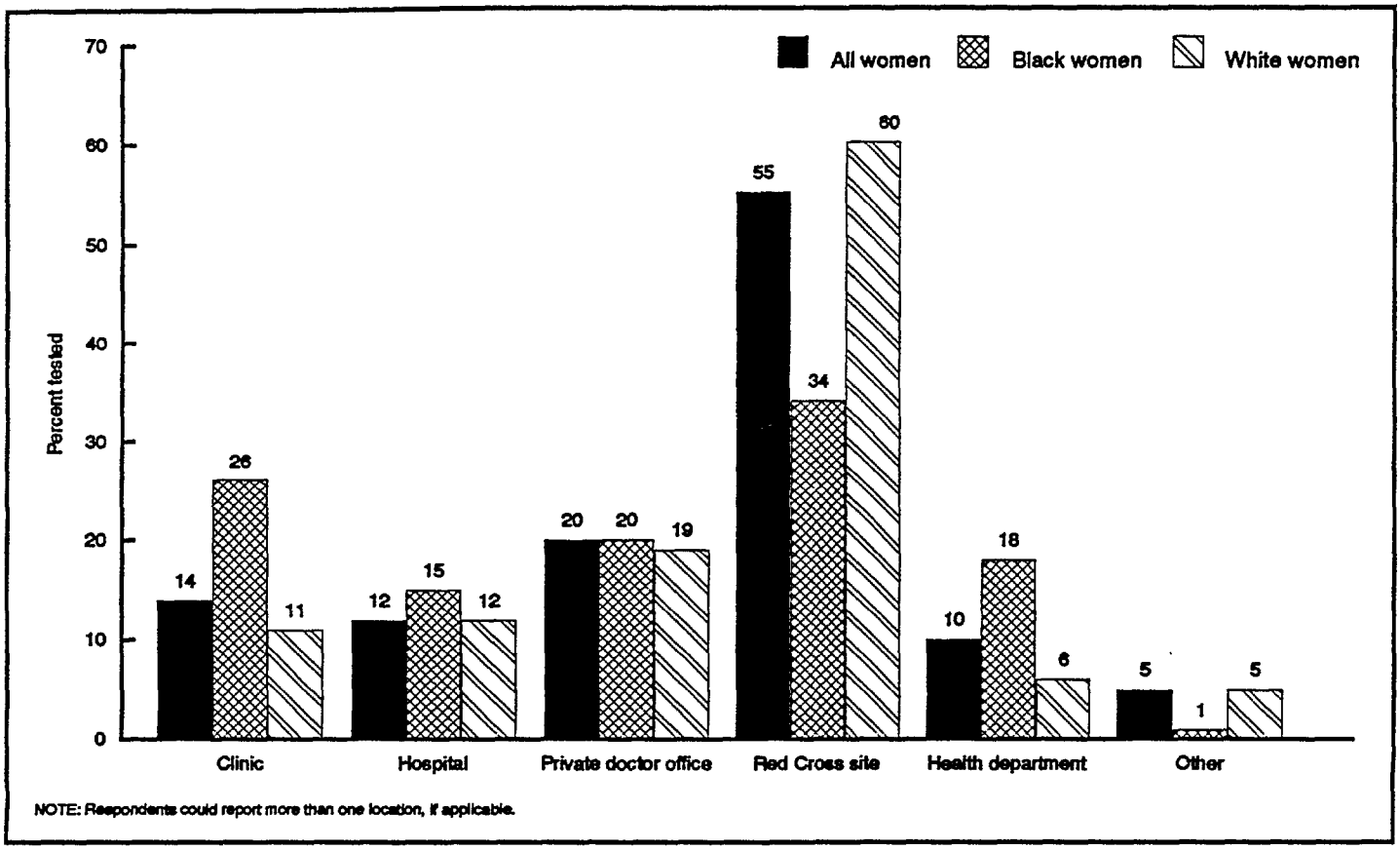


Figure 1. Location of testing for acquired immunodeficiency virus infection for women 15–44 years of age, by percent tested at specified locations: United States, 1990

because they donated blood (35 percent versus 60 percent). The greater proportion of non-Hispanic white women reporting testing as part of a blood donation is the result of the fact that these women were more likely to report having donated blood than were other women.

Women who did not finish high school were much more likely to have been tested as part of a medical examination than were women with more education (34 percent versus 20 percent for women with some college education) and much less likely than those with some college education to report testing as part of a blood donation (31 percent versus 62 percent for women with some college education); however, the sample of women who did not finish high school is small.

Younger women, especially teenagers, were more likely to be tested at a family-planning visit than were older women (11 percent for women 15–19 years old versus 1 percent for women 35–39 years old), although the sampling errors for these percents are relatively large.

Income also seemed to have some association with the reason for HIV testing. Women with lower incomes were more likely to report that the HIV test was the only reason for the visit than were higher income women (26 percent versus 16 percent) and much less likely to have received the test because they donated blood (38 percent versus 59 percent).

In summary, black women and less-educated women were more likely to receive their HIV test as part of a medical examination, and less likely to receive it as part of a blood donation, than were white women and those with more education. Low-income women were more likely than others to report that the HIV test was the only reason for the visit.

Risk characteristics for infection

History of STD or PID is a risk factor for HIV infection (9). The data in table 4 suggest that formerly married women who had a positive STD history (ever had an STD) were much more likely to have been tested for HIV infection than were formerly married women who had never had an STD (54 percent versus 41 percent). This difference was also found for never-married women—never-married women with a history of STD were more likely (50 percent) to be tested for HIV than were never-married women with no history of STD (34 percent). However, there was no significant difference for currently married women. Although STD's are frequent causes of PID, ever having had a PID was not significantly associated with having been tested among women of any marital status (the difference for never-married women, 43 percent versus 35 percent, was not significant).

Number of sexual partners in a lifetime has also been associated with increased risk of exposure to STD's, including HIV infection (10). In 1990,

Table 3. Number of women 15–44 years of age ever tested for human immunodeficiency virus infection (all tests, including those for blood donation) and percent with specified reasons or circumstances for the test, by selected demographic characteristics: United States, 1990

Characteristic	Number of women in thousands	Test only reason for visit[1]	Other reasons for test			
			Medical examination	Family planning visit	Blood donation	Other visit[2]
All women[3]	20,363	16.1	22.9	4.7	55.0	12.7
Race and ethnic origin						
Hispanic	1,653	26.2	25.6	*3.3	50.4	*12.7
Black, not Hispanic	2,619	21.2	35.5	*4.6	34.5	14.3
White, not Hispanic	15,348	13.3	20.1	5.0	60.1	11.9
Education[4]						
Less than 12 years	1,743	19.1	33.8	*3.1	30.8	*14.9
12 years	5,399	13.8	24.9	5.1	51.5	17.0
13 years or more	10,784	18.4	19.6	3.3	62.1	9.2
Marital status						
Married	10,209	14.2	21.5	4.7	58.1	14.4
Formerly married	2,967	20.2	20.7	*0.7	50.8	14.1
Never married	7,187	16.2	25.7	6.3	52.3	9.8
Age						
15–19 years	2,437	*6.5	24.6	*10.7	48.4	17.6
20–24 years	3,735	16.2	23.2	*6.3	54.2	9.0
25–29 years	4,347	19.3	26.2	7.7	51.4	13.6
30–34 years	4,120	17.9	18.1	*1.8	55.9	15.1
35–39 years	3,184	16.8	23.4	*1.3	60.0	9.7
40–44 years	2,539	12.8	22.1	–	60.9	12.1
Residence[5]						
MSA, central city	5,083	26.3	25.4	*3.6	45.3	11.4
MSA, other	10,917	12.2	19.6	4.5	61.5	13.4
Non-MSA	3,883	14.5	26.4	*4.6	55.4	11.0
Region[5]						
Northeast	4,140	19.6	23.1	*2.5	53.1	10.8
South	7,352	15.7	25.7	4.4	57.4	9.6
Midwest	4,910	11.8	19.5	6.6	57.5	14.3
West	3,481	18.5	18.7	*3.2	55.3	17.7
Poverty-level income[6]						
0–149 percent	2,811	25.5	27.2	*6.0	37.6	15.5
150 percent or more	15,115	15.5	21.8	3.4	59.3	11.5

[1]Includes a visit to any location where the HIV test was the only reason for the visit.
[2]Includes reasons such as pregnancy visits, marriage requirement, illnesses other than AIDS, and other reasons.
[3]Total includes "other" races not shown separately because of small sample size.
[4]Women 20–44 years of age only.
[5]This variable was collected only in the 1988 survey.
[6]Ratio of total family income to poverty level. Women 20–44 years of age only.

NOTES: HIV is human immunodeficiency virus infection. AIDS is acquired immunodeficiency syndrome.

formerly married women who had each had six or more male sexual partners were far more likely to report HIV testing than formerly married women with only one partner in a lifetime (47 percent for women with six or more partners, versus 12 percent for women with one lifetime male sexual partner) (table 4). This pattern also held true for never-married and currently married women.

Women who begin sexual intercourse at a young age are also considered at increased risk for exposure to STD's, including HIV infection. There was no significant difference in the proportions of never-married women receiving testing regardless of their age at first intercourse. Nearly one-fifth of women who had never had intercourse (17 percent) had been tested for HIV infection. This is a plausible finding, because there are nonsexual reasons for HIV testing (for example, immigration, insurance, blood donation).

In summary, unmarried women (that is, formerly married and never-married women) with positive STD histories and six or more male sexual partners in a lifetime were far more likely to have been tested for HIV infection than were unmarried women without STD's and those with

Table 4. Number and percent of women 15–44 years of age ever tested for human immunodeficiency virus infection by marital status and selected risk factors: United States, 1990

Risk factor	Total	Currently married	Formerly married	Never married	Currently married	Formerly married	Never married
	Number in thousands				Percent		
All women[1]	20,363	10,209	2,967	7,187	32.5	43.4	35.7
Ever had a sexually transmitted disease[2]							
Yes	2,670	1,039	652	978	34.7	54.1	49.5
No	17,693	9,169	2,315	6,209	32.3	41.1	34.2
Ever had pelvic inflammatory disease							
Yes	2,673	1,326	590	757	30.0	36.6	43.3
No	17,690	8,883	2,377	6,430	32.9	45.5	35.0
Number of lifetime male sexual partners							
Never had intercourse	871	---	---	871	---	---	*17.4
1 man	3,919	2,953	36	929	29.7	12.2	33.7
2–5 men	8,959	4,299	1,457	3,203	30.9	42.9	41.5
6 or more men	6,615	2,957	1,474	2,184	39.1	46.9	47.2
Age at first intercourse							
Never had intercourse	871	---	---	871	---	---	*17.4
Under 15 years	1,858	781	320	756	39.1	40.7	35.7
15–17 years	8,381	3,829	1,224	3,328	33.0	39.4	42.7
18–19 years	5,550	3,025	1,189	1,336	31.7	52.5	43.4
20 or more years	3,703	2,573	234	896	31.1	34.5	41.9

[1]Includes women with missing data on row variables.
[2]A woman is identified as having had a sexually transmitted disease if she indicated that she had ever had one or more of the following: genital warts, gonorrhea, chlamydia, or genital herpes.

one partner. Differences were smaller, but in the same direction for married women.

HIV knowledge and attitudes

The items on knowledge of HIV in the 1990 survey included a series of questions that asked:

> What would you say are the ways in which a person can get the AIDS virus? Would you say that a person can get the AIDS virus by:
>
> A. Shaking hands or hugging?
> B. Sharing hypodermic needles?
> C. Sharing an apartment, classroom, or office?
> D. Receiving a blood transfusion?
> E. Sexual intercourse between men?
> F. Sexual intercourse between a man and a woman?
> G. Giving a blood donation?
> H. Being bitten by an insect that had bitten someone with the AIDS virus?
> I. Sharing personal items like dishes or toilets?
> J. Being born to a mother with AIDS?
> K. Swimming in a pool in which someone with AIDS has also been swimming?
> L. Kissing with exchange of saliva?

Each item was answered "yes" or "no."

Another question was: "Can a person get AIDS from someone who has only the AIDS virus but does not have the disease?" Women who indicated a high level of knowledge on these questions (see the Technical notes for scoring of the knowledge items) were more likely (37 percent) to have been tested for HIV infection than were women who had a medium (33 percent) or low level of knowledge (26 percent) (figure 2).

In 1990, women were also asked:

> What would you say are the chances that you yourself could get AIDS? Would you say you have:
>
> A. A very strong chance?
> B. A strong chance?
> C. Some chance?
> D. Not much chance?
> E. No chance at all?

Women who said they had some chance or more of becoming infected with HIV were slightly but not significantly more likely (38 percent) to report HIV testing than women who said they had no chance of becoming infected (36 percent) (figure 2). However, the data suggest that women who said they had some chance or more of becoming infected were more likely (38 percent) to have received an HIV test than were women who did not know their chances of becoming infected (16 percent).

In 1990, women were also asked:

> Have you ever personally known anyone with AIDS or the AIDS virus?

Women who said they knew someone with AIDS or the AIDS virus were more likely (44 percent) to report that they had been tested for HIV infection than were those who did not know anyone with the virus (32 percent) (figure 2).

Limitations of the data

Although previous research has shown that HIV-testing information

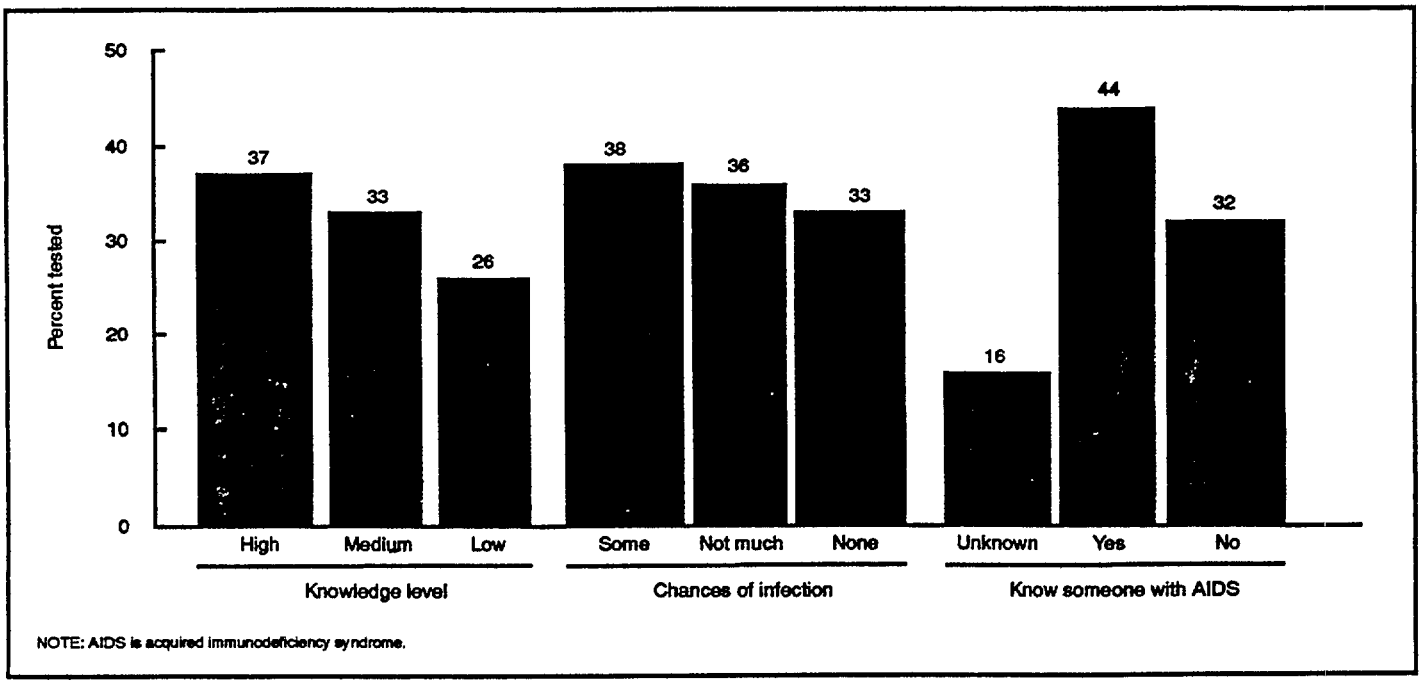


Figure 2. Level of knowledge of acquired immunodeficiency syndrome, chances of infection with human immunodeficiency virus, and knowing someone with acquired immunodeficiency syndrome, in women 15–44 years of age, by percent tested for human immunodeficiency virus infection: United States, 1990

can be accurately reported by patients who have been tested (11), these data should be interpreted with caution. Some of the HIV-testing rates in this report are somewhat higher than those found in the 1990 NHIS, which are the most similar data to the NSFG that are available for comparison. This may be attributable to a number of factors, including the fact that the NSFG is a survey about childbearing, sexual activity, and reproductive health, and the NHIS is a general health survey. In addition, the HIV-testing questions are not identical on the two surveys. A methodological study is under way comparing the NSFG with the NHIS data to examine the differences in reported HIV antibody testing.

