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Advance Data From Vital and Health Statistics: Numbers 221–230

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Data in this report include provisional data on teenage attitudes about smoking and smoking practices; visits made to otolaryngologists during the period from March 1989 to December 1990; visits made to non-federally employed, office-based obstetricians and gynecologists during 1989–90; frequencies and precent distributions for data items collected from the 1989 Teenage Attitudes and Practices Survey; a summary of National Health Interview Survey (1991) data concerning adults' knowledge about acquired immunodeficiency syndrome and human immunodeficiency virus (HIV) and adults' experience with HIV antibody testing; visits made in the United States during 1989 and 1990 to non-federally employed, office-based cardiovascular disease specialists; statistics based on data from the medical records of approximately 274,000 patients discharged from 484 short-stay non-Federal hospitals; visits made to private, office-based non-Federal general surgeons from March 1989 through December 1990; characteristics of all discharges from short-stay hospitals in 1980 and 1990; and data highlights from the 1991 National Ambulatory Medical Care Survey.

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Advance Data

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

Recent Trends in Adolescent Smoking, Smoking-Uptake Correlates, and Expectations About the Future

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Highlights

In 1989, the National Center for Health Statistics (NCHS) conducted the National Health Interview Survey (NHIS) on Teenage Attitudes and Practices (TAPS), a national survey of adolescents interviewed about their use of tobacco. Among the findings are the following highlights:

- About 1.7 million youths had smoked a whole cigarette before their 12th birthday. An estimated 3.7 million U.S. teenagers (16 percent) were current cigarette smokers. An additional 6.8 million teenagers (29 percent) had experimented with cigarettes.
- Among 16–18-year-olds, about 60 percent were either currently smoking (25 percent) or had experimented with cigarettes (34 percent). About the same proportions of boys and girls reported that they currently smoked.
- Proportionately more black teenagers (63 percent) than white teenagers (52 percent) said that they had never smoked.
- Teenagers were three times more likely to smoke (37 percent) if their parents and at least one older sibling smoked than if no one in the household smoked (12 percent).
- Teenagers with no best friends of the same sex who smoked seldom smoked (about 3 percent). However, almost half of those with at least two best friends who smoked were smokers themselves.
- About 40 percent of teenagers who smoked reported using cigarettes daily. Proportionately, twice as many white teenage smokers smoked every day (42 percent) as did black adolescent smokers (22 percent). About one in five 16–18-year-olds who smoked averaged at least 20 cigarettes per day.
- About three teenagers in four who were current smokers (2.7 million adolescents) had made at least one serious attempt to quit smoking cigarettes. Ninety-two percent of all adolescents did not expect to be smoking 1 year later.

Background

Over the past 25 years, cigarette smoking practices of U.S. adolescents have undergone a number of marked changes. In 1968, 17 percent of teenage boys and 10 percent of teenage girls 12–18 years of age reported smoking cigarettes regularly or occasionally (1). In 1974, while the proportion of boys who smoked remained virtually unchanged (16.3 percent), there was about a 60-percent increase in the proportion of teenage girls who smoked (15.9 percent). That year marked the first time the percentages of girls and boys who smoked were about the same. Between 1974 and 1979, a decrease in cigarette smoking rates was observed among both sexes, but, because the rate of decline was greater among teenage boys, the percent of girls who smoked actually exceeded that of boys (13 percent compared with 11 percent) (2–5). Throughout most of the 1980's, the percentages of teenagers who smoked remained fairly stable, though, according to some surveys, more

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teenage girls smoked than did teenage boys. It now appears, however, that teenage smoking levels are similar for both sexes (6,7).

Even with the vast body of information now available regarding the adverse effects of cigarette smoking and recent efforts to encourage smokers to quit and young people not to start, cigarette smoking continues to appeal to millions of teenagers. In fact, teenagers are beginning to smoke at younger ages, with the age of initiation decreasing especially among girls (6). Furthermore, teenage smoking tends to establish habits leading to subsequent adult addiction, which, in turn, often leads to significant morbidity and premature death.

This report contains estimates of adolescent tobacco-use patterns derived from the National Center for Health Statistics' 1989 Teenage Attitudes and Practices Survey (TAPS).

Data and Methods

In 1989, the National Center for Health Statistics (NCHS), in collaboration with the Centers for Disease Control Office on Smoking and Health (OSH) and the National Cancer Institute (NCI) and as part of its National Health Interview Survey (NHIS), conducted the Teenage Attitudes and Practices Survey (TAPS). The TAPS was conducted to provide national household-based smoking data on teenagers between the ages of 12 and 18. In addition to providing updated and detailed estimates of adolescent smoking practices, the TAPS also was designed to provide a data base for collecting longitudinal data on future smoking behaviors of TAPS adolescents.

Prior to the TAPS, the last national household-based survey focused primarily on teenage smoking practices was conducted in 1979 by telephone by Chilton Research Services for the U.S. Department of Health, Education, and Welfare (1). More recent national estimates of teenage smokers are available from school-based surveys from the National Institute on Drug Abuse (NIDA) (University of Michigan 1991 Monitoring the Future Project) and the Youth Risk Behavior Surveys (YRBS) (7,8). These estimates excluded high school dropouts and teenagers with high absentee records, two population groups at greatest risk to smoke (9). Further, many details about teenage smoking behavior contained in the TAPS were not included in these surveys.

The TAPS sampling frame consisted of all teenagers between the ages of 12 and 18 (on November 1, 1989) who resided in households interviewed for the NHIS during the last two quarters of 1988 and the first two quarters of 1989. The final TAPS–eligible sample contained 12,097 adolescents. Of that number, 9,965 (about 82 percent) were subsequently interviewed. All figures presented in this report were based upon these sample persons and were weighted to produce national estimates.

Data were primarily collected with computer-assisted telephone interviews (CATI). However, mail questionnaires were also used for those teenagers who could not be reached by telephone (that is, those living in homes without telephones, those with unknown telephone numbers, and those whose telephones were not answered). By necessity, the mail questionnaire represented an abbreviated version of the CATI and did not contain all of the questions asked in the telephone interview.

The technical notes in this report contain more detailed descriptions of the sample design, response rates, data collection procedures employed, and the definitions of certain terms.

Methods for constructing approximate standard errors and tests of significance for estimates and percents presented in this report also appear in these notes. Unless otherwise noted, the comparisons made within the text are significant at the .05 level.

Included in this report are estimates of the number and percent distribution of adolescents in the United States according to their current smoking practices (table 1). The adolescent smoking status categories used to classify adolescents were: "never smoked" (subdivided by future expectations in regard to smoking, that is, "no intention" or "may smoke"), "experimenter," "former smoker," and "current smoker" (characterized as "heavy," "light," and "occasional"), These categories are described more fully in the technical notes. Tables 2, 3, and 5 contain data that characterized current smokers' past and current smoking practices, including number of days they smoked in the past month; average number of cigarettes smoked per day, per weekday, and per weekend day; and number of quit attempts. Table 4 contains figures on predicted future smoking practices of teenagers (that is, whether or not they reported they expected to be smoking 1 year from the interview). Table 6 includes estimates of ages adolescents reported smoking their first whole cigarette. Table 7 contains estimates for several known correlates of adolescent smoking-uptake behavior, including smoking practices of other household members and best friends of the same sex (3,4,10–20), and participation in organized physical activities (20,21). In table 8, data are presented according to several school-related smoking-uptake correlates, including type of student, attitude toward school, and school-skipping occurrence (14,20–23). In table 9, estimates are presented for four types of risk-taking behavior (24,25): fighting in the past year, riding a motorcycle or minibike, riding with a drunk driver or someone on drugs, and enjoyment of risk-taking activities. Data on several measurements of smoking knowledge and beliefs are presented in table 10.

Findings

Prevalence of teenage smokers

Table 1 contains estimates of the number and percent distribution of adolescents in the United States according to their current smoking practices. These estimates are shown

by the following demographic and socioeconomic indicators: sex, age, race, Hispanic origin, family income, poverty status, highest level of education attained by family, geographic region, and place of residence. Results from the Teenage Attitudes and Practices Survey (TAPS), as stated earlier, were representative of all U.S. teenagers 12–18 years of age.

In 1989, an estimated 3.7 million teenagers (16 percent) were current cigarette smokers (table 1). About the same proportions of boys and girls reported that they currently smoked. This trend was noted regardless of age. For the TAPS, a "current" smoker was defined as someone who smoked any time within 30 days of the date of the interview. An additional 6.8 million teenagers (29 percent) had experimented with cigarettes. "Experimenters" included teenagers who had ever tried cigarette smoking but had smoked fewer than 100 cigarettes and had not smoked any cigarettes in the past 30 days. While only 4 percent of 12- and 13-year-olds were current smokers, an additional 21 percent of adolescents at those ages reported having experimented with cigarettes. Among 16–18-year-olds, about 60 percent were either currently smoking (25 percent) or had experimented with cigarettes (34 percent).

Experimentation with cigarettes among adolescents appears to have occurred with about the same frequency, regardless of gender, race, or ethnicity. However, among the youngest adolescents, more boys reported experimenting with cigarettes than did girls (24 percent, compared with 18 percent).

Proportionately more black teenagers (63 percent) than white teenagers (52 percent) reported that they never smoked at all. Teenagers of Hispanic origin were also somewhat more likely never to have smoked (57 percent) than were non-Hispanic adolescents (53 percent) (0.10 level of significance).

Among the youngest group of teenage smokers, only about one out of seven was classified as a heavy smoker. By 16–18 years of age, half of all teenagers who smoked were heavy smokers. A "heavy" smoker, by the TAPS's definition, was someone who had smoked at least 10 days in the past month and averaged 5 or more cigarettes daily during the past 7 days. Differences were also noted in smoking levels of teenage boys and girls, particularly among older teenagers. Overall, a somewhat higher proportion of teenage boys who smoked were heavy smokers (47 percent, compared with 40 percent of girls who smoked). Among smokers 16–18 years of age, 55 percent of male smokers and 46 percent of female smokers met the TAPS heavy-smoker criteria.

Smoking practices of current teenage smokers

Table 2 provides details about the teenage smoking practices of current smokers, measured by the number of days smoked in the past month and the average number of cigarettes smoked daily. Distributions of cigarette smoking behavior on weekdays and weekend days are presented in table 3. Estimates in tables 2 and 3 are shown by age, sex, race, and Hispanic origin.

Similar proportions of teenage male and female smokers smoked on about the same number of days a month, but females reported smoking fewer cigarettes on the days that they did smoke (table 2).

About 40 percent of teenagers who smoked reported using cigarettes daily. Daily cigarette smoking was directly proportional to the age of the smoker, from 17 percent among 12- and 13-year-olds to 48 percent of those 16–18 years of age. Proportionately, about twice as many white teenage smokers smoked every day as did black teenagers (42 percent, compared with 22 percent). Hispanic youths who smoked were also less likely to be daily smokers (26 percent).

As with daily cigarette consumption, the average number of cigarettes smoked by teenagers also increased with age. Proportionately, about twice as many smokers 12 and 13 years of age averaged fewer than five cigarettes a day as did those between the ages of 16 and 18 (64 percent, compared with 32 percent). No teenagers in the youngest age group averaged 20 cigarettes or more a day, but about 1 in 5 teenagers 16–18 years of age who smoked reported smoking at this level.

Among the youngest smokers, boys and girls smoked at similar levels: about 90 percent of each gender averaged fewer than 10 cigarettes daily on the days they did smoke. However, older adolescent girls who smoked consumed fewer cigarettes on the days they did smoke than did their male counterparts. For example, whereas about one-fourth of male 16–18-year-olds who smoked averaged 20 cigarettes or more a day, only about 15 percent of females 16–18 years old reported smoking at this level.

In patterns similar to those seen in adults, black adolescents smoked on fewer days and averaged fewer cigarettes per day than did white adolescent smokers. Proportionately, about twice as many white teenage smokers smoked every day (42 percent) as did black adolescent smokers (22 percent). About half of black female adolescent smokers reported using cigarettes from 1 to 4 days in the past month compared with 23 percent of white female teenagers. Similarly, Hispanic youths also smoked less often and smoked fewer cigarettes on average than did non-Hispanic teenagers who smoked. Almost 60 percent of Hispanic adolescent smokers averaged fewer than five cigarettes a day, compared with about 36 percent of non-Hispanic teenage smokers who reported smoking fewer than five cigarettes a day.

Overall, teenage smokers appear to smoke slightly more on weekend days than on weekdays: 20 percent reported smoking 20 cigarettes or more per weekend day, compared with 16 percent for weekdays (table 3). However, on average, only slight variations are seen between the

estimates presented in this table for teenagers' weekday smoking levels and those for weekends, and some of the observed differences may be due to sampling variation.

Expected smoking behavior and quit attempts

When adolescents were asked whether they thought they would be smoking 1 year later, 92 percent answered "no" (table 4). Among current smokers, proportionately twice as many adolescents 16–18 years of age predicted future smoking (45 percent) as did adolescents 12–13 years of age (20 percent). Black teenagers who currently smoked were more optimistic about smoking cessation than were their white counterparts (24 percent and 45 percent, respectively, predicted smoking the next year).

There was also a direct relationship between the percent of smokers expecting still to be smoking in 1 year and the amount currently smoked. Only 16 percent of "occasional" smokers (those who had smoked 1–9 days in the previous 30 days) predicted smoking 1 year later. However, 46 percent of "light" smokers and 66 percent of "heavy" smokers said they would be still smoking in 1 year. For the TAPS definition, both light and heavy smokers had smoked 10 or more days in the previous 30 days; however, light smokers averaged fewer than 5 cigarettes daily in the past week, and heavy smokers averaged 5 cigarettes or more a day. Less than 1 percent of teenagers who had never smoked predicted becoming a smoker within the year.

Table 5 contains estimates of unsuccessful attempts to quit smoking among current adolescent smokers, classified by age, sex, race, and Hispanic origin. About three teenagers in four who currently smoked (2.7 million adolescents) had made at least one serious attempt to quit smoking cigarettes. For more than half of these teenagers, the attempt(s) took place in the 6 months preceding the TAPS interview. Furthermore, regardless of age, sex, or race, estimates revealed that the adolescent smokers who had tried to quit outnumbered those who had not, ranging from 66 percent of black male smokers to 84 percent of 12- and 13-year-old boys who smoked.

The percent of teenage smokers who made at least one attempt to quit smoking in the previous 6 months decreased from 73 percent of 12- and 13-year-olds to 52 percent of 16–18-year-olds. Similarly, proportionately fewer teenagers 16–18 years of age reported ever attempting to quit (73 percent, compared with 82 percent of youngest smokers).