One methodologic difference between the NSFG and the NHIS is that, in 1990, the NHIS asked a series of questions about blood donation and HIV testing that began with the lead-in question: "Have you ever heard of a blood test than can detect the AIDS virus infection?" People who responded "yes" to this question were then asked a series of questions on blood donation and were then asked: "Except for blood donations since March 1985, have you had your blood tested for the AIDS virus infection?" People who responded that they had never heard of a test to detect the AIDS virus were skipped out of the entire series of questions on HIV testing.

The initial comparison of these NHIS data with the 1990 NSFG data showed some significant differences between rates of HIV testing reported in the surveys. Women in the NSFG reported testing at higher rates than women in the NHIS, and this difference was especially apparent for non-Hispanic black women in the two surveys. However, this lead-in question in the NHIS was dropped in 1991, so that all respondents in the NHIS were asked: "Except for blood donations since March 1985, have you had your blood tested for the AIDS virus infection?" Because all respondents were asked about having been tested for HIV infection, overall reporting of HIV testing in the NHIS increased. When 1991 NHIS testing data were compared with the 1990 NSFG data, the differences in the rates of self-reported testing were smaller and were virtually identical when all tests (including blood donation) were considered. Further analyses are being conducted to account for whatever differences remain. The entire series of questions from the 1990 and 1991 NHIS surveys are included in the Technical notes section of this report.

One important distinction that cannot be made from the NSFG data is the difference between voluntary and nonvoluntary tests for HIV infection. It is unclear to what extent self-reported tests were specifically requested by the respondents or were done as part of routine screening. Questions to clarify who requested the test and why would be useful additions to future surveys.

Because the 1990 NSFG reinterview did not ask about recent HIV testing (for example, in the past year), it is not possible to connect HIV testing with other risk behaviors, such as current condom use, that are considered important in evaluating the risk of acquiring HIV infection. However, lifetime behaviors such as ever having had an STD or PID and lifetime number of sexual partners can be evaluated in relationship to HIV testing.

References

1. Public Health Service. Healthy People 2000 National Health Promotion and Disease Prevention Objectives. Washington, D.C.: U.S. Department of Health and Human Services. 1990.
2. Judkins DR, Mosher WD, Botman S. National Survey of Family Growth: Design, estimation, and inference. National Center for Health Statistics. Vital Health Stat 2(109). 1991.
3. McNally JW, Mosher WD. AIDS-related knowledge and behavior among women 15–44 years of age: United States, 1988. Advance data from vital and health statistics; no 200. Hyattsville, Maryland: National Center for Health Statistics. 1991.
4. Goksel H, Judkins DR, Mosher WD. Nonresponse adjustments for a telephone follow-up to a national in-person survey. In: 1991 proceedings of the American Statistical Association, Section on Survey Research Methods, pp. 581–6. 1992.
5. Centers for Disease Control and Prevention. Provisional Public Health Service inter-agency recommendations for screening donated blood and plasma for antibody to the virus causing acquired immune deficiency syndrome. MMWR 34(1):1–5. 1985.
6. Anderson JA, Hardy AM, Cahill K, Aral SO. HIV antibody testing and post-test counseling in the United States: Data from the 1989 National Health Interview Survey. AJPH 82(11):1533–5. 1992.
7. Centers for Disease Control and Prevention. HIV/AIDS Surveillance Report. Atlanta, GA. Year-end edition, p. 14, table 8. 1992.
8. Centers for Disease Control and Prevention. Recommendations for HIV testing services for inpatients and outpatients in acute-care hospital settings and technical guidance on HIV counseling. MMWR 42(RR–2). 1993.
9. Hoegsberg B, Feldman J, Minkoff H. Sexually transmitted diseases and human immunodeficiency virus infection among women with pelvic inflammatory disease. Am J Obstet Gynecol 163(4):1135–9. 1990.
10. Seidman SN, Mosher WD, Aral SO. Women with multiple sexual partners. AJPH 82(10):1388–94. 1992.
11. McCusker J, Stoddard AM, McCarthy E. The validity of self-reported HIV antibody test results. AJPH 82(4):567–9. 1992.
12. U.S. Bureau of the Census. Poverty in the United States, 1988 and 1989. Current Population Reports, series P–60, no 163. 1991.

Symbols

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

Technical notes

Survey design

The National Survey of Family Growth (NSFG) is a periodic survey conducted by the National Center for Health Statistics (NCHS) to collect data on fertility, infertility, contraception, and related aspects of maternal and infant health. Fieldwork for Cycle IV was conducted in 1988, and the NSFG telephone reinterview was conducted in 1990. The contractor for the 1988 and 1990 surveys was Westat, Inc., of Rockville, Maryland.

For the 1988 NSFG, personal (face-to-face) interviews were conducted between January and August 1988 with a national sample of women who were 15–44 years of age as of March 15, 1988. Interviews were completed with 8,450 women in 1988, including 2,771 black women, 5,354 white women, and 325 women of other races. The sample for the 1988 NSFG was selected from households that had participated in the National Health Interview Survey (NHIS)—also conducted by NCHS—between October 1985 and March 1987. Respondents were interviewed by trained female interviewers.

The interviews covered the women's pregnancy history; past and current use of contraception; ability to bear children; use of medical services for contraception, infertility, and prenatal care; marriage and cohabitation; and a wide range of social, economic, and demographic characteristics. More detailed information on the procedures used in selecting the sample, weighting the data to make national estimates, and estimating sampling errors may be found in two other publications (2,4).

For the 1990 NSFG telephone reinterview, 5,686 women were interviewed by telephone between July 23 and November 5, 1990. Reinterviews were conducted with 5,359 women who had been interviewed in 1988, and first-time telephone interviews were conducted with 327 young women who had reached 15 years of age in the 2 years since the main study. The response rate for the initial interviews with those 15–17 years of age was 53 percent. The response rate for the 17–44-year-old women initially interviewed in 1988 was 69 percent of those originally interviewed in 1988. Overall, the response rate was 67.5 percent. The most common causes of nonresponse in 1990 were inability to locate or contact the respondent because she had moved and inability to contact the respondent because she had no telephone or had an unpublished telephone number. The 1990 reinterviews lasted an average of 20 minutes.

The 1990 sample was divided equally into two "half-samples," as discussed in the text. This report is based entirely on the results of half-sample II, which contained the most detailed questions on AIDS-related behavior and HIV testing. The data have been weighted to be representative of the civilian noninstitutionalized population of the United States. However, the use of the half-samples means that sampling errors are larger than in the previous reports based on the 1988 survey (4).

In this report, women 15–19 years of age are excluded from tabulations by education because it generally takes until about age 19 to reach the "13 years or more" education category. This age group is also excluded from tabulations by income because it is generally difficult for teenagers to accurately report the income of their parents and because income information was not collected from 15–17-year-old women in the 1990 telephone reinterview teenager supplement.

Reliability of estimates

Because the statistics presented in this report are based on a sample, they may differ from the statistics that would result if all 58 million women represented by the survey had been interviewed. The standard error of an estimate is a measure of such differences. The standard error of an estimated number or percent is calculated by substituting the appropriate values of A and B from table I in the following equations:

$$SE(N) = \sqrt{(A + B/N)} \cdot N$$

and

$$SE(P) = \sqrt{\frac{B \cdot P\ (100 - P)}{X}}$$

where N =number of women
P =percent
X =number of women in the denominator of the percent

Table I. Estimates of the parameters *A* and *B* for estimating standard errors for percents of women, by race: 1990 National Survey of Family Growth telephone reinterview, half-sample

Race	Parameter	
	A	*B*
All races	.0004284	25,000
White or other	–.0004947	25,000
Black	–.0018417	14,450

The parameters shown in table I were used to generate table II (estimates of standard errors for percents of women of all races), table III (standard errors for white women), and table IV (estimates of standard errors for black women).

The chances are about 68 in 100 that a sample estimate would fall within one standard error, and about 95 in 100 that it would fall within two standard errors, of a statistic based on a complete count of the population represented by the NSFG.

Unless otherwise specified, differences between percents discussed in this report were found to be statistically significant at the 0.05 level using a two-tailed normal deviate test (*z*-test). This means that in repeated samples of the same type and size, a difference between the percents in the population as large as the one observed would occur in only 5 percent of the samples if there were, in fact, no difference. The phrase "the data suggest" indicates that the difference was significant at the 0.10 (10-percent) level but not the

Table II. Standard errors for percents of women of all races: 1990 National Survey of Family Growth telephone reinterview, half-sample

Base of percent	Estimated percent					
	5 or 95	19 or 90	20 or 80	30 or 70	40 or 60	50
500,000	*4.9	*6.7	*8.9	*10.2	11.0	11.1
1,000,000	3.4	*4.7	*6.3	7.2	7.7	7.9
5,000,000	1.5	2.1	2.8	3.2	3.5	3.5
10,000,000	1.0	1.5	2.0	2.3	2.4	2.5
30,000,000	0.6	0.9	1.1	1.3	1.4	1.4
50,000,000	0.5	0.7	0.9	1.0	1.0	1.1

Table III. Standard errors for percents of white women: 1990 National Survey of Family Growth telephone reinterview, half-sample

Base of percent	Estimated percent					
	5 or 95	19 or 90	20 or 80	30 or 70	40 or 60	50
500,000	*4.9	*6.7	*8.9	*10.2	11.0	11.2
1,000,000	3.4	*4.7	*6.3	7.2	7.7	7.9
5,000,000	1.5	2.1	2.8	3.2	3.5	3.5
10,000,000	1.0	1.5	2.0	2.3	2.4	2.5
20,000,000	0.8	1.1	1.4	1.6	1.7	1.8
40,000,000	0.5	0.8	1.0	1.1	1.2	1.3

Table IV. Standard errors for percents of black women: 1990 National Survey of Family Growth telephone reinterview, half-sample

Base of percent	Estimated percent					
	5 or 95	19 or 90	20 or 80	30 or 70	40 or 60	50
500,000	*3.7	*5.1	*6.8	7.8	8.3	8.5
1,000,000	*2.6	*3.6	*4.8	5.5	5.9	6.0
2,000,000	*1.8	2.6	3.4	3.9	4.2	4.3
3,000,000	*1.5	2.1	2.8	3.2	3.4	3.5
4,000,000	1.3	1.8	2.4	2.8	2.9	3.0
7,000,000	1.0	1.4	1.8	2.1	2.2	2.3

0.05 (5-percent) level. Lack of comment in the text about any two statistics does not mean that the difference was tested and found not to be significant.

The relative standard error (or coefficient of variation) of a statistic is the ratio of the standard error to the statistic and is usually expressed as a percent of the estimate. In this report, percents and other statistics with relative standard errors of 30 percent or larger are indicated with an asterisk (*). These estimates may be viewed as unreliable by themselves, but they may be combined with other estimates to make comparisons of greater precision.

Statistics in this report may also be subject to nonsampling error, that is, errors or omissions in responding to the interview, recording answers, and processing data. The data have been adjusted for nonresponse and adjusted to independent control totals obtained from the U.S. Bureau of the Census (4). These adjustments reduce most types of nonsampling error. Other types of nonsampling error were eliminated by a series of quality control procedures.

Definitions of terms

Race—Race refers to the race of the woman interviewed. Each woman was asked: "Which of the (following) groups best describes your racial background?" The categories included black, white, Asian or Pacific Islander, and Alaskan Native or American Indian. Because of the small sample sizes, the last two categories are combined and called "other" in this report.

Hispanic origin—Each woman was asked: "Which of the (following) groups best describes your national origin or ancestry?" Using a list of 15 groups, a woman was classified as being of Hispanic origin if she reported that her only or principal national origin was Puerto Rican, Cuban, Mexican American, Central or South American, or other Spanish. Origin is therefore classified independently of race, and Hispanic women may be of any race.

Marital status—In this report, women were classified according to their legal marital status. "Currently married" means legally married at the date of interview, "never married" means never legally married as of the date of interview, and "formerly married" means widowed, divorced, or separated. Cohabiting women who are not legally married are therefore classified in this report as unmarried.

Ever had sexual intercourse—This refers to a woman who has had sexual

intercourse at least once. Intercourse before the first menstrual period is excluded.

Number of lifetime sexual partners—This refers to the number of men with whom the woman has had sexual intercourse in her life, as of the date of the interview. In the 1990 data, this refers to the number of men with whom she had had intercourse as of the 1990 interview.

Poverty-level income—This is the ratio of the total family income to the poverty-level threshold for a family of specified size, as published by the U.S. Bureau of the Census. In the 1990 survey, 1989 Bureau of the Census weighted average thresholds for householders under the age of 65 years were used. The 1989 thresholds used for 1990 data were $6,451 for one person, $8,343 for a family of two, $9,885 for a family of three, $12,674 for a family of four, and up to $25,480 for a family of nine or more (12). Thus, if a family of four had an income of $25,000, their poverty-level income would be $25,000 divided by $12,674, or 197 percent of the poverty level. In the 1990 NSFG, family income information was not collected from the 327 women 15–17 years of age who were interviewed for the first time in 1990. In the tables of this report, data are not shown for women who did not report the income or poverty level of their families and are not shown for women under 20 years of age.

Education—This refers to the number of years of regular schooling the woman had completed as of the date of interview in 1990. In this report, the following categories are used: 0–11 years, meaning that the woman did not complete high school; 12 years, meaning that she had obtained a high school diploma or general educational development (GED) certificate but had not completed a full year of college; and 13 years or more, meaning that she had completed at least 1 year of college. In all tables containing this variable, women under the age of 20 are excluded from tabulations by education because it generally takes until at least age 19 to reach the "13 years or more" category.

Region of residence—Data are classified by region of residence into the four major census regions: Northeast, Midwest, South, and West. These regions, which correspond to those used by the U.S. Bureau of the Census, are as follows:

Region	*States included*
Northeast	Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, and Pennsylvania
Midwest	Ohio, Illinois, Indiana, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas
South	Delaware, Maryland, District of Columbia, West Virginia, Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Oklahoma, Arkansas, and Texas
West	Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Hawaii, and Alaska

Place of residence—Data are classified by place of residence into three categories, metropolitan area–central city, metropolitan area–other, and nonmetropolitan area, using 1980 census counts.

Ever tested for HIV infection—Women were asked the question: "Have you ever had your blood tested for infection with the AIDS virus?" If they responded "yes" to this item, they were coded as having been tested for HIV infection. In addition, women who answered "no" to this item but who responded "yes" to the question: "Have you donated blood since March 1985?" were also coded as having been tested for HIV infection because the U.S. blood supply has been screened for antibodies to HIV since March 1985 (5). Because women who donated blood since March 1985 (but reported no other HIV test) were not asked questions on the location or circumstances of their test, they were coded as having been tested at the American Red Cross or other blood bank and were coded as having had the test as part of the blood donation process for reasons or circumstances of the test.