Smoking initiation

Table 6 presents estimates of adolescents' reported ages for smoking their first whole cigarette by age, sex, race, and Hispanic origin. About 1.7 million youths had smoked a whole cigarette before their 12th birthday. Boys were somewhat more likely to have smoked their first whole cigarette at a younger age. By the age of 14, however, gender differences had disappeared.

While similar proportions of black, white, and Hispanic adolescent girls reported first smoking at a given age, white and non-Hispanic male adolescent smokers tended to smoke their first cigarette somewhat earlier than did their black and Hispanic male counterparts. For example, 44 percent of white male adolescent smokers between 16 and 18 years of age had smoked by age 13, compared with about 31 percent of black males. Similarly, Hispanic boys were more likely to have had their first whole cigarette at an older age than were non-Hispanic boys. Of teenagers 16–18 years of age, 32 percent of Hispanic males had smoked by 12 years of age, compared with 43 percent of non-Hispanic males.

Correlates of smoking uptake

Tables 7–9 present estimates of adolescents' current and expected smoking behavior, according to variables that appear to be associated with teenage smoking practices. Estimates for all of the measures in tables 7–9 described above are shown by age and sex.

Adolescents living in households where no one smoked were the least likely to smoke (table 7). Among this group, about 61 percent of teenagers had never smoked, and only 12 percent currently smoked. Teenagers were three times more likely to smoke (37 percent) if their parents and at least one older sibling smoked than if no one in the household smoked (12 percent).

The smoking practices of older brothers or sisters living at home were more closely associated with teenager smoking than was parental smoking. Thirty percent of adolescents reported currently smoking in homes where only older siblings smoked, compared with 15 percent of teenagers from homes where only their parents smoked.

The TAPS included a question to determine the number of best friends of the same sex who smoked. As expected, the smoking patterns for both teenage boys and girls were highly correlated with the smoking practices of their closest friends. Teenagers with no best friends of the same sex who smoked seldom smoked (about 3 percent). However, almost half of adolescents with at least two best friends who smoked were smokers themselves.

The relationship adolescents had with their parents, as measured by whether teenagers talked to them about serious problems, was associated with smoking status. Among teenagers who said that they discussed serious problems with their parents, only 11 percent currently smoked. In contrast, proportionately more than twice as many teenagers who confided only with friends—and not with a parent, other relative, or another adult—were smokers (23 percent).

Another correlate of adolescent smoking is the level of involvement in organized activities, including athletics (20,21). Proportionately, almost twice as many teenagers who did not participate in organized team sports currently smoked (21 percent) as did teenagers involved in

competitive sports activities (12 percent). Involvement in sports was not found to be a determining factor, however, for young adolescents.

Dramatic differences in teenage smoking practices were also found among adolescents through self-reported school performance ratings and attitudes toward school. Of adolescents who classified themselves as "above average" students, only 10 percent currently smoked; in contrast, 44 percent of "below average" students smoked (table 8). Similarly, proportionately about three times as many adolescents who reported not liking school very much were current smokers (35 percent) as were teenagers who said that they liked school a lot (11 percent).

There also appeared to be a direct relationship between the number of unsupervised hours adolescents were left at home before and after school and their current smoking behavior. About twice as many teenagers who were left alone for 15 hours or more a week currently smoked as teenagers who were never without adult supervision (18 percent, compared with 8 percent).

Several data items were obtained in the TAPS to identify adolescents who might be considered prone to problems. Two items of this type are shown in this report: skipping any full days from school in the previous 2 weeks and physical fighting in the previous year with someone other than a family member. Adolescents who participated in certain kinds of risk-taking behavior were identified in the TAPS, and data for three of these items are also shown: whether they had ridden a motorcycle or minibike in the previous year, if they had ridden with a driver in the past month who had used alcohol or drugs, and if they agreed that "I get a kick out of doing things every now and then that are a little risky or dangerous."

Proportionately, about twice as many adolescents who skipped school were current smokers (38 percent) as youths who had not (17 percent). This 2-to-1 ratio was also found for 3 of the 4 risk-taking behaviors mentioned previously. That is, compared with other teenagers, proportionately about twice as many youths who smoked had been in fights, had ridden a motorcycle or minibike, or enjoyed risky activities now and then (table 9). For the fourth measure, proportionately, more than three times as many teenagers who had ridden with a driver who used alcohol or drugs currently smoked (43 percent) as teenagers who did not report this activity (12 percent).

Smoking knowledge and beliefs

The TAPS questionnaire contained a series of questions to assess teenagers' knowledge and beliefs about cigarette addiction, health risks associated with cigarettes, and perceived benefits from smoking. Table 10 contains data for a few of these indicators by age and sex.

The TAPS interview ascertained whether teenagers had ever taken a class or course at school in which the health risks of smoking were discussed. About the same proportion of teenagers who said they had taken a course of this type were currently smoking as were teenagers who had not taken a class where health risks were discussed.

Similarly, TAPS polled teenagers about recent media exposure—through television, radio, newspapers, or magazines—to information on the health risks of smoking, and the findings parallel those of classroom exposure. Among teenagers the percentage of smokers was the same regardless of whether they had recently seen, heard, or read materials about the adverse effects of smoking (16 percent).

While similarities in teenage smoking practices were found regardless of their reported exposure to information on the health risks associated with cigarette smoking, teenagers' perception of derived benefits and some common myths about smoking reveal substantial differences in smoking behavior. These findings were illustrated by the following three TAPS statements with which respondents agreed or disagreed: 1) "it's safe to smoke for 1 or 2 years," 2) "cigarettes help people relax," and 3) "smoking helps keep weight down."

Teenagers who assigned positive attributes to cigarettes were 2–4 times more likely to be smokers as were other adolescents. For example, about one-third of adolescents who said that cigarettes help people relax were smokers. In contrast, of teenagers who disagreed with this statement, only 9 percent smoked. Among those who said it was safe to smoke for 1 or 2 years, almost half (46 percent) smoked, compared with 13 percent of the teenagers who did not agree with this statement.

Discussion

Even infrequent experimentation with cigarette smoking among adolescents has been found to increase the likelihood of becoming a smoker in adulthood by a factor of 16, compared with adolescents who had never tried smoking (26). According to the Teenage Attitudes and Practices Survey (TAPS), experimentation with cigarettes occurred with about the same frequency among adolescents regardless of gender, race, or ethnicity. However, among the youngest adolescents interviewed, more boys reported experimenting with cigarettes than did girls, a finding that was reported in another study (10). The TAPS results also showed that about the same proportions of boys and girls in each age group reported that they currently smoked, and these findings were similar to those of other recent national and smaller surveys.

With levels of morbidity and mortality as criteria, cigarette smoking has been called the most serious and widespread form of addiction in the world (27). One way to observe the habit-forming properties of cigarette smoking is to compare the smoking levels of preadolescent and older teenage smokers. According to the TAPS, among the youngest group of teenage smokers, only about one out of seven

was a "heavy smoker." By 16–18 years of age, however, half of all teenagers who smoked were "heavy smokers," by the TAPS criteria.

When the smoking habits of teenage smokers were compared with those of adult smokers (that is, frequency of smoking and number of cigarettes smoked), teenage smoking was, by comparison, "light" (28). Even so, about 40 percent of teenagers who smoked reported using cigarettes daily. Daily cigarette smoking was directly proportional to the age of the smoker. As with daily cigarette consumption, the average number of cigarettes smoked by teenagers also increased with age. Whereas virtually no teenagers in the youngest age group averaged 20 cigarettes or more a day, about 1 in 5 smokers 16–18 years of age reported smoking at these levels. The increases found in the frequency of daily smoking and average numbers of cigarettes smoked daily among teenagers by age group further reflect the addiction known to result from the use of tobacco products over time (6).

The TAPS finding that the vast majority of teenagers (92 percent) did not expect to be smoking in 1 year parallels those of other studies conducted in the late 1960's and 1970's in which about 9 out of 10 teenagers did not expect to be cigarette smokers 5 years later (1,5). Given the substantial body of evidence establishing that cigarettes and other forms of tobacco are addictive (6), these expected behaviors about future smoking reveal most adolescent smokers' naivete about difficulties encountered when attempting to quit. Nonetheless, teenagers and adults who smoke are likely to experience similar withdrawal symptoms (29), so cessation is no easier for young smokers than for their older counterparts.

Other studies also have found that the best predictor of adolescents' future smoking was their previous or current smoking behavior (11,32,33). The TAPS finding that teenage quit attempts decreased with age (73 percent of 12- and 13-year-olds had made at least one attempt to quit smoking in the previous 6 months, compared with 52 percent of teenagers 16–18 years old) may, in part, have reflected a gradual realization that their cessation attempts would be unsuccessful. The TAPS also estimated that only about 342,000 adolescents (1.5 percent of U.S. teenagers who ever smoked) had quit successfully. If expected smoking behaviors were to reflect actual future smoking, particularly among teenagers who currently smoked, more than 50 percent of current adolescent smokers would have to have quit.

It is widely recognized that preventing the onset of smoking in adolescence (and early adulthood) is the best means to eliminate smoking-induced illness (32). Furthermore, children who begin to smoke at a young age are more likely to consume more cigarettes daily than those who start later in life (33). Children 4–10 years of age represent the most impressionable age group where appropriately designed and repetitive antismoking campaigns may be especially important (34). Given that the age of smoking initiation has declined over time, particularly among women (6), and that about 1.7 million youths have smoked a whole cigarette before their 12th birthday, these and other TAPS findings support other recent recommendations that antismoking education start before the age of 9 (35).

Consistent with findings from other surveys (6), TAPS results found that, up to the age of 14, boys were somewhat more likely to smoke their first whole cigarette at an earlier age than were girls. Also, other recent study results were replicated by the TAPS finding that, for the most part, white teenagers were more likely to smoke their first cigarette at an earlier age than were black teenagers (6).

The TAPS also found that black and Hispanic adolescents smoked on fewer days and averaged fewer cigarettes per day than did white and non-Hispanic adolescent smokers and were more likely never to be smokers. Cigarette advertising campaigns are now targeting these specific minority groups in recognition of this potential "untapped" cigarette-smoking market (36).

The TAPS findings revealed that older adolescent girls who smoked consumed fewer cigarettes on the days they did smoke than did their male counterparts. Another study has suggested that females experience greater social pressures to smoke than do boys but have a higher sensitivity to nicotine, which is resolved by smoking both at lower levels and choosing low nicotine cigarettes (37).

Both current and future smoking practices among teenagers are greatly influenced by the smoking practices of persons with whom these young people are most often in contact: parents, brothers, sisters, and friends (3,4,10–20). Findings from previous studies differ somewhat as to which group or combination of groups provides the best predictors of adolescent smoking. However, with few exceptions, studies consistently have found that teenagers who smoke are more likely to have friends, siblings, and parents who smoke. The TAPS results parallel these findings. Adolescents who lived in households where no one smoked were the least likely to be smokers themselves. Teenagers were three times more likely to smoke if their parents and at least one older sibling smoked than if no one in the household smoked.

Studies have also found that smoking is positively correlated with the use of alcohol and other drugs, with escalation from cigarettes to alcohol the most prevalent pattern found (38,39). Certain types of risk-taking behavior, such as drug and alcohol use, also have been shown to be predictive of smoking uptake (24,25). Findings from a recent study that concluded that problem-prone youths are most likely to smoke (40) were also demonstrated in the TAPS results. Teenage smoking practices varied markedly among adolescents, based on self-reported school

performance ratings and attitudes toward school. Proportionately, four times as many adolescents who classified themselves as below average students smoked as above average students, those who reported not liking school very much were three times as likely to be current smokers as those who liked school a lot, and twice as many adolescents who skipped school were current smokers as other youths. For three other troublesome behaviors—youths who smoked had been in fights, ridden a motorcycle or minibike, or enjoyed risky activities now and then—this same 2-to-1 ratio occurred. Similarly, teenagers who had ridden with a driver who used alcohol or drugs were three times more likely to smoke as were other teenagers.

The TAPS attempted to assess teenagers' knowledge and beliefs about cigarette addiction, health risks associated with cigarettes, and perceived beneficial results from smoking through a series of detailed questions. The TAPS also assessed whether teenagers had ever taken a class or course at school in which the health risks of smoking were discussed or whether they had been exposed recently to the adverse effects of smoking through television, radio, newspapers, or magazines. Unfortunately, the TAPS questionnaire did not obtain details about the school course curriculum or media exposure to enable further analysis of the TAPS result that showed similar estimates of teenage smokers regardless of their exposure to these "smoking education" efforts. Somewhat contradictory results have also been presented in other studies regarding the effectiveness of educational efforts in reducing smoking among youths (12,37,38,41).

Other TAPS results showed that teenagers who perceived smoking to be beneficial—helped keep weight down or helped people relax, for example—were 2–4 times more likely to smoke than were adolescents who did not attribute benefits to smoking. Nevertheless, from these and other TAPS findings presented in this report, it appears that continued educational efforts are still needed to further sensitize teenagers to the health risks associated with smoking.

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Table 1. Number and percent distribution of teenagers by smoking status, according to selected characteristics: United States, 1989

Characteristic	All statuses	Never smoked			Experimenter	Former smoker	All current smokers[2]	Type of current smoker		
		All never smoked[1]	No intention	May smoke				Heavy	Light	Occasional
	Number in thousands									
Age										
All teenagers[3,4]	23,528	12,561	10,098	1,615	6,826	342	3,688	1,619	632	1,206
12–13 years	6,567	4,925	3,796	756	1,362	*15	241	*36	*38	145
14–15 years	6,485	3,566	2,850	493	1,943	81	845	257	184	323
16–18 years	10,476	4,071	3,452	367	3,520	245	2,601	1,326	410	738
Sex and age										
Male	12,219	6,299	5,004	867	3,698	209	1,957	919	280	634
12–13 years	3,391	2,455	1,874	388	800	*10	114	*13	*17	77
14–15 years	3,434	1,855	1,443	291	1,049	62	448	133	73	195
16–18 years	5,394	1,989	1,687	188	1,848	136	1,394	773	190	362
Female	11,309	6,263	5,094	748	3,129	133	1,731	700	352	572
12–13 years	3,176	2,470	1,922	367	563	*5	127	*23	*22	68
14–15 years	3,051	1,711	1,407	202	894	*19	397	124	111	127
16–18 years	5,082	2,082	1,766	178	1,672	109	1,207	553	219	376
Race and sex										
White	19,068	9,774	7,978	1,282	5,533	319	3,361	1,530	557	1,067
Male	9,915	4,910	3,993	672	2,992	199	1,772	861	242	560
Female	9,153	4,864	3,984	610	2,541	120	1,589	669	314	507
Black	3,552	2,234	1,695	259	1,068	*9	217	50	*33	113
Male	1,814	1,101	790	158	564	*8	130	*40	*15	61
Female	1,738	1,133	905	101	504	*2	87	*10	*18	52
Hispanic origin and sex										
Non-Hispanic	21,243	11,268	9,233	1,342	6,146	316	3,419	1,538	580	1,093
Male	11,038	5,623	4,544	725	3,351	200	1,817	876	258	576
Female	10,206	5,645	4,689	617	2,795	116	1,602	661	323	517
Hispanic	2,285	1,294	866	273	681	*25	268	81	51	112
Male	1,182	676	461	142	347	*9	139	43	*22	58
Female	1,103	618	405	131	334	*17	129	*39	*29	55
Family income										
Under $20,000	5,633	2,948	2,158	404	1,593	85	950	447	147	280
$20,000–$34,999	5,595	2,883	2,332	398	1,748	91	849	378	157	273
$35,000 or more	9,260	5,080	4,311	603	2,577	122	1,465	574	265	528
Poverty status										
In poverty	2,956	1,596	1,083	236	808	*38	468	201	64	159
Not in poverty	19,091	10,153	8,415	1,255	5,559	293	3,025	1,315	538	996
Highest education level of family member										
Less than 12 years	3,011	1,533	1,006	267	861	*33	556	300	60	151
12 years	8,894	4,491	3,614	566	2,629	139	1,571	742	282	451
13 years or more	11,544	6,487	5,449	768	3,316	165	1,556	577	287	601
Geographic region										
Northeast	4,441	2,390	1,953	269	1,183	66	782	374	105	267
Midwest	6,123	3,181	2,629	423	1,818	86	1,015	451	184	310
South	8,050	4,294	3,357	535	2,471	109	1,130	509	176	351
West	4,914	2,696	2,160	388	1,354	81	761	285	167	278
Place of residence										
MSA	17,556	9,472	7,585	1,263	5,011	256	2,748	1,245	452	889
Not MSA	5,972	3,090	2,514	353	1,815	86	940	374	179	317

Table 1. Number and percent distribution of teenagers by smoking status, according to selected characteristics: United States, 1989—Con.

Characteristic	All statuses	Never smoked			Experimenter	Former smoker	All current smokers[2]	Type of current smoker		
		All never smoked[1]	No intention	May smoke				Heavy	Light	Occasional
Age	Percent distribution									
All teenagers[3,5]	100.0	53.6	43.1	6.9	29.2	1.5	15.7	6.9	2.7	5.1
12–13 years	100.0	75.3	58.0	11.5	20.8	*0.2	3.7	*0.6	*0.6	2.2
14–15 years	100.0	55.4	44.3	7.7	30.2	1.3	13.1	4.0	2.9	5.0
16–18 years	100.0	39.0	33.1	3.5	33.7	2.4	24.9	12.7	3.9	7.1
Sex and age										
Male	100.0	51.8	41.1	7.1	30.4	1.7	16.1	7.6	2.3	5.2
12–13 years	100.0	72.6	55.5	11.5	23.7	*0.3	3.4	*0.4	*0.5	2.3
14–15 years	100.0	54.3	42.3	8.5	30.7	1.8	13.1	3.9	2.1	5.7
16–18 years	100.0	37.1	31.4	3.5	34.4	2.5	26.0	14.4	3.5	6.7
Female	100.0	55.6	45.3	6.6	27.8	1.2	15.4	6.2	3.1	5.1
12–13 years	100.0	78.1	60.7	11.6	17.8	*0.1	4.0	*0.7	*0.7	2.2
14–15 years	100.0	56.6	46.6	6.7	29.6	*0.6	13.1	4.1	3.7	4.2
16–18 years	100.0	41.1	34.8	3.5	33.0	2.2	23.8	10.9	4.3	7.4
Race and sex										
White	100.0	51.5	42.0	6.8	29.1	1.7	17.7	8.1	2.9	5.6
Male	100.0	49.7	40.4	6.8	30.3	2.0	17.9	8.7	2.5	5.7
Female	100.0	53.4	43.7	6.7	27.9	1.3	17.4	7.3	3.4	5.6
Black	100.0	63.3	48.0	7.3	30.3	*0.3	6.2	1.4	*0.9	3.2
Male	100.0	61.1	43.8	8.7	31.3	*0.4	7.2	*2.2	*0.8	3.4
Female	100.0	65.7	52.4	5.9	29.2	*0.1	5.0	*0.6	*1.0	3.0
Hispanic origin and sex										
Non-Hispanic	100.0	53.3	43.7	6.3	29.1	1.5	16.2	7.3	2.7	5.2
Male	100.0	51.2	41.3	6.6	30.5	1.8	16.5	8.0	2.3	5.2
Female	100.0	55.6	46.2	6.1	27.5	1.1	15.8	6.5	3.2	5.1
Hispanic	100.0	57.1	38.2	12.0	30.0	*1.1	11.8	3.6	2.2	4.9
Male	100.0	57.7	39.3	12.2	29.6	*0.7	11.9	3.6	*1.9	4.9
Female	100.0	56.3	36.9	11.9	30.4	*1.5	11.8	*3.5	*2.7	5.0
Family income										
Under $20,000	100.0	52.9	38.7	7.2	28.6	1.5	17.0	8.0	2.6	5.0
$20,000–$34,999	100.0	51.8	41.9	7.1	31.4	1.6	15.2	6.8	2.8	4.9
$35,000 or more	100.0	55.0	46.6	6.5	27.9	1.3	15.8	6.2	2.9	5.7
Poverty status										
In poverty	100.0	54.9	37.2	8.1	27.8	*1.3	16.1	6.9	2.2	5.5
Not in poverty	100.0	53.4	44.2	6.6	29.2	1.5	15.9	6.9	2.8	5.2
Highest education level of family member										
Less than 12 years	100.0	51.4	33.7	9.0	28.9	*1.1	18.6	10.1	2.0	5.1
12 years	100.0	50.9	40.9	6.4	29.8	1.6	17.8	8.4	3.2	5.1
13 years or more	100.0	56.3	47.3	6.7	28.8	1.4	13.5	5.0	2.5	5.2
Geographic region										
Northeast	100.0	54.1	44.2	6.1	26.8	1.5	17.7	8.5	2.4	6.0
Midwest	100.0	52.1	43.1	6.9	29.8	1.4	16.6	7.4	3.0	5.1
South	100.0	53.6	41.9	6.7	30.9	1.4	14.1	6.4	2.2	4.4
West	100.0	55.1	44.1	7.9	27.7	1.7	15.6	5.8	3.4	5.7
Place of residence										
MSA	100.0	54.2	43.4	7.2	28.7	1.5	15.7	7.1	2.6	5.1
Not MSA	100.0	52.1	42.4	5.9	30.6	1.4	15.8	6.3	3.0	5.3

[1] Includes unknown intentions.
[2] Includes unknown type of current smoker.
[3] Includes all other races, unknown family income, unknown poverty status and unknown education.
[4] Includes unknown smoking status.
[5] Excludes unknown smoking status.

NOTE: MSA is metropolitan statistical area.

Table 2. Percent distribution of teenage current smokers by number of days smoked in the past month and average number of cigarettes smoked daily, according to selected characteristics: United States, 1989

Characteristic	Days smoked in past month					Cigarettes smoked daily				
	Total[1]	Less than 5 days	5–9 days	10–29 days	Every day	Total[2]	Less than 5	5–9	10–19	20 or more
	Percent distributions									
All teenage current smokers	100.0	24.1	8.7	26.4	40.8	100.0	37.9	20.4	25.7	16.0
12–13 years	100.0	51.9	*8.3	23.3	*16.5	100.0	64.3	*24.6	*11.0	0.0
14–15 years	100.0	28.4	9.8	34.5	27.3	100.0	55.5	17.2	23.0	*4.3
16–18 years	100.0	20.0	8.4	24.1	47.5	100.0	31.6	21.1	27.2	20.1
Sex and age										
Male	100.0	23.9	8.5	26.6	41.0	100.0	33.9	19.3	27.6	19.2
12–13 years	100.0	57.5	*10.1	*24.3	*8.1	100.0	*70.7	*18.4	*10.8	0.0
14–15 years	100.0	31.1	12.5	30.9	25.5	100.0	52.8	16.0	26.9	*4.2
16–18 years	100.0	18.8	7.1	25.4	48.7	100.0	27.5	20.2	28.4	23.9
Female	100.0	24.3	8.9	26.2	40.6	100.0	42.7	21.6	23.5	12.1
12–13 years	100.0	47.0	*6.7	*22.3	*24.0	100.0	*58.3	*30.5	*11.2	0.0
14–15 years	100.0	25.5	*6.8	38.5	29.3	100.0	58.3	18.4	19.0	*4.4
16–18 years	100.0	21.4	9.9	22.5	46.1	100.0	36.7	22.2	25.7	*15.3
Race and sex										
White	100.0	23.4	8.4	26.2	42.0	100.0	36.6	20.1	26.5	16.8
Male	100.0	23.5	8.1	26.3	42.1	100.0	32.7	19.0	28.3	20.0
Female	100.0	23.4	8.7	26.0	41.9	100.0	41.4	21.4	24.4	12.9
Black	100.0	37.0	*15.0	26.5	21.6	100.0	60.3	*20.5	*16.3	*2.9
Male	100.0	*29.5	*17.3	*24.6	*28.6	100.0	*52.7	*22.6	*19.7	*5.0
Female	100.0	48.2	*11.4	*29.4	*11.0	100.0	*71.0	*17.5	*11.5	*0.0
Hispanic origin and sex										
Non-Hispanic	100.0	23.5	8.5	26.0	42.0	100.0	36.3	20.2	26.9	16.7
Male	100.0	23.3	8.4	26.0	42.3	100.0	32.1	18.9	28.6	20.4
Female	100.0	23.8	8.7	25.9	41.6	100.0	41.3	21.7	24.8	12.2
Hispanic	100.0	30.7	*11.2	31.9	26.3	100.0	59.2	22.5	*11.6	*6.6
Male	100.0	31.2	*10.1	34.3	*24.4	100.0	58.9	*24.3	*14.3	*2.6
Female	100.0	*30.2	*12.3	*29.2	*28.3	100.0	59.6	*20.7	*8.7	*11.0

[1]Excludes unknown number of days smoked.
[2]Excludes unknown number of cigarettes smoked daily and none smoked in past week.

Table 3. Percent distribution of teenage current smokers by average number of cigarettes smoked per weekday and per weekend day, according to selected characteristics: United States, 1989

Characteristic	Cigarettes smoked per weekday					Cigarettes smoked per weekend day				
	Total[1]	Less than 5	5–9	10–19	20 or more	Total[2]	Less than 5	5–9	10–19	20 or more
	Percent distributions									
Age										
All teenage current smokers	100.0	39.7	19.5	24.8	16.0	100.0	37.7	18.6	23.6	20.1
12–13 years	100.0	72.9	*16.1	*11.0	0.0	100.0	66.0	*19.6	*8.8	*5.5
14–15 years	100.0	57.3	15.8	22.2	*4.7	100.0	52.1	16.6	22.7	8.7
16–18 years	100.0	33.1	20.7	26.1	20.1	100.0	32.1	19.1	24.6	24.2
Sex and age										
Male	100.0	35.9	17.4	27.2	19.5	100.0	33.5	16.4	26.3	23.8
12–13 years	100.0	*76.5	*12.7	*10.8	0.0	100.0	*64.1	*23.7	*12.2	0.0
14–15 years	100.0	55.5	*13.4	26.1	*5.0	100.0	52.1	*11.7	28.1	*8.2
16–18 years	100.0	29.1	18.7	28.1	24.1	100.0	27.3	17.4	26.3	28.9
Female	100.0	44.3	22.0	21.8	11.9	100.0	42.7	21.2	20.5	15.7
12–13 years	100.0	*69.5	*19.3	*11.2	0.0	100.0	*67.6	*16.0	*5.9	*10.5
14–15 years	100.0	59.1	18.3	18.2	*4.4	100.0	52.0	21.7	17.1	*9.2
16–18 years	100.0	38.0	23.3	23.6	15.0	100.0	38.3	21.3	22.3	18.1
Race and sex										
White	100.0	38.4	19.0	25.7	16.9	100.0	36.5	18.0	24.3	21.2
Male	100.0	34.9	16.7	28.0	20.4	100.0	32.4	15.4	27.1	25.0
Female	100.0	42.7	21.8	22.9	12.6	100.0	41.3	21.1	20.8	16.7
Black	100.0	61.8	*23.9	*11.3	*2.9	100.0	58.9	*22.7	*15.5	*2.8
Male	100.0	49.8	*28.3	*16.9	*5.0	100.0	*47.5	*32.8	*15.0	*4.7
Female	100.0	78.7	*17.7	*3.6	*0.0	100.0	*75.9	*7.7	*16.4	*0.0
Hispanic origin and sex										
Non-Hispanic	100.0	38.0	19.4	25.8	16.8	100.0	35.8	18.7	24.5	21.0
Male	100.0	34.2	16.9	28.2	20.7	100.0	31.6	16.2	27.0	25.2
Female	100.0	42.7	22.4	22.9	12.0	100.0	40.9	21.6	21.5	16.0
Hispanic	100.0	61.2	*20.6	*11.6	*6.6	100.0	61.8	*17.3	*12.7	*8.3
Male	100.0	58.9	*24.3	*14.3	*2.6	100.0	58.9	*19.0	*16.8	*5.3
Female	100.0	63.7	*16.6	*8.7	*11.0	100.0	64.9	*15.4	*8.2	*11.5

[1] Excludes unknown number of cigarettes smoked per weekday and none smoked in past week.
[2] Excludes unknown number of cigarettes smoked per weekend day and none smoked in past week.