Knowledge of HIV/AIDS—This measure was created by scoring each correct answer on the knowledge items with 1 point and each incorrect, refused, or not-ascertained answer with 0 points. These points were totaled, the maximum being 13 points. A score of 12 or more was considered a high level of knowledge on HIV/AIDS, a score of 9–11 points was considered a medium level, and a score of 8 or fewer points was considered a low level of knowledge on HIV/AIDS. The correct answers were:

> What would you say are the ways in which a person can get the AIDS virus? Would you say that a person can get the AIDS virus by:
>
> A. Shaking hands or hugging? (no = 1 point)
> B. Sharing hypodermic needles? (yes = 1 point)
> C. Sharing an apartment, classroom, or office? (no = 1 point)
> D. Receiving a blood transfusion? (yes = 1 point)
> E. Sexual intercourse between men? (yes = 1 point)
> F. Sexual intercourse between a man and a woman? (yes = 1 point)
> G. Giving a blood donation? (no 4= 1 point)
> H. Being bitten by an insect that had bitten someone with the AIDS virus? (no = 1 point)

I. Sharing personal items like dishes or toilets? (no = 1 point)
J. Being born to a mother with AIDS? (yes = 1 point)
K. Swimming in a pool in which someone with AIDS has also been swimming? (no = 1 point)
L. Kissing with exchange of saliva? (no = 1 point)

and

Can a person get AIDS from someone who has only the AIDS virus but does not have the disease? (yes = 1 point)

1990 NHIS questions on HIV testing—

- Have you ever heard of a blood test that can detect the AIDS virus infection?
- To the best of your knowledge, are blood donations routinely tested for the AIDS virus infection?
- Was one of your reasons for donating blood because you wanted to be tested for the AIDS virus infection?
- Except for blood donations since March 1985, have you had your blood tested for the AIDS virus infection?

1991 NHIS questions on HIV testing—

- To the best of your knowledge, are blood donations routinely tested for the AIDS virus infection?
- Was one of your reasons for donating blood because you wanted to be tested for the AIDS virus infection?
- Except for blood donations since March 1985, have you had your blood tested for the AIDS virus infection?

Suggested citation

Wilson JB. Human immunodeficiency virus antibody testing in women 15–44 years of age: United States, 1990. Advance data from vital and health statistics; no 238. Hyattsville, Maryland: National Center for Health Statistics. 1993.

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

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

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

DHHS Publication No. (PHS) 94-1250

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

Number 239 • December 22, 1993

Advance Data

nchs

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

AIDS-Related Behavior Among Women 15–44 Years of Age: United States, 1988 and 1990

by William D. Mosher, Ph.D., and William F. Pratt, Ph.D., Division of Vital Statistics

In 1990, 10 percent of sexually active women 15–44 years of age (those who had intercourse in the last month) were having intercourse with partners who always used condoms, either to prevent sexually transmitted diseases (STD's) or for contraception. In 1990, about 6 percent of married women and 16 percent of sexually active unmarried women always used condoms. Unmarried women with more than one sexual partner in the last 3 months were also more likely than those with one partner to use condoms sometimes, but they were not more likely to use condoms at every recent act of intercourse (always).

There was an increase from 14 percent in 1988 to 18 percent in 1990 in the proportion of sexually experienced women who reported changes in their sexual behavior to avoid the human immunodeficiency virus (HIV), the virus that causes the acquired immunodeficiency syndrome (AIDS). Increases occurred in each subgroup shown in this report. Most of the increases were not statistically significant, and none of the changes for unmarried women were significant. Thus, it appears that the public health impact of these reported changes was small.

These findings are from the 1988 National Survey of Family Growth (NSFG) and the 1990 NSFG telephone reinterview, both conducted by the National Center for Health Statistics (NCHS). These surveys were not focused exclusively on AIDS-related behavior. Rather, they were designed to provide a wide range of data on topics related to childbearing—including pregnancies and their outcomes, contraception, infertility, use of medical services for family planning, prenatal care, and other selected aspects of maternal and infant health. Questions on AIDS-related knowledge, behavior, and condom use were included in the 1988 and 1990 interviews in response to requests for AIDS-related information from other agencies in the United States Public Health Service.

The 1988 NSFG was based on a national sample of 8,450 women 15–44 years of age—2,771 black women, 5,354 white women, and 325 women of other races. These women were interviewed in person in their own homes between January and August 1988 by professional female interviewers. The sample was obtained from households that had participated in the National Health Interview Survey in the 18-month period between October 1985 and March 1987. The methodology of the 1988 survey is described in detail elsewhere (1,2). The findings on AIDS-related knowledge and behavior for 1988 were summarized in a previous report (3).

Between July and November 1990, 5,686 women were interviewed for the NSFG telephone reinterview. The overall response rate was 68 percent. All interviews in 1990 were conducted by telephone; 5,359 were reinterviews of women previously interviewed in person in 1988. The other 327 were first-time telephone interviews with women 15–17 years of age, who had turned 15 in the 2½ years since the 1988 interview.

The average length of interview in 1990 was only 20 minutes compared with 70 minutes in 1988. In order to save interview time and make room for more questions, the 1990 telephone reinterview survey was divided into two "half-samples." About 10 of the 20 minutes of interview time was devoted to questions that were asked of all responding women. In the other 10 minutes of interview time, half the sample (2,854 cases, called "half-

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

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

sample I") was asked detailed questions on use of contraception and family planning services, as in previous NSFG interviews.

The other half of the sample (2,832 cases, called "half-sample II") was asked questions related to HIV and AIDS. These included questions on how HIV is transmitted, the sources and extent of HIV testing, behavior change, and condom use. Women were not asked about injecting drug use or types of intercourse. This report analyzes results from only half-sample II because half-sample I did not contain the necessary questions on AIDS-related behavior and condom use. Another report presents data on HIV testing from half-sample II of the 1990 survey.

The methodology of the telephone reinterview survey is described in more detail in the Technical notes of this report. The nonresponse adjustments and procedures for weighting the data for the 1990 survey are described in detail in a separate paper (4).

Unmarried women in 1990 will be used as a group in many of the analyses in this report. As a group, women who were unmarried in 1990 were young: 75 percent had never been married and 68 percent were under 30 years of age (not shown in tabular form). This means that most unmarried women began having intercourse during the HIV-AIDS era—the 1980's.

Questions on AIDS-related behavior in 1988 and 1990

In the 1988 NSFG, all women who had ever had intercourse were asked,

> To keep people from catching diseases such as genital herpes, chlamydia, or AIDS, doctors have suggested several changes people can make in their sexual behavior. In which of the ways shown on card 27, if any, have you changed your sexual behavior?

The changes women could have reported were:

A. Stopped having sexual intercourse.
B. Stopped having other types of sexual relations.
C. Don't have sex as often.
D. Stopped having sex with more than one man.
E. Stopped having sex with men I don't know well.
F. Stopped having sex with men who are bisexual.
G. Stopped having sex with men who use needles to take drugs.
H. Have made no changes.

Women who reported that they had made any of these changes in their behavior to avoid these diseases were then asked,

> Which of these changes, if any, have you made since you first heard about AIDS?

These questions on behavior change were known to be limited when they were written in 1986 and 1987. For example, there are no questions asking how often the woman did these things before she heard of AIDS—such as questions asking the woman whether she had "other types of sexual relations" (other than vaginal heterosexual intercourse) before she heard of AIDS (B), or how often she had intercourse before she heard of AIDS (C), or whether she had intercourse "with more than one man" in the same month (D), or whether she had intercourse with men she didn't "know well" (E) before she heard of AIDS. That is, there is no "baseline" rate for those behaviors before the woman heard of AIDS. However, those "baseline" questions were judged too sensitive to be used in 1988. The 1988 questions were, primarily, an experiment to see whether the subject of AIDS-related behavior could be discussed in a survey of the general population of women. The questions did succeed in that goal and produced the following results.

About 3 percent of married women and about 31 percent of the sexually experienced unmarried women reported making one or more of these changes since they first heard about AIDS (3). The most common changes reported were "Stopped having sex with more than one man," reported by 16 percent of unmarried women who had ever had intercourse, and "Stopped having sex with men I don't know well," reported by 12 percent of unmarried women who had ever had intercourse. These results encouraged NCHS to ask further questions.

In the 1990 NSFG telephone reinterview, there was concern that a list of changes in behavior like that used in 1988 would be difficult to administer by telephone, would be more sensitive over the telephone, and would take considerable interview time—given that only 10 minutes were available for AIDS-related questions in half-sample II. As a result of such concerns, two short questions were used in place of the above list:

> Since you first heard about AIDS have you changed your sexual behavior in ANY way? (and, if "yes") Have you changed your sexual behavior specifically to keep you or your partner from being infected with the AIDS virus?

This pair of questions in 1990 was intended to be comparable to the longer set of questions in 1988. Assuming that they are approximately comparable, trends in the number of women reporting changes in their behavior in response to the HIV can be assessed. These trends are reported in table 1, and they show an increase between 1988 and 1990 in the percent who reported changing their sexual behavior in all of the 21 race-marital status and number of partners groups except one—unmarried non-Hispanic black women. The overall increase, from 14 percent in 1988 to 18 percent in 1990, was statistically significant. However, the changes were significant in only 6 of the 21 comparisons in table 1, and none of the increases for unmarried women was significant at

Table 1. Number and percent of women 15–44 years of age who have ever had intercourse and who reported changing their sexual behavior specifically to avoid the AIDS virus, by selected characteristics: United States, 1988 and 1990

Selected characteristic	All marital statuses		Married		Unmarried	
	1990	1988	1990	1988	1990	1988
	Number in thousands					
Total[1]	53,369	51,799	31,417	27,840	21,952	20,264
Race and origin						
Hispanic	4,639	4,574	2,867	2,279	1,771	1,901
Non-Hispanic white	39,581	38,553	24,921	22,513	14,660	13,486
Non-Hispanic black	7,015	6,778	2,396	1,977	4,618	4,276
Lifetime number of sexual partners						
1–3 men	27,218	26,872	18,185	18,140	9,032	8,732
4–6 men	13,520	10,573	6,665	5,351	6,854	5,222
7 men or more	11,469	9,788	5,894	3,999	5,575	5,789
	Percent					
Total[1]	18.0	14.4	5.3	2.9	36.3	32.8
Race and origin						
Hispanic	20.7	18.4	7.1	*6.3	42.7	36.6
Non-Hispanic white	15.0	11.2	4.4	2.4	33.1	27.8
Non-Hispanic black	34.5	30.8	15.2	*6.4	44.5	45.9
Lifetime number of sexual partners						
1–3 men	9.5	8.1	2.3	1.8	24.0	21.2
4–6 men	23.4	19.5	6.7	*4.4	39.7	35.0
7 men or more	30.9	30.6	13.1	6.5	49.7	47.2

[1] Includes other races and women whose lifetime number of sexual partners was not ascertained, not shown separately.

the 5 percent level. (The increase from 28 to 33 percent among unmarried non-Hispanic white women was significant at the 10 percent level.) Among black non-Hispanic married women in 1988, 6 percent reported changes in their behavior in response to the AIDS virus; in 1990, 15 percent reported changes.

The data are also shown in table 1 by the lifetime number of sexual partners. The lifetime number of partners does not reveal when women had those partners. Nevertheless, number of partners is considered one of the best indicators of the risk of STD's (5). Only one of the changes by number of partners was significant: 6.5 percent of married women with 7 or more partners in their lifetimes reported changes in 1988 compared with 13 percent in 1990.

The differences in table 1 by marital status are very large: in 1990, 5 percent of married women and 36 percent of unmarried sexually experienced women reported that they made changes in their sexual behavior since they heard of AIDS. In 1988, these figures were 3 percent and 33 percent, respectively.

The differences between white and black women were also quite large in both 1988 and 1990. For example, the percent of black women who reported changes in their behavior since hearing of AIDS was 35 percent in 1990; for white women it was 15 percent. For married black women, the percent reporting a change was 15 percent compared with 4 percent of white married women; for unmarried women, the comparable percents were 45 percent of black and 33 percent of white unmarried women.

If the data on behavior change in table 1 were valid, objective indicators of behavior would be expected to show a reduction in the risk of HIV infection. The only objective indicator available in both the 1988 and 1990 surveys is the percent with more than one partner in the 3 months before the survey. A reduction in the proportion with more than one partner would suggest that women have made an overall reduction in the risk of HIV infection. But the proportion with more than one partner did not drop; it increased significantly, from 7.5 to 10 percent of unmarried women. This one comparison does not show that the data on behavior change in table 1 are invalid, because the characteristics of partners have as much effect on risk of HIV infection as the number of partners (6). But it should encourage caution in making inferences about the public health impact of the changes shown in table 1.

Condom use

Use of condoms has been recommended as a means to avoid HIV infection for those who do not remain in a mutually monogamous relationship (7). However, to be effective as prevention, condoms must be used consistently (at each act of intercourse). Women in half-sample

II of the 1990 NSFG telephone reinterview were asked separate questions about condom use to prevent STD's and condom use for contraception. The two questions designed to measure condom use to prevent STD's were:

> In the last 3 months in which you were having intercourse, did you use condoms to avoid getting diseases such as genital herpes, gonorrhea, or AIDS?

Those who answered "yes" were asked,

> Did you and your partner use condoms to avoid getting diseases such as genital herpes, gonorrhea, or AIDS every time you had intercourse, on most occasions, about half the time, or less than half of the time?

Note that these questions ask about the frequency, not the correctness, of condom use. No questions on the correctness of condom use were asked. Women were also asked,

> In the last month, how frequently, on average, did you have intercourse?

Those who answered "not at all" were excluded entirely from tables 2–8. (For ease of writing, the phrase "women used condoms" is sometimes used in the following text, although it is clear that their male partners were using the condoms.)

Table 2 shows sexually active women (those who had intercourse in the last month) by whether and how often they were using condoms for disease prevention: 6 percent were using condoms every time they had intercourse (labeled "Always" in the table; also described as "consistent use" in the text). Another 4 percent used condoms "on most occasions" (labeled "Most times" in table 2), and 5 percent, half the time or less. Note that *less than half* of all those using condoms for disease prevention in 1990 used them always (that is, every time they had intercourse). For example, only 6 out of 15 percent (less than one-half) used condoms every time they had intercourse (always).

It is no surprise that the unmarried were much more likely to use condoms for STD-HIV prevention than married couples were (for example, 14 percent of unmarried women and 1 percent of married couples always used condoms for disease prevention). However, the data by race and origin in table 2 reveal that occasional or infrequent condom use is much more common among the partners of non-Hispanic black women than non-Hispanic white women. For example, 13 percent of black women and only 3 percent of white women reported that their partner used condoms "half the time or less." Among the unmarried, 19 percent of black women and only 9 percent of white women used condoms half the time or less. The estimates of the percent of women protected from HIV infection or other STD's by condom use in tables 5–8 of this report will include only those who used condoms every time they had intercourse.

Table 2 also includes data on condom use for STD prevention by the woman's education. Only 2.5 percent of unmarried women without a high school education (0–11 years of education) had partners using condoms consistently compared with 18.6 percent of those with some college education (13 years or more). The differences in the proportions using condoms most times or half or less were not significant, either for unmarried women or for all marital statuses combined. This is in sharp contrast to the data by race, where the significant difference was in inconsistent use.

The proportion of unmarried women whose partners were using condoms is also shown by the number of sexual partners the woman had in the last 3 months in which she was having intercourse. (Reliable estimates of the proportion of married women who had multiple partners could not be made because the sample was not large enough.) The difference in consistent condom use by number of partners (14 percent versus 16 percent) was small and not signficant; but the proportion of those with two or more partners who used condoms half the time or less was 27 percent compared with 11 percent of those with one partner. However, the 27 percent for unmarried women with more than one partner was only about 498,000 women; and 498,000 is only about 3 percent of all 15.23 million sexually active unmarried women shown in table 2.

Comparable data on condom use for STD/HIV prevention in 1988 are not available. In the 1988 survey, there was no followup question to ask whether condoms were used consistently (at every intercourse) or not. In addition, the 1988 question asked, "Do you use (condoms)?" This question does not ask about a specific time period (such as, "in the last month,...") and the question apparently allowed some women to report that they were using condoms, although they said elsewhere in the interview that they were not having intercourse in the month of interview. The absence of questions in the 1988 survey on consistency of condom use and the lack of a specific time reference mean that some women who did not use condoms consistently in 1988, and some who are not having intercourse currently, would be classified as being protected from STD's by condom use in 1988. The 1990 data do not have these problems.

Condom use can also be reported for contraceptive purposes, and if condoms are used consistently for contraception, they can offer protection from HIV infection as well. Women in half-sample II in 1990 were also asked,

> In the past month have you and your partner used any method of birth control or family planning? (and if "yes") What method or methods was that?

Up to four methods were recorded, so those reporting condom use with other methods could be counted as condom users. Those who reported condom use (or any other

Table 2. Number and percent distribution of women 15–44 years of age who have had intercourse in the past month by frequency of condom use in the past 3 months to avoid sexually transmitted diseases, according to selected characteristics: United States, 1990

Selected characteristic	Sexually active women	Total	Condom use in the past 3 months to avoid sexually transmitted diseases			
			Never	Always	Most times	Half the time or less
	Number in thousands[1]	Percent distribution				
All marital statuses[2]	45,432	100	85.5	5.5	4.2	4.8
Race and origin by marital status						
Hispanic	4,283	100	81.4	8.0	4.4	6.2
Non-Hispanic white	33,846	100	89.2	4.4	3.4	3.1
Non-Hispanic black	5,465	100	67.0	10.3	10.0	12.7
Married women[2]	30,200	100	97.4	1.2	*0.6	0.9
Race:						
Non-Hispanic white	23,925	100	98.2	*0.9	*0.3	*0.6
Non-Hispanic black	2,223	100	93.5	*0.9	*2.2	*3.4
Unmarried women[3]	15,232	100	62.0	14.1	11.2	12.6
Race:						
Non-Hispanic white	9,921	100	67.5	12.6	10.8	9.1
Non-Hispanic black	3,242	100	48.8	16.8	15.4	19.0
Education by marital status[4]						
All marital statuses:						
0–11 years	4,963	100	87.4	*2.3	*5.2	*5.2
12 years	15,099	100	90.0	3.7	3.1	3.2
13 years or more	22,553	100	87.0	6.3	3.3	3.5
Married:						
0–11 years	3,248	100	94.7	*2.2	*0.2	*2.9
12 years	10,759	100	97.9	*0.8	*0.6	*0.6
13 years or more	15,968	100	97.5	*1.2	*0.7	*0.6
Unmarried:						
0–11 years	1,715	100	73.4	*2.5	14.6	*9.5
12 years	4,340	100	70.2	10.6	9.4	9.8
13 years or more	6,585	100	61.3	18.6	9.7	10.4
Number of sexual partners in the past 3 months						
Unmarried:						
1 man	13,270	100	65.3	14.0	10.1	10.6
2 or more men	1,830	100	39.0	16.2	17.7	27.2

[1]Women who did not have intercourse in the month before interview are excluded from tables 2–8.
[2]Includes other races not shown separately.
[3]Includes women of Hispanic origin and other races not shown separately.
[4]Education in years. Figures by education include women 19–44 years of age only.

NOTE: Because of rounding, figures may not add to totals.

coitus-dependent method) were also asked how frequently they used it, and only those who answered "every time (I) had intercourse" were classified as "consistent" condom users in table 3. In addition, those who reported that they did not have intercourse at all in the month before interview were excluded from tables 2 and 3. About 6 percent were using condoms consistently for contraception and about 7 percent, inconsistently (table 3).

There are at least four important findings in table 3. First, consistent use is less than half of all contraceptive condom use. Among the unmarried, 10 percent of sexually active women used condoms inconsistently, but only 6 percent used them consistently. The second striking finding in table 3 is that although there are pronounced marital status and race differences in condom use for STD prevention, the differences by race and marital status in condom use for contraception are quite small. Third, the pattern by education is similar for contraceptive condom use and preventive condom use: 11 percent of college-educated unmarried women were using condoms for contraception in 1990

Table 3. Percent distribution of women 15–44 years of age who have had intercourse in the past month by how frequently her partner used condoms for contraception in the past month, according to selected characteristics: United States, 1990

Selected characteristic	Condom use in the past month for contraception			
	Total[1]	Never	Always[2]	Inconsistent
	Percent distribution			
Sexually active women[3]	100	87.3	5.8	6.9
Race and origin by marital status				
Hispanic	100	88.5	4.5	7.0
Non-Hispanic white	100	87.0	5.8	7.2
Non-Hispanic black	100	88.4	5.4	6.2
All married women[4]	100	89.3	5.6	5.2
Race:				
Non-Hispanic white	100	88.9	5.3	5.7
Non-Hispanic black	100	91.9	5.5	2.6
All unmarried women[4]	100	83.5	6.2	10.2
Race:				
Non-Hispanic white	100	82.5	6.9	10.6
Non-Hispanic black	100	86.0	5.3	8.7
Education by marital status[5]				
All marital statuses:				
0–11 years	100	91.0	*2.8	6.2
12 years	100	91.0	4.3	4.7
13 years or more	100	85.5	7.8	6.7
Married:				
0–11 years	100	94.1	*3.2	*2.7
12 years	100	91.4	4.7	3.9
13 years or more	100	87.2	6.4	6.5
Unmarried:				
0–11 years	100	85.1	*2.2	*12.7
12 years	100	90.2	*3.2	6.6
13 years or more	100	81.3	11.4	7.3
Number of sexual partners in the past 3 months				
Unmarried:				
1 man	100	83.6	6.7	9.7
2 men or more	100	84.1	*3.3	*12.6

[1]Percents based on number of women shown in table 2.
[2]"Always" means at every act of intercourse.
[3]Includes other races not shown separately.
[4]Includes women of Hispanic origin and other races not shown separately.
[5]Education in years. Figures by education include women 19–44 years of age only.

NOTE: Because of rounding, figures may not add to totals.

compared with 2 and 3 percent in the other two education groups. Fourth, in sharp contrast to condom use for disease prevention, there was no significant difference in contraceptive condom use by number of sexual partners in the last 3 months.

Table 4 shows the proportion of sexually active women who reported that they and their partners used condoms consistently (every time she had intercourse), either to avoid STD's or for contraception. About 10 percent always used condoms: 6 percent of married and 16 percent of sexually active unmarried women. The differences by race and origin in consistent condom use were not large and not significant. The differences by race among the unmarried in inconsistent use were, however, quite large: The partners of 21 percent of sexually active unmarried white women and 34 percent of sexually active unmarried black women were using condoms inconsistently in 1990.

The differences by race in condom use were in inconsistent use, but the differences by education in table 4 are found in the proportions who used condoms always—at every act of intercourse. Of unmarried women with less than a high school education, 4 percent were using condoms consistently in 1990 compared with 11 percent of high school graduates and 21 percent of

Table 4. Number and percent distribution of women 15–44 years of age who had intercourse in the past month by how frequently her partner uses condoms either to avoid sexually transmitted diseases or for contraception, according to selected characteristics: United States, 1990

Selected characteristic	Sexually active women	Total	Current condom use to prevent sexually transmitted diseases or for contraception		
			Never	Always[1]	Inconsistent
	Number in thousands	Percent distribution			
Total[2]	45,432	100	78.1	9.6	12.3
Race and origin by marital status					
Hispanic	4,283	100	75.5	10.9	13.5
Non-Hispanic white	33,846	100	81.0	8.6	10.4
Non-Hispanic black	5,465	100	63.8	13.3	22.9
All married women[3]	30,200	100	87.5	6.4	6.1
Race:					
Non-Hispanic white	23,925	100	87.9	5.9	6.2
Non-Hispanic black	2,223	100	86.3	6.5	7.2
All unmarried women[3]	15,232	100	59.5	15.8	24.6
Race:					
Non-Hispanic white	9,921	100	64.4	14.9	20.7
Non-Hispanic black	3,242	100	48.4	17.9	33.7
Education by marital status[4]					
All marital statuses:					
0–11 years	4,963	100	83.4	*4.9	11.7
12 years	15,099	100	84.0	6.9	9.1
13 years or more	22,553	100	77.3	11.3	11.4
Married:					
0–11 years	3,248	100	91.2	*5.4	*3.5
12 years	10,759	100	89.8	5.1	5.1
13 years or more	15,968	100	85.5	7.1	7.3
Unmarried:					
0–11 years	1,715	100	68.7	*3.9	27.4
12 years	4,340	100	69.5	11.4	19.1
13 years or more	6,585	100	57.3	21.4	21.3
Number of sexual partners in the past 3 months					
Unmarried:					
1 man	13,270	100	62.4	15.9	21.6
2 men or more	1,830	100	39.0	16.2	44.8

[1]"Always" means use at every act of intercourse.
[2]Includes other races not shown separately.
[3]Includes women of Hispanic origin and other races not shown separately.
[4]Education in years. Figures by education include women 19–44 years of age only.

NOTE: Because of rounding, figures may not add to totals.

those with college educations. The differences by education in inconsistent use were not significant (27 percent versus 19 and 27 percent versus 21 percent, both not significant). Finally, women who had two or more partners in the last 3 months were twice as likely to use condoms inconsistently as those who had only one partner in the last 3 months (45 percent versus 22 percent).

Of unmarried women who were not using condoms in 1990, only 2 percent were trying to become pregnant; 45 percent said they had "no chance at all" of contracting HIV, and 37 percent said they had "not much chance." This leaves about 16 percent of those not using condoms—about 10 percent of all sexually active unmarried women, or 1.46 million—whose reasons for not using condoms were not clear.

AIDS-related behavior in 1990

Tables 5–8 show the percent of sexually active women who had changed their sexual behavior specifically to avoid the AIDS virus, the percent who had always used condoms to prevent STD's or for contraception, the percent who either were using condoms or changed their sexual behavior, and the percent who did both. Table 5 contains the data by age and marital status.

Table 5. Number and percent of women 15–44 years of age who had intercourse in the past month, by age and marital status and selected characteristics: United States, 1990

Age and marital status	Sexually active women	Behavior change to avoid AIDS	Always use condoms	Condoms or behavior change	Both condoms and behavior change
	Number in thousands	Percent			
All marital statuses:					
15–44 years	45,432	16.1	9.6	22.3	3.3
15–19 years	3,895	33.2	15.3	40.4	8.1
20–24 years	7,052	23.2	13.4	33.6	*3.0
25–29 years	8,862	18.6	7.4	24.0	*2.0
30–34 years	9,626	12.6	10.5	19.7	3.3
35–44 years	15,997	9.5	7.1	13.6	3.0
Married:					
15–44 years[1]	30,200	5.3	6.4	11.1	0.6
20–24 years	3,055	13.0	*6.5	19.5	0.0
25–29 years	5,923	7.1	7.2	13.1	*1.1
30–34 years	7,200	3.7	7.7	11.1	*0.3
35–44 years	13,434	3.5	4.9	7.9	*0.5
Unmarried:					
15–44 years	15,232	37.5	15.8	44.7	8.7
15–19 years	3,306	37.6	15.4	44.5	8.4
20–24 years	3,998	31.1	18.7	44.5	*5.4
25–29 years	2,939	41.9	7.9	46.0	*3.8
30–34 years	2,426	39.0	18.5	45.2	12.4
35–44 years	2,563	41.1	18.4	43.3	16.1

[1]Includes women 15–19 years of age not shown separately.

The data on behavior change in tables 5–8 show the percent who answered "yes" to two questions:

> Since you first heard about AIDS have you changed your sexual behavior in ANY way?"
> (and if "yes") "Have you changed your sexual behavior specifically to keep you or your partner from being infected with the AIDS virus?

The percents in the "behavior change" column in tables 5–8 differ from those in table 1 because those in table 1 are percents of all women who have *ever* had intercourse at some time in their lives. The percents in tables 5–8, in contrast, are percents of women who had intercourse *in the last month.*

Overall, 16 percent of women sexually active in the last month reported that they changed their sexual behavior to avoid the AIDS virus, and 10 percent reported that they used condoms consistently, either to avoid STD's or for contraception. Most women were asked both the questions on behavior change and the questions on condom use. Behavior change and condom use are not mutually exclusive categories, so some women (3 percent in table 5) reported both.

The proportions who reported changing their behavior declined sharply as age increased, from 33 percent of sexually active teenagers to 10 percent of sexually active women 35–44 years of age. There were not enough married teenagers in the sample to make an estimate for that group, but a decline (from 13 to 4 percent) from ages 20–24 years—ages 35–44 years is apparent among married women. Among sexually active unmarried women, however, the percent who reported changing their behavior was 38 percent overall and did not vary significantly by age.

Note that although 5 percent of married women reported that they changed their behavior, they did not necessarily change it while they were married. The behavior change is measured since the woman heard of AIDS, not since she was married. She may have changed her behavior before she was married. It is possible that getting married may have been a response of some of these women to the risk of HIV infection.

The proportion of sexually active women who consistently used condoms, either to prevent STD's or for contraception, was about 15 percent for teenagers, 13 percent for those 20–24 years of age, and 7 percent for those 35–44 years. The proportion always using condoms was about 6 percent for married couples and did not vary significantly by the age of the woman. Among sexually active unmarried women, about 16 percent used condoms and there was no consistent pattern by age.

About 22 percent either changed their behavior or always used condoms; this proportion declined from 40 percent among teenagers to 14 percent at ages 35–44 years. Among married couples, the percent declined from 20 percent at ages 20–24 years to 8 percent at ages 35–44 years. Among unmarried

Table 6. Number of women 15–44 years of age who had intercourse in the past month and percent who reported that they changed their sexual behavior, whose partners always use condoms, who either changed their behavior or always use condoms, and who did both, by selected characteristics: United States, 1990

Selected characteristic	Sexually active women	Behavior change to avoid AIDS	Always use condoms	Condoms or behavior change	Both condoms and behavior change
	Number in thousands	Percent			
All races[1]	45,432	16.1	9.6	22.3	3.3
Race and origin					
Hispanic	4,283	19.1	10.9	26.2	3.9
Non-Hispanic white	33,846	12.9	8.6	18.9	2.6
Non-Hispanic black	5,465	33.9	13.3	39.9	7.3
Poverty-level income[2]					
0–149 percent	7,785	31.6	11.1	37.4	5.3
150 percent or more	35,645	12.9	9.5	19.3	3.1
Married					
Race and origin:					
All races[3]	30,200	5.3	6.4	11.1	0.6
Non-Hispanic white	23,925	4.5	5.9	9.7	0.6
Non-Hispanic black	2,223	15.0	6.5	21.5	0.0
Poverty-level income:[2]					
0–149 percent	3,058	7.6	8.8	15.2	1.2
150 percent or more	25,712	5.2	6.2	10.9	0.6
Unmarried					
Race and origin:					
All races[3]	15,232	37.5	15.8	44.7	8.7
Non-Hispanic white	9,921	33.2	14.9	40.9	7.2
Non-Hispanic black	3,242	46.9	17.9	52.5	12.4
Poverty-level income:[2]					
0–149 percent	4,727	47.2	12.5	51.8	7.9
150 percent or more	9,933	32.6	17.8	40.9	9.5

[1]Includes other races not shown separately.
[2]Women with poverty-level income not ascertained are not shown separately.
[3]Includes women of Hispanic origin and other races not shown separately.

women, there was no significant pattern by age.