Table 4. Percent distribution of teenagers by expected smoking status in 1 year, according to selected characteristics: United States, 1989

Characteristic	Total[1]	Will smoke			Will not smoke		
		Total	Definitely	Probably	Total	Definitely	Probably
	Percent distribution						
All teenagers	100.0	7.5	1.0	6.5	91.9	16.7	75.2
Smoking status							
Never smoked	100.0	0.6	*0.1	0.5	99.1	10.5	88.7
No intention	100.0	–	–	–	100.0	100.0	–
May smoke	100.0	4.6	*0.9	3.7	93.7	76.0	17.7
Experimenter	100.0	1.3	*0.2	1.2	98.3	18.7	79.6
Former smoker	100.0	4.8	0.0	*4.8	93.4	26.1	67.3
Current smoker	100.0	43.5	5.6	37.9	54.2	33.8	20.5
Heavy	100.0	66.0	10.6	55.4	30.9	23.6	7.3
Light	100.0	46.4	*5.1	41.2	51.4	43.6	7.8
Occasional	100.0	15.7	*0.2	15.4	83.1	42.3	40.8
Age and smoking status							
12–13 years	100.0	1.7	*0.3	1.3	97.8	16.3	81.5
Never smoked	100.0	0.5	*0.1	0.4	99.2	11.7	87.5
Experimenter	100.0	*3.0	*0.6	2.4	96.1	29.3	66.9
Current smoker	100.0	20.1	*3.9	*16.2	78.8	38.4	40.4
14–15 years	100.0	6.6	0.7	5.9	92.8	17.2	75.6
Never smoked	100.0	*0.7	*0.1	*0.6	99.0	11.6	87.4
Experimenter	100.0	*1.1	0.0	*1.1	98.7	20.9	77.7
Current smoker	100.0	44.7	4.9	39.8	53.2	32.3	20.9
16–18 years	100.0	11.8	1.5	10.2	87.6	16.5	71.0
Never smoked	100.0	*0.7	*0.2	*0.6	99.2	8.0	91.2
Experimenter	100.0	*0.8	*0.1	*0.8	98.9	13.7	85.2
Current smoker	100.0	45.3	6.0	39.3	52.3	33.8	18.5
Sex and smoking status							
Male	100.0	7.6	1.1	6.5	91.7	17.6	74.2
Never smoked	100.0	0.7	*0.1	0.6	98.9	10.9	87.9
Experimenter	100.0	*1.2	*0.2	*1.0	98.4	19.2	79.2
Current smoker	100.0	42.2	6.0	36.2	55.6	35.4	20.1
Female	100.0	7.5	0.9	6.6	92.1	15.7	76.4
Never smoked	100.0	*0.5	*0.1	*0.4	99.4	10.0	89.4
Experimenter	100.0	1.5	*0.1	1.5	98.2	18.2	80.0
Current smoker	100.0	45.0	5.2	39.9	52.7	31.8	20.9
Race and smoking status							
White	100.0	8.5	1.1	7.5	90.8	17.3	73.5
Never smoked	100.0	0.6	*0.1	0.5	99.2	10.5	88.7
Experimenter	100.0	1.3	*0.2	1.1	98.4	19.5	78.9
Current smoker	100.0	44.8	5.6	39.2	53.1	33.5	19.6
Black	100.0	2.6	*0.5	2.1	96.9	13.0	83.9
Never smoked	100.0	*1.0	*0.2	*0.8	98.6	9.9	88.7
Experimenter	100.0	1.7	*0.2	1.5	98.0	14.0	84.0
Current smoker	100.0	24.4	5.5	18.8	73.6	38.2	35.4
Hispanic origin and smoking status							
Non-Hispanic	100.0	7.5	1.0	6.5	91.9	16.2	75.8
Never smoked	100.0	0.4	*0.1	*0.3	99.4	9.8	89.6
Experimenter	100.0	1.2	*0.1	1.1	98.4	18.0	80.4
Current smoker	100.0	43.3	5.4	37.8	54.5	33.7	20.9
Hispanic	100.0	7.8	*1.2	6.6	91.3	21.3	70.0
Never smoked	100.0	*2.5	*0.2	*2.2	96.8	16.5	80.3
Experimenter	100.0	*2.3	*0.7	*1.6	97.3	25.7	71.6
Current smoker	100.0	46.9	*8.0	38.9	50.0	35.3	*14.8

[1] Includes unknown expected smoking status.

Table 5. Percent distribution of teenage current smokers by whether they had ever attempted to quit, and percent who attempted to quit in past 6 months, according to selected characteristics: United States, 1989

Characteristic	Total [1]	Ever quit smoking		Attempted to quit in past 6 months
		Yes	No	
Age	Percent distribution			Percent
All teenage current smokers[2]	100.0	74.2	25.8	57.1
12–13 years	100.0	81.8	*18.2	72.6
14–15 years	100.0	77.4	22.6	68.5
16–18 years	100.0	72.6	27.4	52.0
Sex and age				
Male	100.0	72.0	28.0	55.8
12–13 years	100.0	83.9	*16.1	70.0
14–15 years	100.0	73.2	26.8	67.2
16–18 years	100.0	70.6	29.4	51.0
Female	100.0	76.8	23.2	58.6
12–13 years	100.0	79.5	*20.5	75.2
14–15 years	100.0	82.1	17.9	69.9
16–18 years	100.0	74.8	25.2	53.3
Race and sex				
White	100.0	74.5	25.5	57.4
Male	100.0	72.6	27.4	56.1
Female	100.0	76.6	23.4	58.9
Black	100.0	70.5	29.5	51.7
Male	100.0	66.3	*33.7	49.1
Female	100.0	77.3	*22.7	*55.9
Hispanic origin and sex				
Non-Hispanic	100.0	74.5	25.5	57.4
Male	100.0	72.2	27.8	55.9
Female	100.0	77.2	22.8	59.1
Hispanic	100.0	70.3	29.7	53.7
Male	100.0	68.9	*31.1	54.0
Female	100.0	71.8	*28.2	53.3

[1] Excludes unknown quit attempts.
[2] Excludes current smokers who never smoked regularly.

Table 6. Number of teenagers who ever smoked and cumulative percent by age at which they smoked first whole cigarette, according to selected characteristics: United States, 1989

Characteristic	All teenagers who ever smoked[1]	Age smoked first whole cigarette									
		Total[2]	Under 10 years	Under 11 years	Under 12 years	Under 13 years	Under 14 years	Under 15 years	Under 16 years	Under 17 years	Under 18 years
Age	Number in thousands	Cumulative percent									
12–13 years	902	100.0	17.5	34.4	59.8	88.4	100.0	. . .	. . .	. . .	. . .
14–15 years	2,032	100.0	8.5	14.9	23.0	44.0	71.5	95.4	100.0	. . .	. . .
16–18 years	5,131	100.0	5.0	9.0	13.3	25.7	40.2	55.4	75.4	92.6	98.9
Sex and age											
Male:											
12–13 years	483	100.0	19.3	36.3	62.9	87.2	100.0	. . .	. . .	. . .	. . .
14–15 years	1,111	100.0	10.1	18.8	26.1	48.2	75.1	96.2	100.0	. . .	. . .
16–18 years	2,727	100.0	6.8	11.7	15.7	28.0	42.2	55.4	75.8	92.9	98.8
Female:											
12–13 years	419	100.0	15.5	32.2	56.2	89.7	100.0	. . .	. . .	. . .	. . .
14–15 years	920	100.0	6.5	10.2	19.3	38.8	67.2	94.3	100.0	. . .	. . .
16–18 years	2,404	100.0	3.0	6.0	10.6	23.0	38.0	55.4	75.0	92.3	99.0
Race and age											
White:											
12–13 years	797	100.0	17.0	34.1	59.5	88.9	100.0	. . .	. . .	. . .	. . .
14–15 years	1,847	100.0	8.6	15.2	23.7	45.4	72.2	95.3	100.0	. . .	. . .
16–18 years	4,593	100.0	5.0	9.3	13.6	26.3	41.0	56.1	76.2	92.9	99.0
Black:											
12–13 years	70	100.0	*18.6	*31.4	60.0	90.0	100.0	. . .	. . .	. . .	. . .
14–15 years	143	100.0	*10.0	*15.0	*17.9	28.6	63.6	95.7	100.0	. . .	. . .
16–18 years	414	100.0	*5.5	*6.8	*8.9	19.9	34.8	46.3	68.3	91.1	98.7
Hispanic origin and age											
Hispanic:											
12–13 years	71	100.0	*5.6	*14.1	*32.4	85.9	100.0	. . .	. . .	. . .	. . .
14–15 years	152	100.0	*7.2	*16.4	*21.7	40.8	66.4	94.1	100.0	. . .	. . .
16–18 years	429	100.0	*4.4	*6.5	11.0	18.7	31.3	49.5	65.1	86.6	99.5
Non-Hispanic:											
12–13 years	830	100.0	18.5	36.2	62.3	88.6	100.0	. . .	. . .	. . .	. . .
14–15 years	1,879	100.0	8.6	14.8	23.2	44.2	72.0	95.5	100.0	. . .	. . .
16–18 years	4,702	100.0	5.1	9.3	13.5	26.3	41.0	55.9	76.4	93.1	98.8
Race, sex, and age											
White male:											
12–13 years	424	100.0	18.6	37.0	64.1	88.7	100.0	. . .	. . .	. . .	. . .
14–15 years	1,009	100.0	10.3	19.3	26.7	49.5	75.3	96.3	100.0	. . .	. . .
16–18 years	2,433	100.0	6.7	12.1	16.4	29.5	43.8	56.8	76.9	93.3	99.1
White female:											
12–13 years	373	100.0	15.3	30.9	54.4	89.1	100.0	. . .	. . .	. . .	. . .
14–15 years	838	100.0	6.4	10.4	20.1	40.5	68.6	94.1	100.0	. . .	. . .
16–18 years	2,159	100.0	3.0	6.1	10.6	22.7	37.9	55.4	75.3	92.5	98.9
Black male:											
12–13 years	46	100.0	*21.9	*26.5	*56.7	*85.3	100.0	. . .	. . .	. . .	. . .
14–15 years	73	100.0	*10.8	*19.3	*22.1	*31.9	75.6	93.1	100.0	. . .	. . .
16–18 years	242	100.0	*8.2	*8.9	*9.4	*14.8	30.8	44.7	67.9	91.5	97.7
Black female:											
12–13 years	*24	100.0	*13.8	*40.3	*67.9	100.0	. . .	. . .	. . .	. . .	. . .
14–15 years	70	100.0	*9.9	*9.9	*12.9	*25.6	*50.7	98.9	100.0	. . .	. . .
16–18 years	172	100.0	*1.8	*3.9	*8.0	27.0	40.2	48.7	68.9	90.3	100.0

Table 6. Number of teenagers who ever smoked and cumulative percent by age at which they smoked first whole cigarette, according to selected characteristics: United States, 1989—Con.

Characteristic	All teenagers who ever smoked[1]	Age smoked first whole cigarette									
		Total[2]	Under 10 years	Under 11 years	Under 12 years	Under 13 years	Under 14 years	Under 15 years	Under 16 years	Under 17 years	Under 18 years
Hispanic origin, sex, and age	Number in thousands	Cumulative percent									
Hispanic male:											
12–13 years	*31	100.0	*0.0	*0.0	*22.6	*67.0	100.0	. . .	. . .	. . .	. . .
14–15 years	68	100.0	*10.0	*18.7	*25.0	*43.3	77.0	92.5	100.0	. . .	. . .
16–18 years	239	100.0	*3.2	*5.3	*9.3	17.6	32.3	46.8	58.9	84.2	100.0
Hispanic female:											
12–13 years	*40	100.0	*10.4	*24.3	*39.3	100.0	100.0	. . .	. . .	. . .	. . .
14–15 years	85	100.0	*5.5	*14.3	*19.3	*39.2	57.3	94.5	100.0	. . .	. . .
16–18 years	190	100.0	*6.5	*7.8	*13.1	*19.8	30.2	53.0	72.9	89.9	98.7
Non-Hispanic male:											
12–13 years	452	100.0	20.6	38.9	65.7	88.6	100.0	. . .	. . .	. . .	. . .
14–15 years	1,044	100.0	10.1	18.8	26.2	48.5	75.0	96.5	100.0	. . .	. . .
16–18 years	2,488	100.0	7.2	12.4	16.3	29.0	43.2	56.2	77.5	93.7	98.7
Non-Hispanic female:											
12–13 years	378	100.0	16.1	33.1	58.1	88.6	100.0	. . .	. . .	. . .	. . .
14–15 years	836	100.0	6.7	9.8	19.3	38.8	68.2	94.3	100.0	. . .	. . .
16–18 years	2,214	100.0	2.7	5.8	10.4	23.3	38.7	55.6	75.2	92.5	99.0

[1] Limited to teenagers who answered "yes" to the question "Have you ever smoked a cigarette?"
[2] Excludes unknown age when smoked first whole cigarette.

NOTE: Estimates of teenagers who ever smoked in this table are lower than the estimates of teenage smokers who ever smoked presented in table 1. Some teenagers answered "no" to this data item (see footnote 1) but still were classified as Experimenters since they responded "yes" to a subsequent question: "Have you ever tried or experimented with cigarette smoking, even a few puffs?"

Table 7. Number of teenagers, percent distribution by smoking status, and percent expecting to smoke in 1 year, according to selected smoking-uptake correlates, age, and sex: United States, 1989

Selected smoking-uptake correlates by age and sex	*All teenagers*	*Smoking status*				*Teenagers expecting to smoke in 1 year*
		Total [1]	*Never smoked*	*Experimenter*	*Current smoker*	
Smoking status of household	Number in thousands	Percent distribution				Percent
All ages:						
No smokers	12,534	100.0	60.7	26.0	12.0	5.1
Parents, but no older siblings	8,322	100.0	51.1	32.1	15.2	8.1
Older siblings, but no parents	748	100.0	38.5	29.5	29.7	13.6
Parents and older siblings	1,088	100.0	31.7	27.8	36.9	20.4
Other	804	100.0	38.7	31.6	27.7	16.8
12–13 years:						
No smokers	3,520	100.0	84.3	14.3	1.3	*0.9
Parents, but no older siblings	2,413	100.0	69.1	26.4	4.1	2.2
Older siblings, but no parents	183	100.0	61.7	22.4	*14.2	*4.4
Parents and older siblings	243	100.0	47.7	29.6	20.6	*8.2
Other	191	100.0	73.8	*20.9	*5.2	*0.0
14–15 years:						
No smokers	3,520	100.0	61.7	26.4	10.7	5.0
Parents, but no older siblings	2,322	100.0	53.1	32.6	12.4	6.3
Older siblings, but no parents	204	100.0	42.6	31.9	24.5	*14.2
Parents and older siblings	291	100.0	32.3	33.7	32.6	18.9
Other	141	100.0	47.5	33.3	*19.1	*15.6
16–18 years:						
No smokers	5,495	100.0	44.9	33.2	19.7	7.9
Parents, but no older siblings	3,586	100.0	37.6	35.7	24.6	13.2
Older siblings, but no parents	361	100.0	24.7	31.9	40.4	17.7
Parents and older siblings	553	100.0	24.4	24.1	46.3	26.8
Other	472	100.0	21.6	35.4	39.6	23.9
Male:						
No smokers	6,645	100.0	57.9	27.6	13.0	5.3
Parents, but no older siblings	4,241	100.0	48.9	33.6	15.4	7.7
Older siblings, but no parents	356	100.0	32.3	35.4	31.2	18.5
Parents and older siblings	563	100.0	34.5	24.3	38.0	21.7
Other	399	100.0	36.1	35.6	26.3	14.5
Female:						
No smokers	5,890	100.0	63.9	24.1	10.9	4.9
Parents, but no older siblings	4,081	100.0	53.3	30.6	15.0	8.5
Older siblings, but no parents	392	100.0	44.4	24.2	28.6	*9.2
Parents and older siblings	525	100.0	28.6	31.6	35.6	19.0
Other	405	100.0	41.2	27.9	29.1	19.0
Best friends of the same sex who smoke						
All ages:						
None	14,444	100.0	68.3	27.5	3.3	1.2
1 friend	3,561	100.0	41.5	38.5	17.7	6.7
2 friends or more	5,194	100.0	20.2	26.9	49.0	26.1
12–13 years:						
None	5,278	100.0	81.3	17.0	1.4	*0.7
1 friend	646	100.0	57.6	34.5	7.3	*3.3
2 friends or more	535	100.0	35.0	40.4	21.7	10.3
14–15 years:						
None	4,095	100.0	68.2	28.3	2.3	1.0
1 friend	997	100.0	42.1	39.7	14.6	6.5
2 friends or more	1,287	100.0	23.1	28.2	46.1	24.9
16–18 years:						
None	5,072	100.0	54.9	37.7	6.0	1.9
1 friend	1,918	100.0	35.8	39.2	22.7	8.1
2 friends or more	3,371	100.0	16.7	24.2	54.4	29.0
Male:						
None	7,673	100.0	65.2	30.3	3.4	1.4
1 friend	1,820	100.0	37.1	39.7	19.8	6.9
2 friends or more	2,529	100.0	19.5	24.1	52.1	27.2

Table 7. Number of teenagers, percent distribution by smoking status, and percent expecting to smoke in 1 year, according to selected smoking-uptake correlates, age, and sex: United States, 1989—Con.