Table 6 contains the same measures as table 5 for sexually active women classified by race, Hispanic origin, and poverty-level income instead of age. About 34 percent of sexually active non-Hispanic black women compared with 13 percent of non-Hispanic white women, reported changes in behavior to avoid the AIDS virus. Among married women, 15 percent of black wives and 5 percent of white wives have made changes. Among sexually active unmarried women, 47 percent of black women and 33 percent of white women made changes.

For all marital statuses, 13 percent of sexually active black women and 9 percent of sexually active white women used condoms consistently. Some of this difference, however, was due to the higher proportion of black women who are unmarried. Among married women, the difference was very small (5.9 for white women versus 6.5 percent for black women, table 6); among unmarried women, the difference was 3 percentage points (14.9 versus 17.9) and not significant. As noted in connection with tables 2, 3, and 4, the larger differences by race and origin were in inconsistent condom use (using condoms sometimes but not every time they had intercourse). Differences by race and origin in the "Condoms or behavior change" column were due primarily to differences in behavior change.

Poverty-level income is the total income of the family divided by the poverty level for a family of that size (see Technical notes). Women with low incomes (under 150 percent of poverty level) were more than twice as likely to report that they have changed their behavior than high-income women (32 versus 13 percent, table 6). Among married women, the difference was small and not significant (7.6 versus 5.2 percent); for unmarried women, it was large and significant (47 versus 33 percent). Differences by income in condom use were small overall and for married couples. For the unmarried, 13 percent of low-income, and

Table 7. Number of women 15–44 years of age who had intercourse in the past month and percent who reported that they changed their sexual behavior, whose partners always use condoms, who either changed their behavior or always use condoms, and who did both, by selected characteristics: United States, 1990

Selected characteristic	Sexually active women	Behavior change to avoid AIDS	Always use condoms	Condoms or behavior change	Both condoms and behavior change
	Number in thousands	Percent			
Total[1]	45,432	16.1	9.6	22.3	3.3
Lifetime number of sexual partners:					
1–3 men	23,432	8.0	9.8	16.3	1.5
4–6 men	11,353	21.3	10.0	25.7	5.6
7 men or more	9,596	28.5	7.9	31.7	4.8
Have you ever personally known anyone with the AIDS virus?					
Yes	10,724	22.7	11.5	28.3	5.8
No	34,527	14.1	8.9	20.4	2.6
Married					
Lifetime number of sexual partners:					
1–3 men	17,551	2.4	7.5	9.5	*0.3
4–6 men	6,400	6.7	4.6	10.5	*0.8
7 men or more	5,576	13.3	*4.4	16.3	*1.4
Have you ever personally known anyone with the AIDS virus?					
Yes	6,787	6.7	6.9	12.1	*1.5
No	23,274	4.9	6.1	10.7	*0.4
Unmarried					
Lifetime number of sexual partners:					
1–3 men	5,881	24.8	16.8	36.6	5.0
4–6 men	4,953	40.2	17.0	45.3	11.9
7 men or more	4,020	49.6	12.8	53.0	9.4
Have you ever personally known anyone with the AIDS virus?					
Yes	3,937	50.2	19.4	56.3	13.3
No	11,252	33.2	14.5	40.7	7.1
Number of sexual partners in the past 3 months					
Unmarried:					
1 man	13,270	35.8	15.9	43.7	8.1
2 men or more	1,830	48.6	16.2	51.1	13.6

[1] Includes women whose lifetime number of sexual partners was not ascertained; also includes women with missing data on whether they have ever known a person with the AIDS virus not shown separately.

18 percent of higher income, women reported consistent condom use (significant at the 10-percent level).

Table 7 contains data by the lifetime number of sexual partners and the number of recent partners. As explained previously, the lifetime number of partners does not specify how long ago the woman had those partners. Nevertheless, it is a good, if not perfect, measure of risk of STD's. About 8 percent of sexually active women with 1–3 lifetime partners changed their behavior compared with 21 percent of women with 4–6 lifetime partners and 29 percent of women with 7 or more partners (table 7). This increase with number of partners held for both married and unmarried women. For sexually active unmarried women with 7 or more lifetime partners, 50 percent reported that they had changed their behavior specifically to avoid the AIDS virus.

Those who had more than one partner in the last 3 months were also more likely to have changed their behavior than those with one partner (49 percent versus 36 percent). Variations by number of lifetime partners and by number of partners in the last 3 months in current consistent condom use were small and not statistically significant.

Women in the survey were also asked,

> Have you personally known anyone with AIDS or the AIDS virus?

Table 8. Number of women 19–44 years of age who had intercourse in the past month, and percent who reported that they changed their sexual behavior, whose partners always use condoms, who either changed their behavior or always use condoms, and who did both, by education and marital status: United States, 1990

Education and marital status	Sexually active women	Behavior change to avoid AIDS	Always use condoms	Condoms or behavior change	Both condoms and behavior change
	Number in thousands	Percent			
Education:					
0–11 years	4,963	20.6	4.9	24.3	1.2
12 years	15,099	14.9	6.9	19.5	2.3
13 years or more	22,553	13.2	11.3	21.0	3.5
Married:					
0–11 years	3,248	10.5	5.4	14.7	1.2
12 years	10,759	5.7	5.1	10.6	0.3
13 years or more	15,968	3.7	7.1	10.4	0.4
Unmarried:					
0–11 years	1,715	39.9	3.9	42.4	1.3
12 years	4,340	37.6	11.4	41.6	7.4
13 years or more	6,585	36.2	21.4	46.6	11.0

Among sexually active unmarried women, 50 percent of those who have known someone with HIV or AIDS reported that they had changed their behavior compared with 33 percent of unmarried women who did not know anyone with HIV or AIDS (table 7). However, this variable had no significant effect on behavior change among married women, and no significant effect on consistent condom use.

Table 8 shows women 19–44 years of age by years of education. We use 19–44 because it generally takes until at least age 19 to complete a year or more of college. (Using 19–44 prevents the lower 2 education groups from being comprised of mainly those still attending high school.) Among married women, none of the proportions in table 8 differ significantly by education. Among unmarried women, the striking difference in consistent condom use by education is shown: 4 percent of those who did not complete high school and 21 percent of those with some college used condoms every time they had intercourse (always used condoms). The proportion of unmarried women who changed their behavior did not differ significantly by education. The proportion who always used condoms or changed their behavior also did not differ significantly by education. The proportion, however, who used condoms and changed their behavior was 1 percent in the lowest education category and 11 percent in the highest category.

Evaluation of the data

Our findings suggest that in 1990, about 1 in 3 sexually active unmarried women reported that they were at least attempting to make changes in their sexual behavior to reduce their risk of infection with HIV and other STD's. That proportion may have increased slightly between 1988 and 1990, but as discussed previously and in the Technical notes, comparison of the 1988 and 1990 data requires some caution because the questions used to measure behavior change in 1988 and 1990 were different.

The data on condom use, however, appear to be quite reliable because of the separate questions on condom use for disease prevention and for contraception, the follow-up questions on how often condoms are used, and the question on whether the woman was currently having intercourse. All of these questions are necessary to produce accurate estimates of current condom use. A less complete series would tend to overestimate condom use because it would count those using condoms inconsistently and those not currently having intercourse as current condom users. Variations in consistent condom use by lifetime number of sexual partners, whether the woman has ever known a person with HIV infection or AIDS, and race are smaller than the variations in behavior change by these characteristics. Differences by education in consistent condom use among unmarried women, however, are quite large.

The analyses described here and in the previous report (3) show that it is possible to collect data on AIDS-related behavior change and condom use from the general population of women of childbearing age in the United States. The success of these questions to this extent suggests that behavior change issues can be measured more directly in these surveys in the future. Recently, NCHS has begun a series of small-scale studies to test new ways of asking questions on AIDS-related behavior in the general population. These studies include focus groups, "cognitive" interviews (8), and small-scale surveys.

These studies may suggest ways to obtain comparable data over time on the number and characteristics of women's sexual partners currently, and in an earlier time period. This could be done in a single survey by asking retrospective questions for the earlier time period (for example, from January to December 1985), and comparing them to a specific time period of the same length just before the survey (for example, the last 12 months).

Data like these could also be collected in successive surveys by asking only the questions on behavior just before the survey and asking the same questions again in the next survey. This approach has been taken in surveys of men who have sex with men (9,10). This approach was also used in at least one survey of the general population, but the details of the question wording were not given; that survey has not yet been repeated and the data were not shown for women of reproductive age, so comparisons with our results are not possible (11).

Estimates by Hearst and Hulley (6) suggest that partner selection may be just as important a factor in HIV risk as the number of partners per se. Their estimates suggest that in order to evaluate whether and how much women are reducing their risk of HIV infection, objective data are needed on what respondents mean when they report that they have "stopped having sex with men I don't know well" (the second most common change reported in 1988). Concepts such as "men I don't know well" will have to be defined—for example, by using specific questions to determine how long she knew the man, and what she knew about him before they had intercourse. Concepts such as "stopped having sex with more than one man" (the most common change reported in 1988) can be defined, for example, by determining the number of partners women had in specific time periods. Surveys providing objective data at two or more points in time could begin to measure directly whether HIV-infection risk was being reduced, and if so, by how much.

The data on condom use could also be refined to get a clearer idea of how much reduction in HIV-infection risk is occurring. For the close to 10 percent of unmarried women who had more than one partner in the past 3 months, questions could be asked on whether condoms are used by each partner, and if so, whether they use them at every act of intercourse with the respondent. Women with multiple recent partners account for only 10 percent of unmarried women but they probably account for a larger proportion of cases of STD's and HIV infection.

In summary, then, to evaluate whether the general population of women 15–44 years of age is reducing its risk of HIV infection, and if so, how much reduction is occurring, data on the number and characteristics of partners in specific periods of time, and data on condom use specific to each partner, would be useful. Research is being conducted to determine the best and least sensitive ways of asking for such information.

References

1. Mosher W, Judkins D, Goksel H. Response rates and non-response adjustment in a national survey. In: 1989 proceedings of the American Statistical Association, Section on survey research methods. 273–8. 1990.
2. Judkins DR, Mosher WD, Botman S. National Survey of Family Growth: Design, estimation, and inference. National Center for Health Statistics. Vital Health Stat 2(109). 1991.
3. McNally JW, Mosher WD. AIDS-related knowledge and behavior among women 15–44 years of age: United States, 1988. Advance data from vital and health statistics; no 200. Hyattsville, Maryland. National Center for Health Statistics. 1991.
4. Goksel H, Judkins DR, Mosher WD. Nonresponse adjustments for a telephone followup to a national in-person survey. J Official Stat 8(4):417–31. 1992.
5. Aral SO, Holmes KK. Epidemiology of sexual behavior and sexually transmitted diseases. In: Sexually transmitted diseases. New York: McGraw Hill, 19–36. 1990.
6. Hearst N, Hulley SB. Preventing the heterosexual spread of AIDS: Are we giving our patients the best advice? JAMA 259 (16):2428–32. 1988.
7. Centers for Disease Control. Update: Barrier protection against HIV infection and other sexually transmitted diseases. MMWR 42(30):589–91. 1993.
8. Lessler J, Tourangeau R, Salter W. Questionnaire design in the cognitive research laboratory. National Center for Health Statistics. Vital and Health Statistics 6(1). 1989.
9. Adib S, Joseph J, et al. Relapse in sexual behavior among homosexual men: A 2-year followup from the Chicago MACS/CCS. Journal of Acquired Immune Deficiency Syndromes 5(6):757–60. 1991.
10. Stall R, Ekstrand M, et al. Relapse from safer sex: The next challenge for AIDS prevention efforts. Journal of Acquired Immune Deficiency Syndromes 3(12):1181–7. 1990.
11. Catania JA, Coates TJ, Stall R, et al. Prevalence of AIDS-related risk factors and condom use in the United States. Science 258:1101–6. 1992.
12. U.S. Bureau of the Census. Poverty in the United States, 1987. Current population reports; series P-60, no 163. Washington: U.S. Department of Commerce. 1989.
13. U.S. Bureau of the Census. Poverty in the United States, 1988 and 1989. Current population reports; series P-60, no 171:354–6, especially table A-3. Washington: U.S. Department of Commerce. 1991.

Technical notes

Survey design

The National Survey of Family Growth (NSFG) is a periodic survey conducted by the National Center for Health Statistics (NCHS) to collect data on fertility, infertility, family planning, and related aspects of maternal and infant health. Fieldwork for Cycle IV was conducted in 1988, and the NSFG telephone reinterview was conducted in 1990. The contractor for the 1988 and 1990 surveys was Westat, Inc., of Rockville, Maryland.

For the 1988 NSFG, personal (face-to-face) interviews were conducted between January and August 1988 with a national sample of women who were 15–44 years of age as of March 15, 1988. Interviews were completed with 8,450 women in 1988, including 2,771 black women, 5,354 white women, and 325 women of other races. The sample for the 1988 NSFG was selected from households that had participated in another NCHS survey, the National Health Interview Survey (NHIS), between October 1985 and March 1987. Respondents were interviewed by trained female interviewers.

The interviews covered the woman's pregnancy history; her past and current use of contraception; her ability to bear children; her use of medical services for family planning, infertility, and prenatal care; marriage and cohabitation; and a wide range of social, economic, and demographic characteristics. More detailed information on the procedures used in selecting the sample, weighting the data to make national estimates, and estimating sampling errors may be found in two other publications (1,2).

For the 1990 NSFG telephone reinterview, 5,686 women were interviewed by telephone between July 23 and November 5, 1990. Reinterviews were conducted with 5,359 women who had been interviewed in 1988, and first-time telephone interviews were conducted with 327 young women (sampled from the NHIS) who had reached 15 years of age since March 15, 1988. They were 15–17 years of age when interviewed in 1990. The response rate for the initial interviews with those 15–17 years of age was 53 percent. The reinterview response rate for the women initially interviewed in 1988 was 69 percent of those originally interviewed in 1988. Overall, the response rate was 67.5 percent in 1990. The most common causes of nonresponse in 1990 were inability to locate or contact the respondent because she had moved and inability to contact her because she had no telephone or had an unlisted telephone number. The 1990 reinterviews lasted an average of 20 minutes.

The 1990 sample was divided equally into two "half-samples," as discussed in the text. This report is based entirely on the results of half-sample II, which contained the necessary questions on AIDS-related behavior and condom use. The data have been weighted to be representative of the civilian noninstitutionalized population of the United States. However, the use of the half-samples means that sampling errors are larger than in the previous report on AIDS-related behavior from the 1988 survey (3).

Reliability of estimates

Because the statistics presented in this report are based on a sample, they may differ from the statistics that would result if all 58 million women represented by the 1990 survey had been interviewed. The standard error of an estimate (for example, a percent) is a measure of such differences. The standard error of an estimated number or percent is calculated by substituting the appropriate values of A and B from table I in the following equations:

$$SE(N) = \sqrt{(A + B/N)\,N}$$

and

$$SE(P) = \sqrt{\frac{B \cdot P\ (100 - P)}{X}}$$

where

N = number of women
P = percent
X = number of women in the denominator of the percent

The parameters shown in table I were used to generate table II (preliminary estimates of standard errors for percents of women of all races), table III (estimates of standard errors for white women), and table IV (preliminary estimates of standard errors for black women).

The chances are about 68 in 100 (about 2 out of 3) that a sample estimate would fall within one standard error, and about 95 in 100 that it would fall within two standard errors of a statistic based on a complete count of the population represented by the NSFG.

Unless otherwise specified, differences between percents discussed in this report were found to be statistically significant at the 0.05 level using a two-tailed normal deviate test (z-test). This means that in repeated samples of the same type and size, a difference as large as the one observed would occur in only 5 percent of the samples if there were, in fact, no difference between the percents in the population. Statements using the phrase "the data suggest" indicate that the difference was significant at the 0.10 (10-percent) level but not the 0.05 (5-percent) level. Lack of comment in the text about any two statistics does not mean that the difference was tested and found not to be significant.