Selected smoking-uptake correlates by age and sex	All teenagers	Smoking status				Teenagers expecting to smoke in 1 year
		Total [1]	Never smoked	Experimenter	Current smoker	
Best friends of the same sex who smoke—Con.	Number in thousands	Percent distribution				Percent
Female:						
None	6,771	100.0	71.8	24.3	3.1	1.0
1 friend	1,740	100.0	46.0	37.2	15.4	6.6
2 friends or more	2,665	100.0	20.8	29.5	46.0	25.0
Talks about problems to—						
All ages:						
Parent	12,317	100.0	61.8	25.7	11.4	5.4
Friend	4,518	100.0	41.3	33.2	23.2	11.2
Other person	5,517	100.0	50.1	31.3	16.9	8.7
No one	1,015	100.0	49.5	29.3	19.3	10.5
12–13 years:						
Parent	4,126	100.0	81.0	16.5	2.4	1.2
Friend	662	100.0	63.1	28.1	7.6	*3.5
Other person	1,462	100.0	69.4	24.6	5.7	*1.8
No one	264	100.0	73.9	25.4	*0.8	*4.2
14–15 years:						
Parent	3,399	100.0	61.7	27.7	9.5	4.2
Friend	1,146	100.0	46.4	32.8	19.5	9.9
Other person	1,620	100.0	52.6	29.7	15.3	9.4
No one	277	100.0	57.0	28.9	*12.6	*5.8
16–18 years:						
Parent	4,792	100.0	45.2	32.1	20.5	9.7
Friend	2,710	100.0	33.8	34.5	28.6	13.5
Other person	2,436	100.0	37.0	36.3	24.8	12.3
No one	474	100.0	31.4	31.6	33.5	16.9
Male:						
Parent	6,654	100.0	59.2	27.7	11.8	5.3
Friend	2,004	100.0	36.0	32.9	28.0	13.3
Other person	2,853	100.0	48.4	33.8	15.9	8.0
No one	619	100.0	48.3	29.4	20.2	10.2
Female:						
Parent	5,663	100.0	64.8	23.2	10.9	5.4
Friend	2,514	100.0	45.5	33.4	19.4	9.4
Other person	2,665	100.0	52.0	28.6	18.0	9.4
No one	396	100.0	51.0	29.0	17.9	11.1
Participates in organized physical activities						
All ages:						
Yes	15,317	100.0	57.5	28.9	12.2	5.4
No	8,093	100.0	48.7	27.9	21.4	11.6
12–13 years:						
Yes	4,843	100.0	75.8	20.5	3.5	1.4
No	1,678	100.0	77.8	18.1	3.6	2.4
14–15 years:						
Yes	4,418	100.0	57.6	29.5	11.1	5.2
No	2,029	100.0	53.5	28.7	16.8	9.7
16–18 years:						
Yes	6,056	100.0	42.8	35.3	20.0	8.6
No	4,386	100.0	35.3	31.3	30.3	16.0
Male:						
Yes	8,730	100.0	55.9	30.3	12.2	5.3
No	3,427	100.0	43.0	29.2	25.5	13.4
Female:						
Yes	6,587	100.0	59.7	27.1	12.3	5.5
No	4,666	100.0	52.9	26.9	18.3	10.3

[1] Includes other and unknown smoking status.

Table 8. Number of teenagers, percent distribution by smoking status, and percent expecting to smoke in 1 year, according to selected school-related smoking-uptake correlates, age, and sex: United States, 1989

Selected school-related smoking-uptake correlates by age and sex	All teenagers	Smoking status				Teenagers expecting to smoke in 1 year
		Total [1]	Never smoked	Experimenter	Current smoker	
Type of student	Number in thousands	Percent distribution				Percent
All ages:						
Better than average	12,307	100.0	62.2	26.3	10.4	4.3
Average	10,204	100.0	47.7	31.6	18.8	9.1
Below average	924	100.0	26.1	26.1	44.2	32.6
12–13 years:						
Better than average	3,536	100.0	82.5	14.6	2.7	*0.8
Average	2,786	100.0	70.6	25.1	3.9	1.9
Below average	203	100.0	47.8	37.4	*14.8	*13.3
14–15 years:						
Better than average	3,403	100.0	63.9	26.8	8.4	3.6
Average	2,811	100.0	49.4	32.2	16.3	8.1
Below average	251	100.0	32.7	30.7	35.5	30.7
16–18 years:						
Better than average	5,368	100.0	47.7	33.8	16.8	6.9
Average	4,607	100.0	32.8	35.1	29.3	14.2
Below average	470	100.0	13.2	18.7	61.5	42.1
Male:						
Better than average	6,069	100.0	60.3	27.7	10.7	4.1
Average	5,563	100.0	46.0	32.7	19.1	9.0
Below average	548	100.0	25.9	28.5	42.0	30.3
Female:						
Better than average	6,238	100.0	64.0	25.0	10.1	4.4
Average	4,641	100.0	49.7	30.2	18.4	9.3
Below average	376	100.0	26.3	22.6	47.3	35.9
How much liked school						
All ages:						
A lot	9,431	100.0	60.6	26.9	11.2	4.1
Some	11,170	100.0	52.2	31.1	14.6	6.7
Little or not at all	2,838	100.0	34.0	28.2	34.7	21.9
12–13 years:						
A lot	2,704	100.0	80.9	15.4	3.2	*1.0
Some	3,175	100.0	73.8	22.6	3.0	1.5
Little or not at all	662	100.0	56.0	34.1	8.8	*5.4
14–15 years:						
A lot	2,496	100.0	63.4	27.9	7.4	3.4
Some	3,178	100.0	52.9	31.5	13.4	5.9
Little or not at all	794	100.0	37.3	30.6	29.2	19.3
16–18 years:						
A lot	4,231	100.0	45.9	33.7	18.5	6.6
Some	4,816	100.0	37.4	36.5	23.0	10.6
Little or not at all	1,382	100.0	21.6	24.0	50.2	31.3
Male:						
A lot	4,434	100.0	58.2	28.6	11.7	3.9
Some	6,076	100.0	51.3	31.6	14.7	6.7
Little or not at all	1,657	100.0	34.1	30.4	32.3	20.3
Female:						
A lot	4,997	100.0	62.7	25.5	10.7	4.3
Some	5,094	100.0	53.2	30.5	14.5	6.6
Little or not at all	1,181	100.0	34.0	25.1	37.9	24.1

Table 8. Number of teenagers, percent distribution by smoking status, and percent expecting to smoke in 1 year, according to selected school-related smoking-uptake correlates, age, and sex: United States, 1989—Con.

Selected school-related smoking-uptake correlates by age and sex	*All teenagers*	*Smoking status*				*Teenagers expecting to smoke in 1 year*
		Total [1]	*Never smoked*	*Experimenter*	*Current smoker*	
Skipped school in past 2 weeks	Number in thousands	Percent distribution				Percent
All ages:						
No	5,018	100.0	49.2	31.9	17.3	7.7
Yes	951	100.0	22.3	35.4	37.6	17.5
12–13 years:						
No	1,472	100.0	67.7	26.2	5.2	*1.6
Yes	104	100.0	40.4	35.6*	18.3*	14.4*
14–15 years:						
No	1,568	100.0	45.8	35.5	17.7	9.1
Yes	208	100.0	21.6	32.7	40.9	23.6
16–18 years:						
No	1,978	100.0	38.0	33.4	26.0	11.1
Yes	639	100.0	19.6	36.2	39.7	16.0
Male:						
No	2,473	100.0	47.6	34.3	16.7	6.9
Yes	436	100.0	23.9	38.3	32.8	16.3
Female:						
No	2,545	100.0	50.7	29.7	18.0	8.4
Yes	515	100.0	21.0	33.0	41.7	18.4
Hours (per week) alone before and/or after school						
All ages:						
None	6,401	100.0	65.2	25.6	8.4	4.2
1–5 hours	4,950	100.0	65.0	24.7	9.0	4.5
6–10 hours	2,612	100.0	58.4	28.4	11.9	5.3
11–15 hours	1,140	100.0	54.2	32.5	12.7	6.6
More than 15 hours	1,040	100.0	47.4	32.9	18.4	7.8
12–13 years:						
None	2,737	100.0	78.9	18.0	3.0	1.6
1–5 hours	2,244	100.0	75.6	20.5	3.6	*1.6
6–10 hours	844	100.0	73.3	21.0	5.1	*2.6
11–15 hours	394	100.0	70.1	26.1	*3.8	*2.0
More than 15 hours	252	100.0	72.6	22.6	*4.8	*0.0
14–15 years:						
None	2,502	100.0	59.1	29.2	10.7	5.3
1–5 hours	1,800	100.0	59.7	25.4	12.6	7.3
6–10 hours	1,145	100.0	55.3	29.8	13.4	5.9
11–15 hours	478	100.0	48.5	34.9	15.9	9.2
More than 15 hours	469	100.0	42.6	34.5	21.5	10.2
16–18 years:						
None	1,162	100.0	46.0	35.7	16.4	8.0
1–5 hours	905	100.0	49.5	33.7	15.2	6.1
6–10 hours	622	100.0	43.9	35.9	18.6	7.9
11–15 hours	268	100.0	41.0	37.3	20.1	*8.6
More than 15 hours	318	100.0	34.9	38.7	24.5	*10.7
Male:						
None	3,335	100.0	63.4	27.2	8.4	4.1
1–5 hours	2,615	100.0	62.9	26.6	8.9	3.9
6–10 hours	1,319	100.0	54.6	31.2	12.2	6.1
11–15 hours	612	100.0	50.3	34.3	14.4	5.6
More than 15 hours	509	100.0	47.2	34.0	18.5	7.7
Female:						
None	3,066	100.0	67.1	23.7	8.4	4.3
1–5 hours	2,335	100.0	67.5	22.6	9.1	5.2
6–10 hours	1,292	100.0	62.3	25.5	11.7	4.5
11–15 hours	527	100.0	59.0	30.4	10.6	7.8
More than 15 hours	531	100.0	47.6	32.0	18.3	8.1

[1] Includes other and unknown smoking status.

Table 9. Number of teenagers, percent distribution by smoking status, and percent expecting to smoke in 1 year, according to selected risk-taking behaviors, age, and sex: United States, 1989

Selected risk-taking behaviors by age and sex	All teenagers	Smoking status				Teenagers expecting to smoke in 1 year
		Total [1]	Never smoked	Experimenter	Current smoker	
Fought in past year	Number in thousands	Percent distribution				Percent
All ages:						
Yes	6,446	100.0	38.5	33.6	24.8	12.8
No	17,001	100.0	59.0	27.4	12.2	5.5
12–13 years:						
Yes	1,877	100.0	58.0	32.9	7.9	2.8
No	4,657	100.0	81.6	16.0	2.0	1.3
14–15 years:						
Yes	1,857	100.0	37.8	35.3	23.3	13.2
No	4,608	100.0	62.0	27.8	8.9	3.9
16–18 years:						
Yes	2,712	100.0	25.3	32.9	37.5	19.4
No	7,736	100.0	43.6	33.9	20.3	9.0
Male:						
Yes	4,708	100.0	40.5	33.7	22.5	11.4
No	7,469	100.0	58.4	28.1	12.0	5.1
Female:						
Yes	1,738	100.0	32.9	33.1	31.1	16.6
No	9,532	100.0	59.5	26.7	12.4	5.8
Rode a motorcycle or minibike in past year						
All ages:						
Yes	9,375	100.0	42.4	32.6	22.8	11.1
No	14,044	100.0	62.6	25.8	10.4	5.1
12–13 years:						
Yes	2,144	100.0	66.0	27.2	6.4	3.1
No	4,382	100.0	81.5	16.0	2.2	1.0
14–15 years:						
Yes	2,620	100.0	45.5	30.8	21.4	11.2
No	3,836	100.0	63.8	28.1	7.1	3.5
16–18 years:						
Yes	4,611	100.0	29.7	36.1	31.2	14.8
No	5,827	100.0	47.6	31.6	18.8	9.2
Male:						
Yes	6,003	100.0	43.1	32.8	21.9	10.6
No	6,157	100.0	61.2	27.2	10.2	4.5
Female:						
Yes	3,372	100.0	41.2	32.3	24.5	12.1
No	7,887	100.0	63.7	24.7	10.6	5.5
Rode with driver using alcohol and/or drugs in past year						
All ages:						
Yes	2,556	100.0	23.4	30.9	42.7	22.7
No	20,860	100.0	58.3	28.3	12.0	5.6
12–13 years:						
Yes	274	100.0	60.9	28.8	*9.1	*5.8
No	6,259	100.0	77.0	19.4	3.3	1.5
14–15 years:						
Yes	584	100.0	31.8	32.0	32.5	18.8
No	5,870	100.0	58.9	28.9	10.9	5.4
16–18 years:						
Yes	1,698	100.0	14.4	30.8	51.6	26.7
No	8,732	100.0	44.5	34.2	19.0	8.7

Table 9. Number of teenagers, percent distribution by smoking status, and percent expecting to smoke in 1 year, according to selected risk-taking behaviors, age, and sex: United States, 1989—Con.