The relative standard error (or coefficient of variation) of a statistic is the ratio of the standard error to

Table I. Estimates of the parameters *A* and *B* for estimating standard errors for percents of women, by race: 1990 National Survey of Family Growth telephone reinterview, half-sample

	Parameters	
	A	*B*
All races	–.0004282	25,000
White or other. . . .	–.0004947	25,000
Black	–.0018417	14,450

Table II. Standard errors for percents of women of all races: 1990 National Survey of Family Growth telephone reinterview, half-sample

Base of percent	Estimated percent					
	5 or 95	19 or 90	20 or 80	30 or 70	40 or 60	50
	Standard error in percentage points					
500,000	*4.9	*6.7	*8.9	*10.2	11.0	11.1
1,000,000	3.4	*4.7	*6.3	7.2	7.7	7.9
5,000,000	1.5	2.1	2.8	3.2	3.5	3.5
10,000,000	1.0	1.5	2.0	2.3	2.4	2.5
30,000,000	0.6	0.9	1.1	1.3	1.4	1.4
50,000,000	0.5	0.7	0.9	1.0	1.0	1.1

Table III. Standard errors for percents of white women: 1990 National Survey of Family Growth telephone reinterview, half-sample

Base of percent	Estimated percent					
	5 or 95	19 or 90	20 or 80	30 or 70	40 or 60	50
	Standard error in percentage points					
500,000	*4.9	*6.7	*8.9	*10.2	11.0	11.2
1,000,000	*3.4	*4.7	*6.3	7.2	7.7	7.9
5,000,000	*1.5	2.1	2.8	3.2	3.5	3.5
10,000,000	1.0	1.5	2.0	2.3	2.4	2.5
20,000,000	0.8	1.1	1.4	1.6	1.7	1.8
40,000,000	0.5	0.8	1.0	1.1	1.2	1.3

the statistic and usually is expressed as a percent of the estimate. In this report, percents and other statistics with relative standard errors of 30 percent or larger are indicated with an asterisk (*). These estimates may be viewed as unreliable by themselves, but they may be combined with other estimates to make comparisons of greater precision.

Statistics in this report may also be subject to nonsampling error, that is, errors or omissions in responding to the interview, recording answers, and processing data. The data have been adjusted for nonresponse and adjusted to independent control totals obtained from the U.S. Bureau of the Census. These adjustments reduce most types of nonsampling error. Other types of nonsampling error were minimized by a series of quality control procedures.

Definition of terms

Race—Race refers to the race of the woman interviewed. Each woman was asked, "Which of the (following) groups best describe your racial background?" The categories include black, white, Asian or Pacific Islander, and Alaskan Native or American Indian. Because of small sample sizes, the Asian or Pacific Islander and Alaskan Native or American Indian categories are combined and called "other" in this report.

Hispanic origin—Each woman was asked, "Which of the (following) groups best describe your national origin or ancestry?" Using a list of 15 groups, a woman was classified as being of Hispanic origin if she reported that her only or principal national origin was Puerto Rican, Cuban, Mexican American, Central or South American, or other Spanish. Origin is therefore classified independently of race, and Hispanic women may be of any race.

Marital status—In this report, women were classified according to their legal marital status. In this report, "unmarried" means not legally married—that is, never legally married, widowed, divorced, or separated. "Married" means currently legally married. Cohabiting women who are not legally married are therefore classified in this report as unmarried. Marital status refers to the data year indicated. For example, if a woman was married in 1988 and divorced by 1990, she is shown as married in the 1988 data and as unmarried in the 1990 data.

Sexually active—This refers to a woman who had intercourse at least once in the month (30 days) before the survey.

Sexually experienced—This refers to a woman who has had sexual intercourse at least once. Intercourse before the first menstrual period is excluded.

Number of lifetime sexual partners—This refers to the number of men with whom the woman has had sexual intercourse in her life, as of the date of interview. In the 1988 data, this refers to the number of men with whom she had had intercourse as of 1988; for 1990 data, this refers to the number of men with whom she had had intercourse as of the 1990 interview.

Number of sexual partners in the last 3 months—This refers to the woman's answer to a question asked in half-sample II in 1990: "In the last 3 months in which you were having

Table IV. Standard errors for percents of black women: 1990 National Survey of Family Growth telephone reinterview, half-sample

Base of percent	Estimated percent					
	5 or 95	19 or 90	20 or 80	30 or 70	40 or 60	50
	Standard error in percentage points					
500,000	*3.7	*5.1	*6.8	7.8	8.3	8.5
1,000,000	*2.6	*3.6	4.8	5.5	5.9	6.0
2,000,000	*1.8	2.6	3.4	3.9	4.2	4.3
3,000,000	*1.5	2.1	2.8	3.2	3.4	3.5
4,000,000	1.3	1.8	2.4	2.8	2.9	3.0
7,000,000	1.0	1.4	1.8	2.1	2.2	2.3

,intercourse, with how many men did you have intercourse?" (The phrase "boys or men" was substituted for "men" for younger teenagers.)

Poverty-level income—This is the ratio of the total family income to the poverty-level threshhold for a family of specified size, as published by the U.S. Bureau of the Census. In the 1988 survey, 1987 poverty-level threshholds were used (12). In the 1990 survey, 1989 Census Bureau weighted average threshholds for householders were used. The 1989 threshholds used for 1990 data were $6,451 for one person under age 65, $8,343 for a family of two also under age 65, $9,885 for a family of three, $12,674 for a family of four, up to $25,480 for a family of nine or more (13). Thus, if a family of four had an income of $25,000, their poverty-level income would be $25,000 divided by $12,674, or 197 percent. In the 1990 NSFG, family income was not collected from the 327 women 15–17 years of age who were interviewed for the first time in 1990. In the tables of this report, data are not shown for those women who did not report the income or poverty level of their families.

Education—This refers to the number of years of regular schooling the woman had completed as of the date of interview in 1990. In this report, the following categories are used: 0–11 years, meaning that the woman did not complete high school; 12 years, meaning that she obtained a high school diploma or a GED, but did not complete a full year of college; and 13 years or more, meaning that she completed at least 1 year of college. In all tables containing this variable, women 15–18 years of age are excluded from tabulations by education because it generally takes until at least age 19 to reach the "13 years or more" category.

Data on behavior change in 1988 and 1990

As discussed in the text, in 1988 women were asked if they had made any of seven specific changes in sexual behavior since hearing of AIDS—including "stopped having sex with more than one man," "stopped having sex with men I don't know well," and five others. In 1990, they were asked, "Since you first heard about AIDS have you changed your sexual behavior in ANY way?"

Of the women who were asked these questions in 1988 and 1990, about 8 percent reported in 1988 that they had made one or more changes in their sexual behavior since hearing of AIDS, but reported in 1990 that they had never made any changes since hearing of AIDS. Because "since you first heard about AIDS" refers to the same time before the 1988 interview, this is a logically impossible answer, but at least three explanations can be offered for it:

- Some of these women may have heard the question incorrectly, and may be saying that they have made no FURTHER changes since 1988.
- Some may be reporting that the changes they had made as of 1988 were no longer in effect.
- Some may have forgotten some of the specific items asked about in 1988, and thus answered "No" in 1990 even though the changes they reported in 1988 were still in effect.

Thus, the magnitude of the changes reported in table 1 for 1990 may be affected by these kinds of reporting error and by misunderstanding of the question, although it is likely that these three types of reporting errors cancel each other out to some extent. Therefore the error in the percentages probably is small.

Cooperating agencies

The 1988 National Survey of Family Growth and the 1990 NSFG Telephone Reinterview were jointly planned and supported by the National Center for Health Statistics, the National Institute of Child Health and Human Development, and the Office of Population Affairs, all of the U.S. Department of Health and Human Services.

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

Suggested citation

Mosher WD, Pratt WF. AIDS-related behavior among women 15–44 years of age: United States, 1988 and 1990. Advance data from vital and health statistics; no 239. Hyattsville, Maryland: National Center for Health Statistics. 1993.

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

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

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

DHHS Publication No. (PHS) 94-1250

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

Number 240 • March 10, 1994

Advance Data

nchs

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

Office Visits to Dermatologists: National Ambulatory Medical Care Survey, United States, 1989–90

by Cheryl Nelson, Division of Health Care Statistics

Introduction

From January 1989 to December 1990, an estimated 698 million visits were made to office-based physicians in the United States. Visits to physicians specializing in dermatology accounted for 25 million (4 percent) of these visits (table 1). This report describes visits to dermatologists over this 2-year period according to data collected in the 1989 and 1990 National Ambulatory Medical Care Survey (NAMCS). NAMCS, a year-long sample survey of the Nation's non-Federal office-based physicians, is conducted by the Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Care Statistics. Other NAMCS reports or reports utilizing NAMCS data on office visits to dermatologists have been published (1–3), as have summaries of general findings from the 1989 NAMCS (4) and 1990 NAMCS (5).

The 1989 and 1990 National Ambulatory Medical Care Surveys shared identical survey instruments, definitions, and procedures. The resulting 2 years of data have been combined to provide more reliable estimates, and the reader should note that the estimates, percent distributions, and rates presented in this report reflect average annual estimates based on combined 1989 and 1990 data. The Patient Record, the survey instrument used by participating physicians to record information about their patients' office visits, is shown in figure 1.

General findings

Since 1975 the percent of visits and the visit rate to dermatologists have not changed significantly. In 1975–76, visits to dermatologists accounted for 3 percent of all visits to all physicians, with a visit rate of 9 visits per 100 persons. In 1985 visits to dermatologists represented 4 percent of all visits, and the visit rate was 10 visits per 100 persons (6).

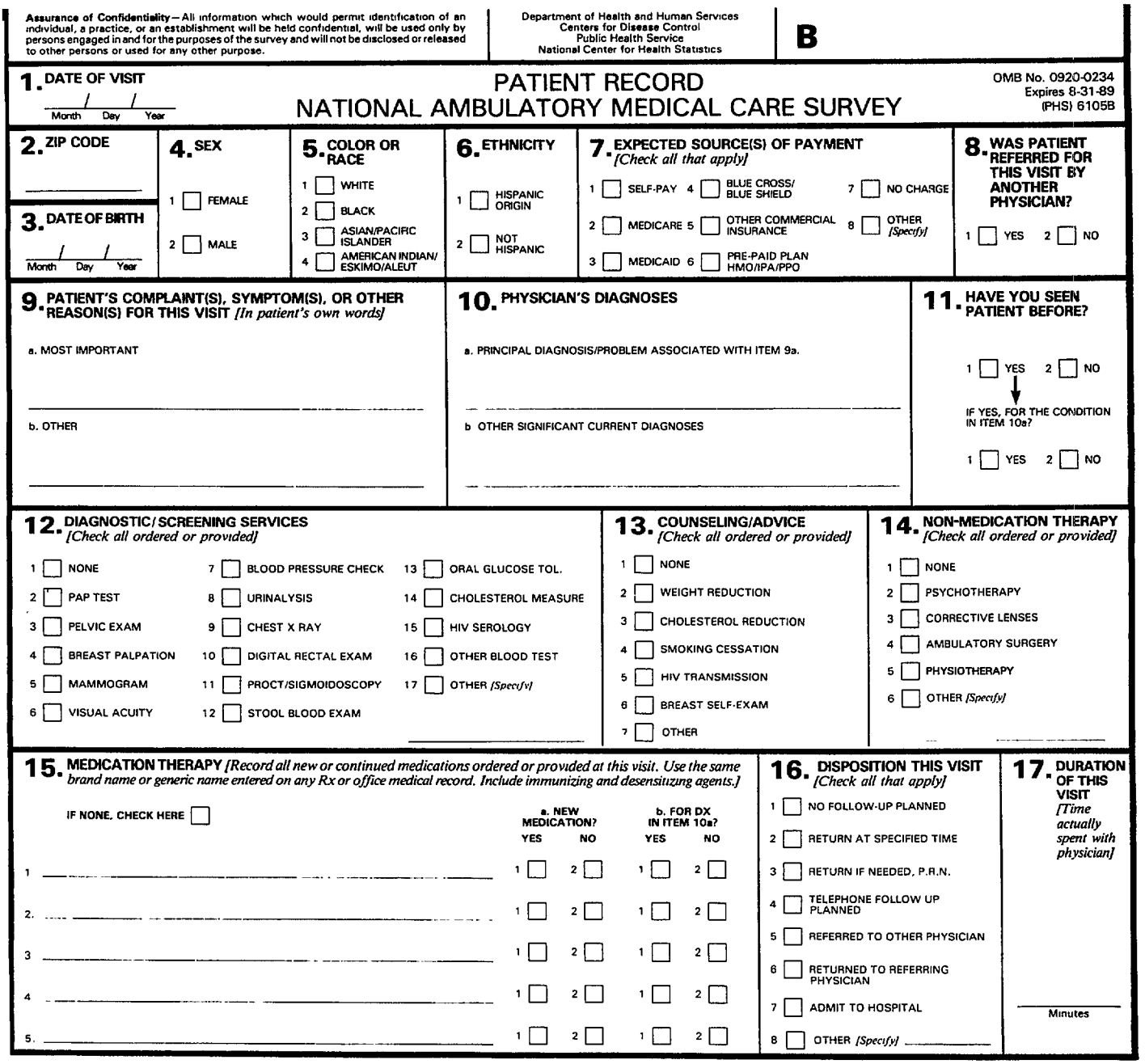
Patient characteristics

Fifty-eight percent of the patients seeking care from dermatologists were female, significantly more than male patients (42 percent) (table 2). Thirty-two percent of the visits were made by patients between the ages of 25 and 44 years, and 16 percent were made by patients 15–24 years of age. In 1975–76, the age profile of visits to dermatologists was quite different (2): During that period, patients under 25 years of age accounted for 40 percent of visits to dermatologists, compared with 24 percent in 1989–90. As expected, in private office-based settings and with other specialties, there were more visits to dermatologists by white and non-Hispanic persons than visits by other-race and Hispanic persons. Ninety-one percent of the visits to dermatologists were made by white patients, a higher percent than for "all other" specialties (85 percent). The visit rate was highest for patients 65 years of age and older (17 visits per 100 persons) and lowest for patients under 15 years of age (4 visits per 100 persons) and for black patients (3 visits per 100 persons). Table 3 shows that the major expected sources of payment were "self-payment," accounting for 37 percent of the visits, and "Blue Cross/Blue Shield," accounting for 16 percent.

The reasons patients visit dermatologists are shown in table 4. Seventeen percent of the visits were for acne or pimples, and another 12 percent were for skin rash. The 15 most

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

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION



Assurance of Confidentiality—All information which would permit identification of an individual, a practice, or an establishment will be held confidential, will be used only by persons engaged in and for the 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

1. DATE OF VISIT — Month / Day / Year

PATIENT RECORD
NATIONAL AMBULATORY MEDICAL CARE SURVEY

OMB No. 0920-0234
Expires 8-31-89
(PHS) 6105B

2. ZIP CODE

3. DATE OF BIRTH — Month / Day / Year

4. SEX
1 FEMALE
2 MALE

5. COLOR OR RACE
1 WHITE
2 BLACK
3 ASIAN/PACIFIC ISLANDER
4 AMERICAN INDIAN/ESKIMO/ALEUT

6. ETHNICITY
1 HISPANIC ORIGIN
2 NOT HISPANIC

7. EXPECTED SOURCE(S) OF PAYMENT [Check all that apply]
1 SELF-PAY
2 MEDICARE
3 MEDICAID
4 BLUE CROSS/BLUE SHIELD
5 OTHER COMMERCIAL INSURANCE
6 PRE-PAID PLAN HMO/IPA/PPO
7 NO CHARGE
8 OTHER [Specify]

8. WAS PATIENT REFERRED FOR THIS VISIT BY ANOTHER PHYSICIAN?
1 YES 2 NO

9. PATIENT'S COMPLAINT(S), SYMPTOM(S), OR OTHER REASON(S) FOR THIS VISIT [In patient's own words]
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 YES 2 NO
IF YES, FOR THE CONDITION IN ITEM 10a?
1 YES 2 NO

12. DIAGNOSTIC/SCREENING SERVICES [Check all ordered or provided]
1 NONE
2 PAP TEST
3 PELVIC EXAM
4 BREAST PALPATION
5 MAMMOGRAM
6 VISUAL ACUITY
7 BLOOD PRESSURE CHECK
8 URINALYSIS
9 CHEST X RAY
10 DIGITAL RECTAL EXAM
11 PROCT/SIGMOIDOSCOPY
12 STOOL BLOOD EXAM
13 ORAL GLUCOSE TOL.
14 CHOLESTEROL MEASURE
15 HIV SEROLOGY
16 OTHER BLOOD TEST
17 OTHER [Specify]

13. COUNSELING/ADVICE [Check all ordered or provided]
1 NONE
2 WEIGHT REDUCTION
3 CHOLESTEROL REDUCTION
4 SMOKING CESSATION
5 HIV TRANSMISSION
6 BREAST SELF-EXAM
7 OTHER

14. NON-MEDICATION THERAPY [Check all ordered or provided]
1 NONE
2 PSYCHOTHERAPY
3 CORRECTIVE LENSES
4 AMBULATORY SURGERY
5 PHYSIOTHERAPY
6 OTHER [Specify]

15. MEDICATION THERAPY [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.]
IF NONE, CHECK HERE

	a. NEW MEDICATION? YES	a. NEW MEDICATION? NO	b. FOR DX IN ITEM 10a? YES	b. FOR DX IN ITEM 10a? NO
1	1	2	1	2
2	1	2	1	2
3	1	2	1	2
4	1	2	1	2
5	1	2	1	2

16. DISPOSITION THIS VISIT [Check all that apply]
1 NO FOLLOW-UP PLANNED
2 RETURN AT SPECIFIED TIME
3 RETURN IF NEEDED, P.R.N.
4 TELEPHONE FOLLOW UP PLANNED
5 REFERRED TO OTHER PHYSICIAN
6 RETURNED TO REFERRING PHYSICIAN
7 ADMIT TO HOSPITAL
8 OTHER [Specify]

17. DURATION OF THIS VISIT [Time actually spent with physician]
Minutes

Figure 1. Patient Record form

frequently mentioned reasons represented 77 percent of all reasons given. In 1975–76, 23 percent of the visits to dermatologists were for acne (2), compared with 16 percent in 1989–90. NAMCS data show that in 1975–76 and 1980–81 (7) about 24 percent of visits to dermatologists were for acne complaints, compared with 19 percent in 1985 (6) and 16 percent in 1989–90. Concurrently, acne complaints resulting in visits to general and family practitioners and pediatricians rose from 3 percent in 1980–81 to 10 percent in 1989–90. NAMCS data suggest that the decline in acne complaints to dermatologists could be due to a shift in specialties sought by patients with acne complaints—the shift from dermatologists to other physicians.

Table 5 shows that Diseases of the sebaceous glands was the diagnosis most often made (21 percent). Other top diagnoses were Other dermatoses (12 percent), Contact dermatoses and other eczema (9 percent), Other diseases due to viruses and chlamydiae (8 percent), and Benign neoplasm of the skin (6 percent). These top five diagnoses accounted for more than half (55 percent) of all diagnoses made during visits to dermatologists.

The referral status of dermatology visits in the 1989–90 NAMCS did not differ significantly from the referral status in the 1975–76 NAMCS (2). As

with other specialties, there were more nonreferral visits to dermatologists (91 percent) than referral visits (9 percent). Table 6 also shows returning patients—those visits characterized as an "old patient" returning for treatment of an "old problem"—accounted for more than half (60 percent) of the visits.

Therapy

Therapeutic services ordered or provided by dermatologists are shown in table 7. The vast majority of the visits (80 percent) did not include any diagnostic services. When diagnostic services are examined for "all visits to all specialties," an average of two diagnostic services were usually ordered or provided for patients. Obstetricians and gynecologists were the exception; they ordered or provided their patients an average of three diagnostic services. Reasons for such a disparity between dermatologists and other specialists could be due to the choices of diagnostic services listed on the Patient Record form (figure 1, item 12). However, the NAMCS Patient Record form provides another option, the "other/specify" check box, for dermatologists or for any specialty providing a diagnostic service not listed with a check box. The data show that, when diagnostic services were ordered or provided by dermatologists, it was usually for only one service, and most often the service selected was "other/specify." Seventeen percent of visits to dermatologists utilized "other/specify" for diagnostic services. In 1989–90, "other/specify" was selected in diagnostic services in an average of 176 million visits (25 percent) to all specialties. Only 2 percent of these 176 million visits were to dermatologists, compared with 25 percent to general and family practitioners and about 11 percent each to physicians specializing in pediatrics, ophthalmology, internal medicine, and obstetrics and gynecology.

Approximately 35 percent of the visits to dermatologists involved no administration of drugs. In about 65 percent of the visits, dermatologists prescribed or provided drugs for treatment. Multiple drugs were administered in 35 percent of those visits, and in the other 30 percent a single drug was administered. Table 8 shows that 57 percent of the drugs administered by dermatologists were classified as skin/mucus-membrane drugs with most of these classified as dermatological agents (55 percent). Retin-A (8 percent) was the drug most often mentioned on the patient's record (table 9). The types of drugs administered most often were acne products, antibiotics, and corticosteroids. Erythromycin (8 percent), tretinoin

Table 1. Annual number, percent distribution , and rate of office visits by physician specialty averaged over a 2-year period: United States, 1989–90

Physician specialty	Number of visits in thousands	Percent distribution	Visits per 100 persons[1]
All visits	698,653	100.0	285
General and family practice	208,044	29.8	85
Internal medicine	87,719	12.5	36
Pediatrics	84,279	12.1	34
Obstetrics and gynecology	59,812	8.6	24
Ophthalmology	41,302	5.9	17
Orthopedic surgery	34,033	4.9	14
Dermatology	25,164	3.6	10
General surgery	23,891	3.4	10
Psychiatry	18,790	2.7	8
Otolaryngology	16,957	2.4	7
Cardiovascular disease	11,040	1.6	5
Urological surgery	9,852	1.4	4
Neurology	6,167	0.9	3
Other specialties	71,603	10.2	29

[1]Based on U.S. Bureau of the Census estimates of the civilian noninstitutionalized population of the United States as of July 1, 1989, and July 1, 1990, averaged over the 2-year period.

Table 2. Annual number, percent distribution , and rate of office visits to dermatologists by patient's sex, age, race, and ethnicity, averaged over a 2-year period: United States, 1989–90

Sex, age, race, and ethnicity	Number of visits in thousands	Percent distribution	Visits per 100 persons[1]
All visits	25,164	100.0	10
Sex			
Female	14,657	58.2	12
Male	10,507	41.8	9
Age			
Less than 15 years	2,210	8.8	4
15–24 years	3,953	15.7	11
25–44 years	8,126	32.3	10
45–64 years	5,823	23.1	13
65–74 years	3,069	12.2	17
75 years and over	1,983	7.9	17
Race[2]			
White	22,874	90.9	11
Black	1,015	4.0	3
Other[3]	816	3.2	10
Ethnicity[4]			
Hispanic	887	3.5	---
Non-Hispanic	23,266	92.5	---

[1]Based on U.S. Bureau of the Census estimates of the civilian noninstitutionalized population of the United States as of July 1, 1989, and July 1, 1990, averaged over the 2-year period.
[2]Race was unknown on 458,000 patient records.
[3]Includes Asian and Pacific Islander and American Indian, Eskimo, and Aleut.
[4]Ethnicity was unknown on 1,011,000 patient records.

(8 percent), and benzoyl peroxide (6 percent) were the three generic substances most often contained in the drugs.

Disposition and duration

Table 10 shows that patients visiting dermatologists were most often told to "return at specified time" (65 percent). "Return at specified time" was also the disposition most often given by other specialties (table 11). The mean duration of visits to dermatologists was 13 minutes, compared with 22 minutes for cardiovascular disease specialists, 28 minutes for neurologists, and 42 minutes for psychiatrists.

References

1. Stern RS, Johnson ML, DeLozier J. Utilization of physician services for dermatologic complaints: the United States, 1974. Arch Dermatol, 113(8): 1062–6, August 1977.
2. Ezzati T. Office visits to dermatologists: National Ambulatory Medical Care Survey, United States, 1975–76. Advance data from vital and health statistics; no 37. Hyattsville, Maryland: National Center for Health Statistics. 1978.
3. Stern RS, Gardocki GJ. Office-based care of dermatologic disease. J Am Acad Dermatol, 14: 286–93, February 1986.
4. Schappert SM. National Ambulatory Medical Care Survey: 1989 summary. National Center for Health Statistics. Vital and Health Stat 13(110). 1992.
5. Schappert SM. National Ambulatory Medical Care Survey: 1990 summary. Advance data from vital and health statistics; no 213. Hyattsville, Maryland: National Center for Health Statistics. 1992.
6. Unpublished data: National Ambulatory Medical Care Survey, United States, 1985. Hyattsville, Maryland: National Center for Health Statistics.
7. Unpublished data: National Ambulatory Medical Care Survey, United States, 1980–81. Hyattsville, Maryland: National Center for Health Statistics.
8. Schneider D, Appleton L, McLemore T. A reason for visit classification for ambulatory care. National Center for Health Statistics. Vital and Health Stat 2(78). 1979.
9. Public Health Service and Health Care Financing Administration. International Classification of Diseases, 9th Revision, Clinical Modification. Washington, D.C.: Public Health Service. 1980.
10. Food and Drug Administration. National Drug Code directory, 1985 edition. Washington, D.C.: Public Health Service. 1985.

Table 3. Annual number and percent distribution of office visits to dermatologists by patient's expected source of payment, averaged over a 2-year period: United States, 1989–90

Expected source of payment	*Number of visits in thousands*[1]	*Percent distribution*
All visits	25,164	100.0
Self-pay	9,265	36.8
Medicare	4,281	17.0
Medicaid	1,036	4.1
Blue Cross/Blue Shield	4,145	16.5
Other commercial insurance	4,985	19.8
HMO/prepaid plan[2]	3,704	14.7
No charge	659	2.6
Other	816	3.2
Unknown	364	1.4

[1]Numbers may not add to total because more than one expected source of payment may be reported per visit.
[2]HMO is health maintenance organization.

Table 4. Annual number and percent distribution of office visits to dermatologists by patient's most frequently mentioned principal reason for visit, averaged over a 2-year period: United States, 1989–90

Reason for visit and RVC code[1]	*Number of visits in thousands*	*Percent distribution*
All visits	25,164	100.0
Acne or pimples 1830	4,181	16.6
Skin rash 1860	2,975	11.8
Skin lesion 1865	1,698	6.7
Warts 1850	1,510	6.0
Discoloration or pigmentation 1835	1,392	5.5
Other symptoms referable to skin 1880	1,151	4.6
Moles 1845	1,065	4.2
Other skin growths 1855	1,028	4.1
Symptoms referable to hair and scalp 1890	834	3.3
Skin irritations 1870	767	3.0
Cancer, skin and subcutaneous tissues 2110	643	2.6
Other skin diseases 2825	640	2.5
Psoriasis 2820	593	2.4
Swelling of skin 1875	516	2.1
Eczema and dermatitis 2815	451	1.8

[1]Based on *A Reason for Visit Classification for Ambulatory Care* (RVC) (8).

Table 5. Annual number and percent distribution of office visits to dermatologists by the 20 most frequently mentioned principal diagnoses, averaged over a 2-year period: United States, 1989–90

Principal diagnosis and ICD–9–CM code[1]	*Number of visits in thousands*	*Percent distribution*
All visits	25,164	100.0
Diseases of sebacous glands 706	5,251	20.9
Other dermatoses 702	2,942	11.7
Contact dermatoses and other eczema 692	2,164	8.6
Other diseases due to viruses and chlamydiae 78	1,968	7.8
Benign neoplasm of skin 216	1,438	5.7
Other malignant neoplasm of skin 173	1,354	5.4
Psoriasis and similar disorders 696	1,300	5.2
Disease of hair and hair follicles 704	965	3.8
Erythematous conditions 695	679	2.7
Other hypertrophic and atrophic conditions of skin 701	647	2.6
Other disorders of skin and subcutaneous tissue 709	467	1.9
Erythematosquamous dermatosis 690	463	1.8
Dermatophytosis 110	450	1.8
Atopic dermatitis and related conditions 691	362	1.4
Pruritus and related conditions 698	327	1.3
Malignant neoplasm without specification of site 199	247	1.0
Urticaria 708	240	1.0
Disease of capillaries 448	181	0.7
Varicose veins of lower extremities 454	173	0.7
Disorders of sweat glands 705	160	0.6

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

Table 6. Annual number and percent distribution of office visits to dermatologists by patient's referral status and visit status, averaged over a 2-year period: United States, 1989–90

Referral status and visit status	*Number of visits in thousands*	*Percent distribution*
All visits	25,164	100.0
Patient's referral status		
Referred by other physician	2,261	9.0
Not referred	22,903	91.0
Patient's visit status		
New patient	6,663	26.5
Old patient/new problem	3,421	13.6
Old patient/old problem	15,080	59.9
New-problem visits	10,084	40.1

Table 7. Annual number and percent distribution of office visits to dermatologists by number of diagnostic services ordered or provided, type of visit, and number of medications provided to patients, averaged over a 2-year period: United States, 1989–90

Diagnostic services and medication therapy[1]	*Number of visits in thousands*	*Percent distribution*
All visits	25,164	100.0
Number of diagnostic services ordered or provided		
None	20,173	80.2
1	4,752	18.9
2	226	0.9
3	*10	0.0
4	*3	0.0
5 or more	–	–
Type of visit		
Drug visits[2]	16,312	64.8
Visits without mention of medication	8,852	35.2
Number of medications prescribed or provided		
1	7,648	30.4
2	4,631	18.4
3	2,512	10.0
4	1,148	4.6
5	373	1.5

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

Table 8. Annual number and percent distribution of drug mentions at office visits to dermatologists by the most frequent therapeutic classification, averaged over a 2-year period: United States, 1989–90

Therapeutic classification and NDC code[1]	Number of mentions in thousands	Percent distribution
All drug mentions	30,905	100.0
Therapeutic classification and NDC code		
Anesthetic drugs . . . 01	732	2.4
Local anesthetics 0117	187	0.6
Medical gases 0120	545	1.8
Antimicrobial agents . . . 03	5,111	16.5
Penicillins 0346	282	0.9
Cephalosporins 0347	454	1.5
Erythromycins and lincosamides 0348	1,249	4.0
Tetracyclines 0350	2,102	6.8
Miscellaneous antibacterial agents 0355	356	1.2
Antifungal agents for systemic mycoses 0358	488	1.6
Antiviral agents 0388	170	0.6
Central nervous system drugs . . . 06	550	1.8
Sedatives and hypnotics 0626	495	1.6
Hormones and agents affecting hormonal mechanisms . . . 10	1,516	4.9
Adrenal corticosteroids 1032	1,448	4.7
Skin/mucous membrane . . . 12	17,847	57.7
Dermatologics 1265	17,138	55.5
Ophthalmic drugs . . . 15	351	1.1
Ocular anti-infective and anti-inflammatory agents 1568	301	1.0
Respiratory-tract drugs . . . 19	732	2.4
Bronchodilators, antiasthmatics 1940	284	0.9
Antihistamines 1944	431	1.4
Unclassified/miscellaneous . . . 20	3,374	10.9

[1]Based on the standard drug classification used in the *National Drug Code Directory* (NDC), 1985 edition (10).