Selected risk-taking behaviors by age and sex	*All teenagers*	*Smoking status*				*Teenagers expecting to smoke in 1 year*
		Total [1]	*Never smoked*	*Experimenter*	*Current smoker*	
Rode with driver using alcohol and/or drugs in past year—Con.	Number in thousands	Percent distribution				Percent
Male:						
Yes	1,404	100.0	25.0	27.1	44.6	23.6
No	10,756	100.0	55.8	30.4	12.2	5.4
Female:						
Yes	1,152	100.0	21.6	35.5	40.5	21.6
No	10,104	100.0	60.9	26.1	11.8	5.8
Enjoyed risk-taking activities						
All ages:						
Yes	9,867	100.0	38.4	36.5	22.7	11.1
No	11,672	100.0	65.4	22.9	10.0	4.5
12–13 years:						
Yes	2,014	100.0	59.4	32.0	7.5	3.7
No	3,985	100.0	82.2	15.4	1.9	*0.6
14–15 years:						
Yes	2,792	100.0	40.4	38.0	19.5	10.7
No	3,129	100.0	68.2	22.4	7.5	3.3
16–18 years:						
Yes	5,061	100.0	28.9	37.5	30.4	14.3
No	4,558	100.0	48.9	29.9	18.9	8.7
Male:						
Yes	5,780	100.0	38.6	36.7	22.0	10.5
No	5,512	100.0	63.8	24.1	10.3	4.8
Female:						
Yes	4,087	100.0	38.1	36.3	23.6	12.1
No	6,160	100.0	66.9	21.9	9.8	4.3

[1] Includes other and unknown smoking status.

Table 10. Number of teenagers and percent distribution by smoking status, according to selected smoking-knowledge indicators, age, and sex: United States, 1989

Smoking-knowledge indicators by age and sex	*All teenagers*	*Smoking status*			
		Total [1]	*Never smoked*	*Experimenter*	*Current smoker*
Taken class about health risks	Number in thousands	Percent distribution			
All ages:					
Yes	17,688	100.0	53.5	29.6	15.2
No	5,665	100.0	57.6	25.5	15.7
12–13 years:					
Yes	4,642	100.0	76.1	20.3	3.3
No	1,852	100.0	77.1	18.6	4.0
14–15 years:					
Yes	4,834	100.0	55.7	30.2	12.6
No	1,620	100.0	58.6	26.0	13.9
16–18 years:					
Yes	8,213	100.0	39.4	34.5	23.5
No	2,193	100.0	40.3	31.0	27.0
Male:					
Yes	9,158	100.0	51.0	31.0	16.0
No	2,966	100.0	56.1	27.3	15.2
Female:					
Yes	8,531	100.0	56.1	28.2	14.3
No	2,699	100.0	59.1	23.6	16.3
T.V., radio, or other media exposure					
All ages:					
Yes	19,264	100.0	54.7	28.6	15.2
No	4,212	100.0	53.4	28.4	16.4
12–13 years:					
Yes	5,409	100.0	76.1	20.1	3.5
No	1,143	100.0	77.7	18.2	3.8
14–15 years:					
Yes	5,351	100.0	56.3	29.5	12.8
No	1,107	100.0	56.5	28.6	13.0
16–18 years:					
Yes	8,504	100.0	40.1	33.5	24.0
No	1,962	100.0	37.6	34.3	25.6
Male:					
Yes	10,078	100.0	52.8	30.0	15.4
No	2,113	100.0	49.0	30.5	18.7
Female:					
Yes	9,185	100.0	56.8	27.1	14.9
No	2,099	100.0	57.9	26.4	14.1
"Most doctors are against smoking cigarettes"					
All ages:					
Agree	18,743	100.0	53.7	28.7	15.8
Disagree	4,165	100.0	52.3	30.8	14 8
12–13 years:					
Agree	5,219	100.0	76.0	19.8	3.6
Disagree	1,154	100.0	70.2	24.9	4.4
14–15 years:					
Agree	5,042	100.0	55.2	29.7	13.5
Diasagree	1,244	100.0	54.7	31.7	10.7
16–18 years:					
Agree	8,481	100.0	39.0	33.6	24.7
Disagree	1,767	100.0	38.9	34.1	24.4

Table 10. Number of teenagers and percent distribution by smoking status, according to selected smoking-knowledge indicators, age, and sex: United States, 1989—Con.

Smoking-knowledge indicators by age and sex	*All teenagers*	*Smoking status*			
		Total [1]	*Never smoked*	*Experimenter*	*Current smoker*
"Most doctors are against smoking cigarettes"—Con.	Number in thousands	Percent distribution			
Male:					
Agree	9,807	100.0	52.1	30.2	15.7
Disagree	2,087	100.0	49.0	31.3	17.2
Female:					
Agree	8,936	100.0	55.4	27.1	16.0
Disagree	2,078	100.0	55.5	30.3	12.4
"Safe to smoke 1 or 2 years"					
All ages:					
Agree	1,631	100.0	24.0	26.5	45.7
Disagree	21,471	100.0	55.9	29.2	13.2
12–13 years:					
Agree	302	100.0	41.7	38.4	20.2
Disagree	6,144	100.0	76.8	19.8	2.8
14–15 years:					
Agree	384	100.0	29.7	27.6	36.2
Diasagree	5,961	100.0	57.1	30.1	11.3
16–18 years:					
Agree	944	100.0	16.1	22.5	57.7
Disagree	9,366	100.0	41.4	34.8	21.2
Male:					
Agree	1,048	100.0	21.5	27.6	46.6
Disagree	10,932	100.0	54.7	30.6	12.9
Female:					
Agree	583	100.0	28.6	24.7	44.1
Disagree	10,539	100.0	57.2	27.8	13.5
"Cigarettes help people relax"					
All ages:					
Agree	6,265	100.0	32.8	29.9	34.4
Disagree	16,397	100.0	61.2	28.6	8.7
12–13 years:					
Agree	1,129	100.0	61.4	30.0	7.4
Disagree	5,148	100.0	78.3	18.6	2.7
14–15 years:					
Agree	1,678	100.0	38.4	29.9	29.0
Diasagree	4,583	100.0	61.4	29.8	7.2
16–18 years:					
Agree	3,458	100.0	20.7	29.9	45.9
Disagree	6,666	100.0	47.9	35.5	14.4
Male:					
Agree	3,591	100.0	32.8	30.7	33.2
Disagree	8,136	100.0	59.5	30.2	8.7
Female:					
Agree	2,674	100.0	32.8	28.8	36.0
Disagree	8,261	100.0	63.0	27.1	8.7

Table 10. Number of teenagers and percent distribution by smoking status, according to selected smoking-knowledge indicators, age, and sex: United States, 1989—Con

Smoking-knowledge indicators by age and sex	*All teenagers*	*Smoking status*			
		Total [1]	*Never smoked*	*Experimenter*	*Current smoker*
"Smoking helps keep weight down"	Number in thousands	Percent distribution			
All ages:					
Agree	4,178	100.0	40.6	30.8	26.2
Disagree	18,786	100.0	57.6	28.0	13.0
12–13 years:					
Agree	852	100.0	67.3	26.2	6.0
Disagree	5,532	100.0	77.6	19.0	3.1
14–15 years:					
Agree	1,045	100.0	43.2	32.9	21.8
Disagree	5,292	100.0	59.2	28.2	11.3
16–18 years:					
Agree	2,280	100.0	29.6	31.6	35.9
Disagree	7,963	100.0	42.6	34.2	21.0
Male:					
Agree	2,027	100.0	38.1	31.8	27.7
Disagree	9,859	100.0	55.2	29.6	13.6
Female:					
Agree	2,151	100.0	43.0	29.9	24.9
Disagree	8,926	100.0	60.2	26.3	12.4

[1] Includes other and unknown smoking status.

Technical notes

Source and description of data

This report contains data from the 1989 Teenage Attitudes and Practices Survey (TAPS). The TAPS was a targeted population study of U.S. teenagers 12–18 years of age. The study was conducted by the National Center for Health Statistics' National Health Interview Survey (NHIS) and co-sponsored by the Centers for Disease Control Office on Smoking and Health (OSH) and the National Cancer Institute (NCI).

The TAPS was designed to obtain national household data about current cigarette-smoking behavior and lifetime smoking practices of adolescents and their beliefs about smoking. Selected correlates of smoking uptake were also addressed in the study.

The TAPS sample was derived from NHIS's household interviews conducted during the final two quarters of 1988 and the first two quarters of 1989. All teenagers living in households contacted and interviewed during this period that were 12–18 years of age as of November 1, 1989, were included in the sample. The eligible sample for the TAPS was 12,097 persons.

The TAPS utilized two modes of data collection. The primary method consisted of computer-assisted telephone interviewing (CATI) in households where a telephone number was provided during the original NHIS interview. In addition, self-administered questionnaires were mailed to sample teenagers living in households without telephones or an available telephone number. Mail questionnaires were also sent to those teenagers living in households with an original telephone number but who were never reached using the CATI method. Telephone interviews and all other data collection activities were performed by U.S. Bureau of the Census personnel. Data collection began in August 1989 and, except for late receipt of some mail questionnaires, concluded in December 1989.

Unlike the original NHIS interview, all teenagers responded for themselves. However, prior to the initial telephone contact, advance letters were mailed to a responsible related adult and to each eligible teenager in the household explaining the sponsorship and objectives of the upcoming survey and assuring confidentiality.

The total interviewed TAPS sample included 9,965 adolescents, 9,135 from CATI interviews and the remaining 830 cases from completed mail questionnaires. The total combined response rate for the TAPS from these 2 data-collection procedures was 82 percent. Most of the nonresponse resulted from teenagers' failure to return the mail questionnaire. Only 3.7 percent of interviews of adolescents reached by telephone ended in a refusal either because of the parent's or teenager's initial refusal or subsequent termination of the interview. Item nonresponse was less than 1 percent for the questions discussed in this report. More details about nonresponse are available in a recent report (42).

Sampling errors

Because estimates shown in this report are based on a sample of the population rather than on the entire population, they are subject to sampling error. When an estimate or the numerator or denominator of a percent is small, the sampling error may be relatively high. In addition, the complex sample design of the NHIS has the effect of making the sampling errors larger than they would be had a simple random sample of equal size been used.

The following method for computing sampling errors is presented for the convenience of readers who want a simple method to use in calculating standard errors for estimates in this report. More precise methods, such as that available in the software program SUDAAN (43), which estimates standard errors for complex sample surveys using Taylor linearization, are recommended for detailed analysis of NHIS data.

Approximate standard errors of the estimated numbers (x) in this report (except for age, sex, and race for all teenagers when the standard error is assumed to be 0.0) may be calculated using the formula

$$SE(x) = \sqrt{0.0000307(x)^2 + 3{,}640\ (x)}$$

Except as noted below, approximate standard errors of the estimated percents in this report may be calculated using the formula

$$SE(p) = \sqrt{\frac{3{,}640(p)(100-p)}{y}}$$

where p is the estimated percent and y is the population denominator.

Approximate standard errors for the percents in table 1 by age, sex, and race only and the percents for the "all teenagers" category in table 4 may be calculated by using the formula

$$SE(p) = p\sqrt{0.0000307 + 3{,}640/x}$$

where p is the estimated percent and $x = py/100$ with y = the population denominator.

If x_1 and x_2 are two estimates, then the approximate standard error of the difference $(x_1 - x_2)$ can be computed as follows:

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

where $SE(x_1)$ and $SE\ (x_2)$ are computed using the appropriate formulas previously presented in this section, and r is the correlation coefficient between x_1 and x_2 (assuming $r = 0.0$ will result in an accurate standard error if the two estimates are actually uncorrelated and will result in an overestimate of the standard error if the correlation is positive or an underestimate if the correlation is negative).

In this report, unless otherwise noted, a difference was considered statistically significant at the 5 percent level if the difference $(x_1 - x_2)$ was at least twice as large as its standard error.

Related documentation

More detailed discussion of the sample design of the NHIS,

estimating procedures, procedures for estimating standard errors, nonsampling errors, and definitions of other sociodemographic terms used in this report has been published in *Vital and Health Statistics,* Series 10, nos. 160 and 176; Series 1, no. 18; and Series 2, 110 (44–47).

A public use data file based on the 1989 TAPS was released in February 1992. Information regarding the purchase of the public use tape may be obtained by writing to the Division of Health Interview Statistics, National Center for Health Statistics, 6525 Belcrest Road, Hyattsville, Maryland 20782.

Definition of terms—TAPS smoking status categories

Never smoked—Never smoked a cigarette.

Never smoked, no intention—Never smoked a cigarette or tried or experimented with cigarette smoking; will not try a cigarette soon; and definitely will not be smoking in 1 year.

Never smoked, may smoke—Never smoked a cigarette or tried or experimented with cigarette smoking; may try a cigarette soon or may be smoking in 1 year.

Experimenter—Has either smoked a cigarette or tried or experimented with cigarette smoking, but has not smoked 100 cigarettes and has not smoked in the past 30 days.

Former smoker—Has smoked at least 100 cigarettes, but has not smoked in the past 30 days.

Current smoker—Has smoked a cigarette in the past 30 days.

Current light smoker—Has smoked 10 or more days in the past 30 days, and has smoked an average of fewer than 5 cigarettes per day in the past 7 days.

Current heavy smoker—Has smoked 10 or more days in the past 30 days, and has smoked an average of 5 cigarettes or more per day in the past 7 days.

Current occasional smoker—Has smoked 1 to 9 days in the past 30 days.

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

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National Center for Health Statistics

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

Acting Deputy Director
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Advance Data

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

Office Visits to Otolaryngologists 1989–90, National Ambulatory Medical Care Survey

by David A. Woodwell, Division of Health Care Statistics

This report describes visits made to otolaryngologists during the period from March 1989 to December 1990. 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. NAMCS excludes physicians who specialize in anesthesiology, pathology, or radiology and physicians who are principally engaged in teaching, research, or administration. This survey excludes those visits made to hospital emergency or outpatient departments. NAMCS was conducted annually from 1973 through 1981, again in 1985, and annually beginning in 1989 by the Division of Health Care Statistics, National Center for Health Statistics, Centers for Disease Control and Prevention.

Data 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 figures presented in this report are estimated from a sample, not the entire universe of visits to ambulatory care physicians, and are therefore subject to sampling variability. All estimates contained in this report, including the number of visits, the number of drug mentions, and the visit rates, have been adjusted to represent annual statistics. 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. A facsimile of the patient record form used for data collection in both 1989 and 1990 is shown in figure 1 and will be useful when reading the survey results.

Survey data show that of the visits made to otolaryngologists, more than four-fifths (83 percent) were to physicians who reported they were board certified in otolaryngology, approximately 16 percent were to physicians who reported no board certification, and the remaining 1 percent were to physicians who were certified in surgery.

Data highlights

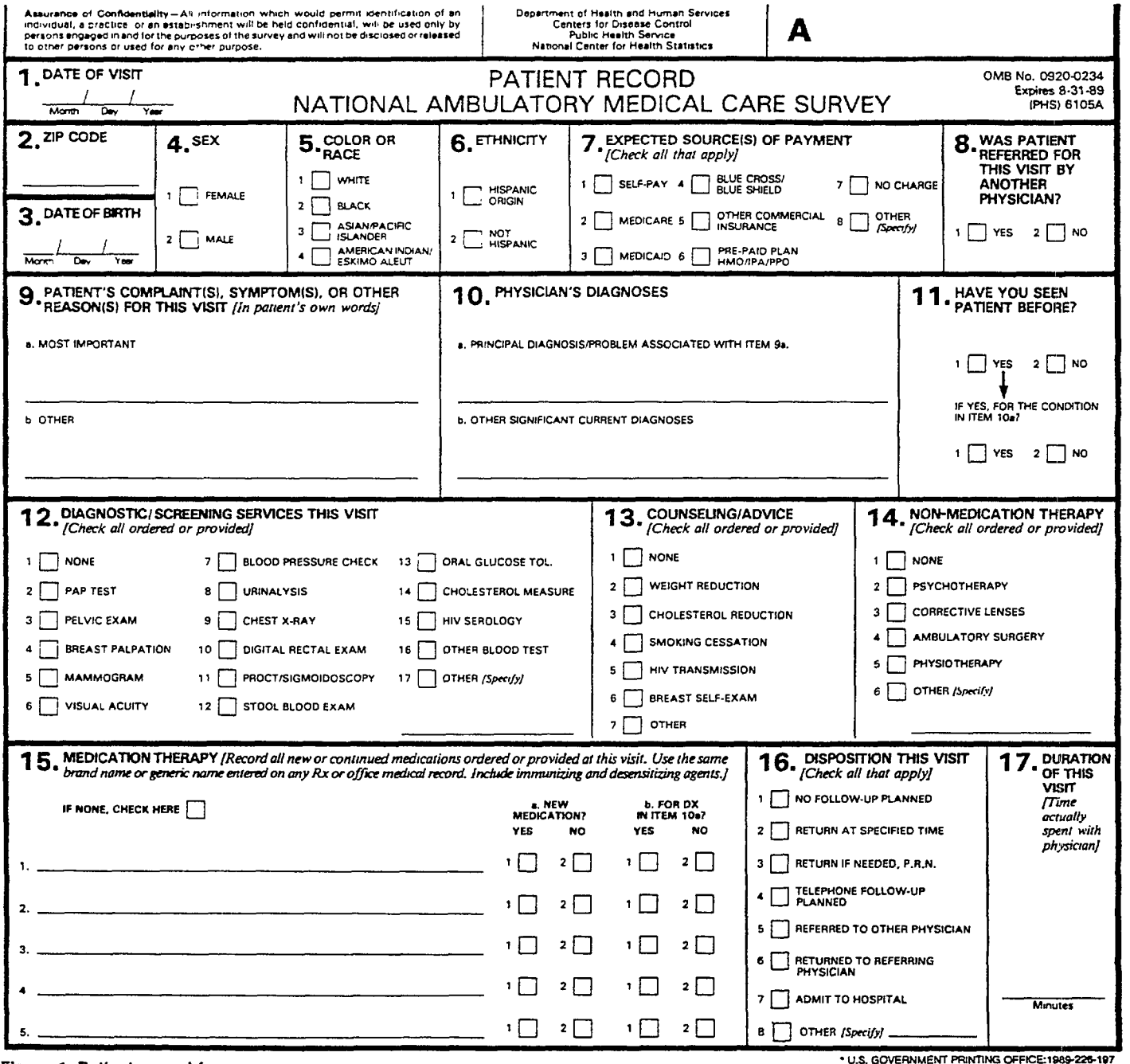
As shown in table 1, an estimated annual average of 16,957,000 visits were made to otolaryngologists in 1989 and 1990. These 16.9 million visits represent about 2 percent of all visits to ambulatory care physicians in the United States and produce a visit rate of 7 visits per 100 persons. In the combined survey years 1975 and 1976, the estimated annual average number of visits to otolaryngologists was 13,596,000, again representing about 2 percent of all visits made to ambulatory care physicians, not significantly different from 1989 and 1990. The visit rate for the combined years 1975 and 1976 was 7 visits per 100 persons, the same as that for 1989 and 1990 (1).

Patient characteristics

Table 2 shows the percent distribution of visits by age and sex of the patient. Most of the visits to otolaryngologists were made by patients under 15 years of age and by patients 25–64 years of age, who together represented about 70 percent of the visits. This relationship held true for both males and females. There were fewer visits made by young adults and elderly patients. The visit rate dropped from 8 visits per 100 persons for those under 15 years of age to 4 visits per 100 persons for patients 15–24 years of age. The rate then increased by two visits for each age group thereafter.

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:1989-226-197

Figure 1. Patient record form

There were more female visits to otolaryngologists than male visits—55 percent as compared with 45 percent, respectively. Females under 15 years of age were the only age group to have a smaller percent of visits than their male counterparts. The pattern of patients under 15 years of age and of patients 25–64 years making most of the visits was also evident for both males and females. Male and female visit rates are similar for all age groups and are not statistically different. The higher frequency and percent of female visits to otolaryngologists are due to the fact that there are more females in the general population, explaining the similarity in the visit rates.

As shown in table 3, more visits were made to otolaryngologists by white persons (90 percent) than by black persons (about 6 percent), figures that are not statistically different from the corresponding percents for visits made to all physician specialties. However, there was a significant difference in the visit rate between white and black patients. White males had visit rates that were 2.3 times higher than those for black males, and white females had rates that were 3 times higher than those for black females.

Expected sources of payment

Patients paid for all or part of the visit (including deductibles and

copayments) in an estimated 28 percent of the visits. Fee-for-service insurance, other than Blue Cross/Blue Shield, was a source of payment in about 24 percent of the visits to otolaryngologists compared with Blue Cross/Blue Shield, which was used in about 18 percent of the visits. Prepaid plans such as health maintenance organizations (HMO's), individual practice associations (IPA's), and preferred provider organizations (PPO's) were used in about 13 percent of the visits. Government insurance, Medicare and Medicaid, represented approximately 16 and 7 percent of the visits, respectively. Except for Blue Cross/Blue Shield, all expected sources of payment to otolaryngologists were similar to the corresponding percents for all physicians. Blue Cross/Blue Shield was an expected source of payment for about 18 percent of the visits to otolaryngologists as compared with almost 12 percent of visits to all physicians (figure 2).

Patient status

As shown in table 4, about 17 percent of patients visiting otolaryngologists in 1989 and 1990 were referred by another physician. This is significantly greater than the referral rate for all physicians (about 6 percent of their visits were referred by another physician).

New patients to otolaryngologists represented nearly 33 percent of the visits, twice the 16 percent of new patient visits to all physicians. Most visits to otolaryngologists, nearly 60 percent, were made by "old patients" (patients who had seen the physician on a prior occasion) with an "old problem" (a problem that had been treated previously by the physician). Old patients with new problems represented about 8 percent of the visits, which is considerably less than the approximately 23 percent for all physicians. No differences were found in these percents for otolaryngologists between 1989–90 and 1975–76.

Patient's reason for visit

Tables 5 and 6 display the principal reason for visit as expressed by the patient. The principal reason for visit is the problem, complaint, or cause listed first on item 9 of the patient record form. These data have been classified and coded according to the *Reason for Visit Classification for Ambulatory Care* (RVC) (2).

The RVC is divided into eight modules (or groups of reasons), as detailed in table 5. For otolaryngologist visits, the symptom module was most often cited, accounting for about 73 percent of the visits. Within this module, symptoms referable to the eyes and ears and symptoms referable to the respiratory system accounted for almost 34 percent and 24 percent of the visits, respectively. The treatment module, disease module, and the injury and adverse

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
Pediatricians	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 others specialties	71,603	10.2	29

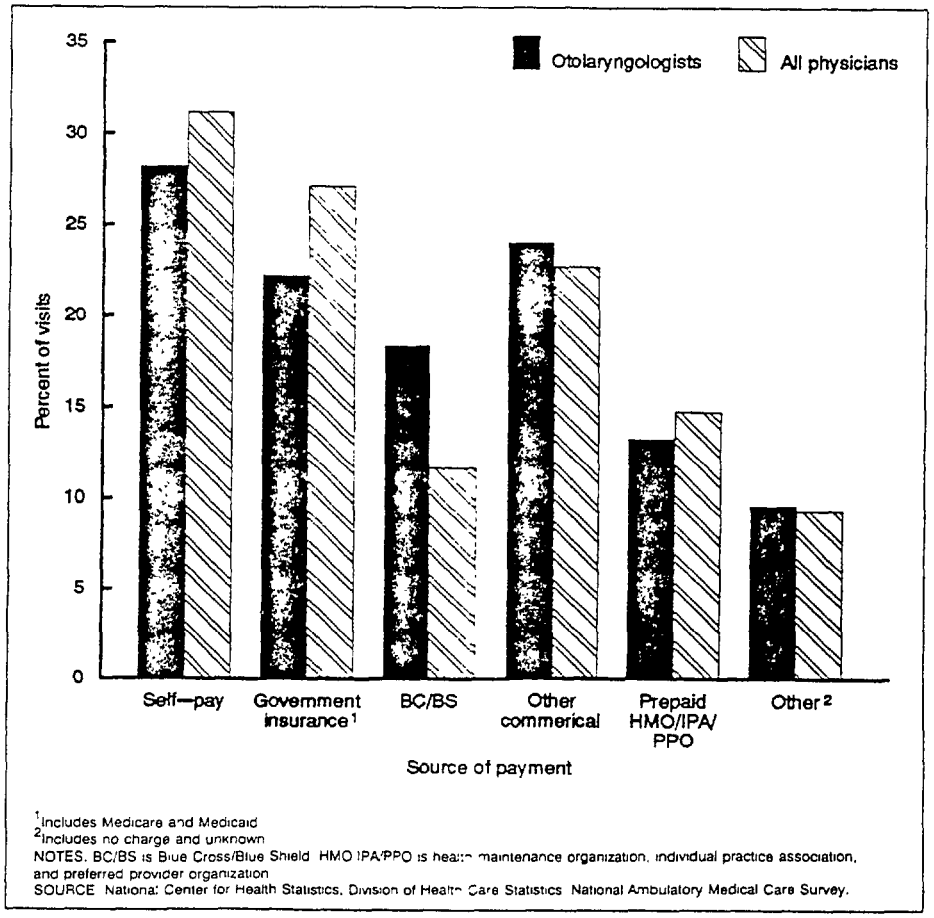
Table 2. Average annual number and percent distribution and average annual rate of office visits to otolaryngologists, by sex and age: United States, 1989–90

Sex and age	Average annual number of visits in thousands	Percent distribution	Average annual number of visits per 100 persons
Total visits	16,957	100.0	7
Under 15 years	4,186	24.7	8
15–24 years	1,464	8.6	4
25–44 years	4,574	27.0	6
45–64 years	3,470	20.5	8
65–74 years	1,865	11.0	10
75 years and over	1,399	8.2	12
Male	7,652	45.1	6
Under 15 years	2,378	14.0	9
15–24 years	641	3.8	4
25–44 years	1,818	10.7	5
45–64 years	1,465	8.6	7
65–74 years	845	5.0	11
75 years and over	506	3.0	12
Female	9,305	54.9	7
Under 15 years	1,809	10.7	7
15–24 years	823	4.9	5
25–44 years	2,756	16.3	7
45–64 years	2,004	11.8	8
65–74 years	1,020	6.0	10
75 years and over	893	5.3	12

Table 3. Average annual number, percent distribution, and rate of visits to otolaryngologists, 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	16,957	100.0	7
Black	962	5.7	3
Male	400	*2.4	3
Female	562	3.3	3
White	15,254	90.0	8
Male	6 857	40 4	7
Female	8,397	49.5	9
Other[1]	455	2 7	5
Male	230	*1 4	6
Female	225	*1.3	5

[1]Includes As an and Pacific Islander and American Indian Es- and Aleut
NOTES: Data will not equal total because the unspecified category, 286 000 visits, is included in total.



[1]Includes Medicare and Medicaid
[2]Includes no charge and unknown
NOTES. BC/BS is Blue Cross/Blue Shield. HMO IPA/PPO is health maintenance organization, individual practice association, and preferred provider organization
SOURCE National Center for Health Statistics, Division of Health Care Statistics National Ambulatory Medical Care Survey.

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

effects module accounted for around 14, 7, and 3 percent of the visits, respectively.

Table 6 lists the top 20 reasons for visit to otolaryngologists in 1989–90, which accounted for more than three-quarters of all visits. The most frequent reason for visit to otolaryngologists in 1989–90 was for an earache or an ear infection, accounting for 11.3 percent of the visits. Patients with hearing dysfunction accounted for 8.1 percent of the 16,957,000 average annual visits, the second most frequent reason for visit. Symptoms referable to throat and other symptoms referable to ears represented 6.3 percent and 5.8 percent of the visits, respectively. The 20 most frequent diagnoses are quite similar to the 20 most frequent reasons for visit to otolaryngologists found in the 1975–76 NAMCS.

Physician's diagnosis

Data on the principal diagnosis rendered by otolaryngologists are shown in tables 7 and 8. The principal diagnosis is the first-recorded diagnosis in item 10a of the patient record form and is associated with the principal reason for visit as recorded in item 9a. The principal diagnosis was coded and classified according to the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (3).

As shown on table 7, the ICD–9–CM is organized into broad categories relating to the major systems of the body. Diseases of the nervous system and sense organs represented the largest percent of diagnosis by the otolaryngologist, about 38 percent, which was followed by diseases of the respiratory system, approximately 30 percent. The three ICD–9–CM classes—supplementary classifications; symptoms, signs, and ill-defined conditions; and injury and poisoning—represented almost 9, 6, and 4 percent, respectively, of the principal diagnoses. As would be expected, the percent of visits with diagnoses of diseases of the nervous system and sense organs (mostly ear and nose) and diseases of the respiratory system (mostly throat) is more than double the percent for all physicians—approximately 38 percent and 30 percent, respectively, for otolaryngologists as compared with 11.1 percent and 13.9 percent, respectively, for all physicians. The percent of visits for supplementary classifications (including general medical exam and normal pregnancy exams) for otolaryngologists was about half that for

all physicians, nearly 9 percent compared with 15 percent, respectively.

The top 20 principal diagnoses made by otolaryngologists are shown in table 8. The first three diagnoses, accounting for about one-quarter of the visits (26.1 percent), are related to problems of the ear: suppurative and unspecified otitis media (9.4 percent), disorders of external ear (8.5 percent), and nonsuppurative otitis media and eustachian tube disorders (8.2 percent). Following the first three diagnoses are two diagnoses involving the respiratory system: allergic rhinitis (7.1 percent) and chronic sinusitis (5.2 percent). The 20 most frequent diagnoses are quite similar to the 20 most frequent diagnoses found in the 1975–76 NAMCS.