Table 9. Annual number, percent distribution, and therapeutic classification of drugs most frequently mentioned at office visits to dermatologists, by entry name and generic substances, averaged over a 2-year period: United States, 1989–90

Entry name and generic substances	Number of mentions in thousands	Percent distribution	Therapeutic use
All drug mentions	30,905	100.0	
Entry name of drug[1]			
Retin-A	2,373	7.7	Acne product
Tetracycline	803	2.6	Antibiotic
Lidex	796	2.6	Corticosteroid
Kenalog	773	2.5	Corticosteroid
Minocin	662	2.1	Antibiotic
Generic substance			
Erythromycin	2,564	8.3	Antibiotic
Tretinoin	2,373	7.7	Acne product
Benzoyl peroxide	1,893	6.1	Acne product
Hydrocortisone	1,564	5.1	Corticosteroid
Triamcinolone	1,505	4.9	Corticosteroid
Tetracycline	1,484	4.8	Antibiotic
Betamethasone	903	2.9	Corticosteroid
Fluocinonide	801	2.6	Corticosteroid
Clindamycin	797	2.6	Acne product

[1]Trade or generic name used by physician on prescription or medical records.

Table 10. Annual number and percent distribution of office visits to dermatologists by disposition of visits, averaged over a 2-year period: United States, 1989–90

Disposition	Number of mentions in thousands	Percent distribution[1]
All visits	25,164	100.0
No followup	2,835	11.3
Return at specified time	16,317	64.8
Return if needed	5,095	20.2
Telephone followup	807	3.2
Refer to other physician	171	0.7
Return to other physician	*51	0.2
Admit to hospital	–	–
Other	*96	0.4

[1]Numbers may not add to totals because more than one disposition may be reported per visit.

Table 11. Annual number and percent distribution of office visits to dermatologists by duration of visit, averaged over a 2-year period: United States, 1989–90

Duration of visits	Number of visits in thousands	Percent distribution
All visits	25,164	100.0
0 minutes[1]	128	0.5
1–5 minutes	4,311	17.1
6–10 minutes	9,458	37.6
11–15 minutes	6,663	26.5
16–30 minutes	3,935	15.6
31–60 minutes	636	2.5
More than 60 minutes	*33	0.1

[1]Visits in which there was no face-to-face contact between patient and physician.

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) over the 2-year period 1989–90. 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 primary sampling units (PSU's), physician practices within PSU's, physicians stratified into 15 specialty groups, and patient visits within physician practices. The PSU's are counties, groups of counties, county equivalents (such as parishes or independent cities), and towns and townships (for some PSU's in New England). For 1989 and 1990, a sample of 2,535 and 3,063 non-Federal office-based physicians was selected from master files maintained by the American Medical Association and the American Osteopathic Association. In 1989, 114 of these sample physicians specialized in dermatology; in 1990, 135 were dermatologists. Sample physicians were screened at the time of induction into the survey to ensure their eligibility for participation. In 1989 and 1990, 1,927 and 2,269 physicians were eligible to participate, and for both years 74 percent responded to the survey, resulting in 1,421 respondents in 1989 and 1,684 in 1990. Of the 1,927 eligible physicians in 1989, 97 were dermatologists and 78 of those responded to the survey—an 80-percent response rate. In 1990 there were 113 eligible dermatologists and a response from 79—a 70-percent response rate.

Sample physicians were asked to complete patient records (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 in 1989, and 43,469 patient records in 1990. Dermatologists completed 2,774 forms in 1989, and 2,530 in 1990.

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, Health Care Survey Section, Research Triangle Park, North Carolina.

The 1989 and 1990 NAMCS's were identical in terms of survey instruments, definitions, and procedures. The resulting 2 years of data have been combined to provide more reliable estimates. All estimates, percent distributions, and rates, unless otherwise noted, reflect 1989 and 1990 data that were averaged over the 2-year period.

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.

Readers wishing to utilize these tables should note that they refer to combined years of data rather than average annual estimates. Average annual estimates must be converted back to 2-year totals for use with these tables.

Relative standard errors for estimates based on all physician specialties and on dermatologists are shown in tables I and II. Standard errors for estimated percents of visits and drug mentions are shown in tables III and IV.

Alternatively, relative standard errors for aggregate estimates may be calculated using the following general formula, where x is the aggregate of interest in thousands, and A and B are

Table I. Relative standard error for estimated number of office visits by selected physician specialties: National Ambulatory Medical Care Survey, 1989–90

Estimated number of office visits in thousands	Physician specialty	
	All	Dermatology
	Relative standard error in percent	
100	72.7	31.1
110	69.7	30.0
200	51.5	23.4
593	30.0	16.3
1,000	23.2	14.4
2,000	16.5	12.9
5,000	10.7	11.9
10,000	7.9	11.5
20,000	6.0	11.3
50,000	4.5	11.2
100,000	3.9	11.2
500,000	3.3	11.1
750,000	3.2	11.1
1,000,000	3.2	11.1

NOTE: The smallest reliable estimate for visits to aggregated specialties is 593,000 visits. Estimates below this figure have a relative standard error greater than 30 percent and are deemed unreliable by NCHS standards.
For visits to dermatologists, the smallest reliable estimate is 110,000 visits.
Example of use of table: An aggregate estimate of 5 million office visits to dermatologists has a relative standard error of 11.9 percent or a standard error of 595,000 visits (11.9 percent of 5 million).

Table II. Relative standard error for estimated number of drug mentions by selected physician specialties: National Ambulatory Medical Care Survey, 1989–90

Estimated number of drug mentions in thousands	Physician specialty	
	All	Dermatology
	Relative standard error in percent	
100	90.3	36.1
155	72.8	30.0
200	63.9	27.0
500	40.6	19.7
922	30.0	16.9
2,000	20.6	14.7
5,000	13.4	13.5
10,000	9.9	13.1
20,000	7.5	12.9
50,000	5.7	12.8
100,000	4.9	12.7
750,000	4.1	12.7
1,000,000	4.1	12.7

NOTE: The smallest reliable estimate of drug mentions to aggregated specialties is 922,000 drug mentions. Estimates below this figure have a relative standard error greater than 30 percent and are deemed unreliable by NCHS standards.
For drug mentions by dermatologists, the smallest reliable estimate is 155,000 drug mentions.
Example of use of table: An aggregate estimate of 10 million drug mentions by dermatologists has a relative standard estimate of 13.1 percent or a standard error of 1,310,000 drug mentions (13.1 percent of 10 million).

the appropriate coefficients from table V.

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

Similarly, relative standard errors for percent maybe calculated using the following general formula, where p is the percent of interest and x is the denominator of the percent in thousands, using the appropriate coefficient from table V.

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

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 establish the critical value for statistically significant differences. Terms relating to differences, such as "greater than" or "less than," indicate that the difference is statistically significant. A lack of comment regarding the difference between any two estimates does not mean that the difference was tested and found to be not significant.

In the tables, all estimates 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.

Table III. Standard errors for percents of estimated number of office visits to dermatologists: National Ambulatory Medical Care Survey, 1989–90

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 errors in percentage points					
100	2.9	6.3	8.7	11.6	13.3	14.5
200	2.0	4.5	6.2	8.2	9.4	10.3
500	1.3	2.8	3.9	5.2	6.0	6.5
1,000	0.9	2.0	2.8	3.7	4.2	4.6
2,000	0.6	1.4	2.0	2.6	3.0	3.3
5,000	0.4	0.9	1.2	1.6	1.9	2.1
10,000	0.3	0.6	0.9	1.2	1.3	1.5
20,000	0.2	0.4	0.6	0.8	0.9	1.0
50,000	0.1	0.3	0.4	0.5	0.6	0.7
100,000	0.1	0.2	0.3	0.4	0.4	0.5
200,000	0.1	0.1	0.2	0.3	0.3	0.3
500,000	0.0	0.1	0.1	0.2	0.2	0.2
1,000,000	0.0	0.1	0.1	0.1	0.1	0.1

Example of use of table: An estimate of 30 percent based on an aggregate of 5 million visits has a standard error of 1.9 percent or a relative standard error of 6.3 percent (1.9 percent divided by 30 percent).

Table IV. Standard errors for percents of estimated number of drug mentions by dermatologists: National Ambulatory Medical Care Survey, 1989–90

Base of percent drug mentions in thousands	Estimated percent					
	1 or 99	5 or 95	10 or 90	20 or 80	30 or 70	50
	Standard errors in percentage points					
100	3.4	7.4	10.1	13.5	15.5	16.9
200	2.4	5.2	7.2	9.6	11.0	11.9
500	1.5	3.3	4.5	6.0	6.9	7.6
1,000	1.1	2.3	3.2	4.3	4.9	5.3
2,000	0.8	1.6	2.3	3.0	3.5	3.8
5,000	0.5	1.0	1.4	1.9	2.2	2.4
10,000	0.3	0.7	1.0	1.4	1.5	1.7
20,000	0.2	0.5	0.7	1.0	1.1	1.2
50,000	0.2	0.3	0.5	0.6	0.7	0.8
100,000	0.1	0.2	0.3	0.4	0.5	0.5
200,000	0.1	0.2	0.2	0.3	0.3	0.4
500,000	0.0	0.1	0.1	0.2	0.2	0.2
20,000,000	0.0	0.0	0.0	0.0	0.0	0.0

Example of use of table: An estimate of 20 percent based on an aggregate of 10 million drug mentions has a standard error of 1.4 percent or a relative standard error of 7.0 percent (1.4 percent divided by 20 percent).

Table V. Coefficients appropriate for determining relative standard errors by type of estimate and physician specialty: National Ambulatory Medical Care Survey, 1989–90

Type of estimate and physician specialty	Coefficient	
	A	B
Visits		
Overall totals	0.00009754	52.77952184
Dermatology	0.01236777	8.46452955
Drug mentions		
Overall totals	0.00157151	81.47054833
Dermatology	0.01603845	11.42009384

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.

Dermatologist—A physician who specializes in the diagnosis and treatment of diseases of the skin. The physician's specialty is self-designated in the master files of the American Medical Association (AMA) or American Osteopathic Association (AOA).

Drug mention—A drug mention is the physician's entry on the Patient Record 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 at which medication was prescribed or provided by the physician.

Office—An office is the space that physicians identify as a location for their ambulatory practice. Offices customarily include consultation, examination, or treatment spaces that patients associate with the particular physician.

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.

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. Excluded are visits where medical care was not provided, such as walk-outs and visits made to drop off specimens, pay bills, and make appointments.

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

*U.S. Government Printing Office: 1995 — 386-952/20018

Suggested citation

Nelson C. Office visits to dermatologists: National Ambulatory Medical Care Survey, United States, 1989–90. Advance data from vital and health statistics; no 240. Hyattsville, Maryland: National Center for Health Statistics. 1994.

National Center for Health Statistics

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

Deputy Director
Jack R. Anderson

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

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

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

DHHS Publication No. (PHS) 94-1250

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

Vital and Health Statistics series descriptions

SERIES 1. **Programs and Collection Procedures**—These reports describe the data collection programs of the National Center for Health Statistics. They include descriptions of the methods used to collect and process the data, definitions, and other material necessary for understanding the data.

SERIES 2. **Data Evaluation and Methods Research**—These reports are studies of new statistical methods and include analytical techniques, objective evaluations of reliability of collected data, and contributions to statistical theory. These studies also include experimental tests of new survey methods and comparisons of U.S. methodology with those of other countries.

SERIES 3. **Analytical and Epidemiological Studies**—These reports present analytical or interpretive studies based on vital and health statistics. These reports carry the analyses further than the expository types of reports in the other series.

SERIES 4. **Documents and Committee Reports**—These are final reports of major committees concerned with vital and health statistics and documents such as recommended model vital registration laws and revised birth and death certificates.

SERIES 5. **International Vital and Health Statistics Reports**—These reports are analytical or descriptive reports that compare U.S. vital and health statistics with those of other countries or present other international data of relevance to the health statistics system of the United States.

SERIES 6. **Cognition and Survey Measurement**—These reports are from the National Laboratory for Collaborative Research in Cognition and Survey Measurement. They use methods of cognitive science to design, evaluate, and test survey instruments.

SERIES 10. **Data From the National Health Interview Survey**—These reports contain statistics on illness; unintentional injuries; disability; use of hospital, medical, and other health services; and a wide range of special current health topics covering many aspects of health behaviors, health status, and health care utilization. They are based on data collected in a continuing national household interview survey.

SERIES 11. **Data From the National Health Examination Survey, the National Health and Nutrition Examination Surveys, and the Hispanic Health and Nutrition Examination Survey**—Data from direct examination, testing, and measurement on representative samples of the civilian noninstitutionalized population provide the basis for (1) medically defined total prevalence of specific diseases or conditions in the United States and the distributions of the population with respect to physical, physiological, and psychological characteristics, and (2) analyses of trends and relationships among various measurements and between survey periods.

SERIES 12. **Data From the Institutionalized Population Surveys**—Discontinued in 1975. Reports from these surveys are included in Series 13.

SERIES 13. **Data From the National Health Care Survey**—These reports contain statistics on health resources and the public's use of health care resources including ambulatory, hospital, and long-term care services based on data collected directly from health care providers and provider records.

SERIES 14. **Data on Health Resources: Manpower and Facilities**—Discontinued in 1990. Reports on the numbers, geographic distribution, and characteristics of health resources are now included in Series 13.

SERIES 15. **Data From Special Surveys**—These reports contain statistics on health and health-related topics collected in special surveys that are not part of the continuing data systems of the National Center for Health Statistics.

SERIES 16. **Compilations of Advance Data From Vital and Health Statistics**—Advance Data Reports provide early release of information from the National Center for Health Statistics' health and demographic surveys. They are compiled in the order in which they are published. Some of these releases may be followed by detailed reports in Series 10–13.

SERIES 20. **Data on Mortality**—These reports contain statistics on mortality that are not included in regular, annual, or monthly reports. Special analyses by cause of death, age, other demographic variables, and geographic and trend analyses are included.

SERIES 21. **Data on Natality, Marriage, and Divorce**—These reports contain statistics on natality, marriage, and divorce that are not included in regular, annual, or monthly reports. Special analyses by health and demographic variables and geographic and trend analyses are included.

SERIES 22. **Data From the National Mortality and Natality Surveys**—Discontinued in 1975. Reports from these sample surveys, based on vital records, are now published in Series 20 or 21.

SERIES 23. **Data From the National Survey of Family Growth**—These reports contain statistics on factors that affect birth rates, including contraception, infertility, cohabitation, marriage, divorce, and remarriage; adoption; use of medical care for family planning and infertility; and related maternal and infant health topics. These statistics are based on national surveys of childbearing age.

SERIES 24. **Compilations of Data on Natality, Mortality, Marriage, Divorce, and Induced Terminations of Pregnancy**—These include advance reports of births, deaths, marriages, and divorces based on final data from the National Vital Statistics System that were published as supplements to the *Monthly Vital Statistics Report* (MVSR). These reports provide highlights and summaries of detailed data subsequently published in *Vital Statistics of the United States*. Other supplements to the MVSR published here provide selected findings based on final data from the National Vital Statistics System and may be followed by detailed reports in Series 20 or 21.

For answers to questions about this report or for a list of reports published in these series, contact:

Data Dissemination Branch
National Center for Health Statistics
Centers for Disease Control and Prevention
Public Health Service
6525 Belcrest Road, Room 1064
Hyattsville, MD 20782

(301) 436–8500
E-mail: nchsquery@nch10a.em.cdc.gov
Internet: http://www.cdc.gov/nchswww/nchshome.htm

DEPARTMENT OF
HEALTH & HUMAN SERVICES

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

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

PRESORTED SPECIAL
FOURTH CLASS RATE
POSTAGE & FEES PAID
PHS/NCHS
PERMIT NO. G-281

DHHS Publication No. (PHS) 95-1883, Series 16, No. 24
5-1247 (7/95)