Medication therapy

As shown in table 9, otolaryngologists prescribed or administered medication in nearly 47 percent of the office visits in 1989–90, significantly less often than most other physicians specialties. All physicians prescribed or administered medication in 60.2 percent of the visits.

A visit in which the patient was administered or prescribed any type of medication by the physician is called a "drug visit." Of the drug visits to otolaryngologists, about 63 percent were visits when one drug was prescribed or administered, 24 percent were visits when two drugs were prescribed or administered, and 13 percent were visits when three drugs or more were prescribed or administered. Of all the drugs prescribed or administered by office-based ambulatory care physicians, otolaryngologists prescribed or administered only 1.9 percent.

Table 10 classifies the drug mentions into therapeutic categories as defined by the 1985 edition of the National Drug Code Directory (4). Antimicrobial agents accounted for approximately one-third of the otolaryngologists' drug mentions, in addition to respiratory tract drugs, which accounted for about 18 percent. Antimicrobial agents included such

Table 4. Average annual number and percent distribution of office visits to otolaryngologists, 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	16,957	100.0
Patient referred		
Yes	2,950	17.4
No	14,007	82.6
Visit status		
New patient	5,542	32.7
Old patient, new problem	1,284	7.6
Old patient, old problem	10,132	59.7

Table 5. Average annual number and percent distribution of office visits to otolaryngologists, 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		16,957	100.0
Symptom module	S100–S999	12,346	72.8
Symptoms referable to the eyes and ears	S300–S399	5,710	33.7
Symptoms referable to the respiratory system	S400–S499	4,019	23.7
Disease module	D001–D999	1,129	6.7
Diagnostic, screening, and preventive module	X100–X599	253	1.5
Treatment module	T100–T899	2,388	14.1
Injury and adverse effects module	J001–J999	520	3.1
All other modules[2]		321	1.9

[1]Based on "A Reason for Visit Classification for Ambulatory Care" (RVC) (2).
[2]Includes test results and administrative modules, and uncodable and blank entries.

Table 6. Average annual number, percent distribution, and cumulative percent of the 20 most common reasons for visit to otolaryngologists: 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		16,957	100.0	---
1	Earache or ear infection	S355	1,908	11.3	11.3
2	Hearing dysfunction	S345	1,370	8.1	19.4
3	Symptoms referable to throat	S455	1,071	6.3	25.7
4	Other symptoms referable to ears	S365	981	5.8	31.5
5	Nasal congestion	S400	896	5.3	36.8
6	Plugged feeling in ear	S360	895	5.3	42.1
7	Other symptoms of nose	S405	477	2.8	44.9
8	Vertigo, dizziness	S225	459	2.7	47.6
9	Sinus problems	S410	427	2.5	50.1
10	Discharge from ear	S350	387	2.3	52.4
11	Allergy	S090	370	2.2	54.6
12	Headache, pain in head	S210	348	2.1	56.7
13	Allergy medication	T100	326	1.9	58.6
14	Cough	S440	311	1.8	60.4
15	Disorders of voice	S480	292	1.7	62.1
16	Upper respiratory infections except tonsillitis	D600	268	1.6	63.7
17	Preoperative visit for specified and unspecified types of surgery	T200	252	1.5	65.2
18	Otitis media	D450	208	1.2	66.4
19	Symptoms referable to mouth	S510	159	0.9	67.3
20	Head and face	J005	144	0.9	68.2

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

drugs as penicillin (11.0 percent), cephalosporin (9.3 percent), and erythromycin and lincosamide (4.1 percent). Respiratory tract drugs included such drugs as nasal decongestants (7.0 percent); antitussives, expectorants, and mucolytics (4.0 percent); and antihistamines (6.9 percent). The therapeutic category skin and mucous membrane represented 9.4 percent of the drug mentions and consisted almost completely of dermatologics, 8.8 percent. The top 20 generic substances prescribed by otolaryngologists are shown in table 11, with amoxicillin being the most utilized, 9.3 percent. The generic substances beclomethasone, neomycin, hydrocortisone, and phenylephrine followed, accounting for 7.7, 6.7, 6.6, and 5.7 percent of the drug mentions, respectively.

Duration and disposition of visits

Visits to otolaryngologists had a mean duration of roughly 14 minutes, excluding those visits of zero minutes. More than three-quarters (77.7 percent) of the visits lasted no longer than 15 minutes, significantly higher than the 68.1 percent of visits to all physicians. The duration of visit does not include time waiting for the physician or time receiving care from someone else on the physician's staff. Visits of zero minutes, in which the patient had no face-to-face contact with the physician, represented almost 3 percent of the visits (table 12).

In addition, table 12 shows that 57 percent of most visits to otolaryngologists resulted in the physician instructing the patient to return at a specific time, and about 27 percent were instructed to return if needed, compared with approximately 50 percent and 27 percent, respectively, in 1975–76.

Table 7. Average annual number and percent distribution of office visits to otolaryngologists, by major ICD–9–CM class: United States, 1989–90

Principal diagnoses and ICD–9–CM codes[1]		*Average annual number of visits in thousands*	*Percent distribution*
Total		16,957	100.0
Infectious and parasitic diseases	001–139	137	*0.8
Neoplasms	140–239	529	3.1
Diseases of the nervous system and sense organs	320–389	6,467	38.1
Diseases of the respiratory system	460–519	5,135	30.3
Diseases of the digestive system	520–579	588	3.5
Diseases of the skin and subcutaneous tissue	680–709	274	1.6
Symptoms, signs, and ill-defined conditions	780–799	1,002	5.9
Injury and poisoning	800–999	615	3.6
Supplementary classifications	V001–V082	1,475	8.7
All other diagnoses[2]		365	2.2
Unknown diagnoses[3]		370	2.2

[1]Based on *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (3).
[2]Includes endocrine, nutritional, and metabolic diseases and immunity disorders (240–279); diseases of the blood-forming organs (280–289); mental disorders (290–319); diseases of the circulatory system (390–459); diseases of the genitourinary system (580–629); complications of pregnancy, childbirth, and the puerperium (630–676); diseases of musculoskeletal system and connective tissue (710–739); congenital anomalies (740–759); and certain conditions originating in the perinatal period (760–779).
[3]Includes blank diagnoses, noncodable diagnoses, and illegible diagnoses.

Table 8. Average annual number, percent distribution, and cumulative percent of office visits to otolaryngologists 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	16,957	100.0	---
1	Suppurative and unspecified otitis media 382	1,602	9.4	9.4
2	Disorders of external ear 380	1,435	8.5	17.9
3	Nonsuppurative otitis media and eustachian tube disorders 381	1,394	8.2	26.1
4	Allergic rhinitis 477	1,203	7.1	33.2
5	Chronic sinusitis 473	881	5.2	38.4
6	Other postsurgical states 045	741	4.4	42.8
7	Hearing loss 389	682	4.0	46.8
8	Chronic pharyngitis and nasopharyngitis 472	560	3.3	50.1
9	Chronic disease of tonsils and adenoids 474	514	3.0	53.1
10	Symptoms involving head and neck 784	484	2.9	56.0
11	Deviated nasal septum 470	343	2.0	58.0
12	Other diseases of upper respiratory tract 478	341	2.0	60.0
13	Other disorders of ear 388	339	2.0	62.0
14	Acute tonsillitis 463	261	1.5	63.5
15	General symptoms 780	256	1.5	65.0
16	Other disorders of tympanic membrane 384	240	1.4	66.4
17	Vertiginous syndromes and other disorders 386	237	1.4	67.8
18	Fracture of face bones 802	233	1.4	69.2
19	Acute pharyngitis 462	229	1.4	70.6
20	Other disorders of middle ear and mastoid 385	192	1.1	71.7

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

Table 9. Average annual number and percent distribution of office visits to otolaryngologists, by type of visit and number of medications prescribed or ordered: United States, 1989–90

Type of visit and number of medications	*Average annual number of visits in thousands*	*Percent distribution*
All visits	16,957	100.0
Type of visit		
Nondrug visit (0 medications)	9,018	53.2
Drug visit	7,939	46.8
Number of medications		
1	4,991	62.9
2	1,896	23.9
3	694	8.7
4	187	2.4
5	172	2.2

Table 10. Average annual number and percent distribution of drug mentions to otolaryngologists by theraputic category: United States, 1989–90

Therapeutic category[1]	*Average annual number of visits in thousands*	*Percent distribution*
All drug mentions	12,435	100.0
Antimicrobial agents	3,879	31.2
Penicillins	1,362	11.0
Cephalosporins	1,155	9.3
Erythromycins and lincosamides	504	4.1
Cardiovascular-renal drugs	252	2.0
Psychopharmacologic drugs	128	1.0
Radiopharmaceutical or contrast media	669	5.4
Gastrointestinal agents	204	1.6
Hormones and agents affecting hormonal mechanisms	645	5.2
Skin or mucous membrane	1,169	9.4
Dermatologics	1,097	8.8
Ophthalmic drugs	330	2.7
Otologic drugs	417	3.4
Drugs used for relief of pain	447	3.6
Respiratory tract drugs	2,291	18.4
Nasal decongestants	871	7.0
Antitussives, expectorants, mucolytics	498	4.0
Antihistamines	862	6.9
Unclassified or miscellaneous	1,910	15.4
All others[2]	*96	0.8

[1]Therapeutic class based on the standard drug classification used in the *National Drug Code Directory, 1985 Edition* (4).
[2]Includes: Anesthetic drugs, hematologic agents, metabolic and nutrient agents, and neurologic drugs.

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

Rank	Generic ingredient	Average annual number of mentions[1] in thousands	Percent distribution
	All drug mentions	12,435	100.0
1	Amoxicillin	1,157	9.3
2	Beclomethasone	963	7.7
3	Neomycin	835	6.7
4	Hydrocortisone	822	6.6
5	Phenylephrine	716	5.7
6	Polymixin B	709	5.7
7	Phenylpropanolamine	572	4.6
8	Bacitracin	540	4.3
9	Cefaclor	459	3.7
10	Guaifenesin	443	3.6
11	Chlorpheniramine	438	3.5
12	Terfenadine	391	3.1
13	Trimethoprim	293	2.4
14	Sulfamethoxazole	293	2.4
15	Cefonicid sodium	263	2.1
16	Methylprednisolone	252	2.0
17	Penicillin	246	2.0
18	Acetaminophen	246	2.0
19	Cephalexin	237	1.9
20	Erythromycin	228	1.8

[1]Frequency of mention combines single-ingredient agents with mentions of the agents as an ingredient in a combination drug (4).

Table 12. Average annual number and percent distribution of office visits to otolaryngologists, by duration and disposition: United States, 1989–90

Duration and disposition	Average annual number of visits in thousands	Percent distribution
Total	16,957	100.0
Duration of visit[1]		
Zero minutes	495	2.9
1–5 minutes	1,930	11.4
6–10 minutes	5,732	33.8
11–15 minutes	5,505	32.5
16–30 minutes	2,946	17.4
31–60 minutes	322	1.9
61 + minutes	*27	*0.2
Disposition of visit		
No followup planned	1,592	9.4
Return at specific time	9,670	57.0
Return if needed	3,758	22.2
Telephone followup planned	471	2.8
Referred to other physician	322	1.9
Referred to referring physician	283	1.7
Admit to hospital	288	1.7
Other	1,083	6.4

[1]Mean duration of visit was 13.8 minutes.

Technical notes

Sources of data and sample design

The information presented in this report is based on data collected by means of the National Ambulatory Medical Care Survey (NAMCS) from March 20, 1989, through 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. 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 104 otolaryngologists in both 1989 and 1990, of which 89 were eligible in 1989 and 84 were eligible in 1990. The physician response rate for the 1989 NAMCS was 74 percent; in 1990, it was 75 percent. Otolaryngologists had a response rate of 71 percent in 1989 and 70 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. Otolaryngologists completed 1,790 patient record forms in 1989 and 2,185 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.

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

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.

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

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*	*Otolaryngologist*
	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: Otolaryngologist 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 otolaryngologist 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*	*Otolaryngologist*
	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: Otolaryngologist 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 an otolaryngologist 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	9.2	20.1	27.6	36.8	42.2	46.0
200	6.5	14.2	19.5	26.0	29.8	32.5
500	4.1	9.0	12.3	16.5	18.9	20.6
700	3.5	7.6	10.4	13.9	15.9	17.4
1,000	2.9	6.3	8.7	11.6	13.3	14.6
2,000	2.1	4.5	6.2	8.2	9.4	10.3
5,000	1.3	2.8	3.9	5.2	6.0	6.5
7,000	1.1	2.4	3.3	4.4	5.0	5.5
10,000	0 9	2.0	2.8	3.7	4.2	4.6
20,000	0.6	1.4	2.0	2.6	3.0	3.3
30,000	0.5	1.2	1.6	2.1	2.4	2.7
50,000	0.4	0.9	1.2	1.7	1.9	2.1
80,000	0.3	0.7	1.0	1.3	1.5	1.6
100,000	0.3	0.6	0.9	1.2	1.3	1.5
500,000	0.1	0.3	0.4	0.5	0.6	0.7
1,400,000	0.1	0.2	0.2	0.3	0.4	0.4

Example of use of table: An estimate of 30 percent based on an aggregate estimate of 10 million visits 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.

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.

Otolaryngologist—A physician who specializes in the diseases of the ear, nose, and throat.

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.

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.

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	52779.52184
Otolaryngologist	0.01236777	84645.29550
Drug mentions		
Overall totals	0.00157151	81470.54833
Otolaryngologist	0.01603845	11420.09384

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)

Suggested citation

Woodwell DA. Office visits to otolaryngologists 1989–90, National Ambularoty Medical Care Survey. Advance data from vital and health statistics; no 222. Hyattsville, Maryland: National Center for Health Statistics. 1992.

Number 223 • January 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 Obstetricians and Gynecologists: United States, 1989–90

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

Introduction

Over the 2-year period 1989–90, there were approximately 119.6 million visits made to nonfederally employed, office-based physicians in the United States who specialized in the practice of obstetrics and gynecology—an average of about 59.8 million visits per year. This report summarizes data pertaining to these visits in terms of patient characteristics, physician practice characteristics, and visit characteristics. Other reports are available that present data on office visits to obstetricians and gynecologists for previous years (1–3). Some of the findings from these reports will be discussed in light of current survey data.

The information presented in this report is based on data obtained from 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 annually from 1973 through 1981, and again in 1985. It resumed an annual schedule with the 1989 survey.

The 1989 and 1990 NAMCS shared identical survey instruments, definitions, and procedures. The resulting two years of data have been combined to provide more reliable estimates, and the reader should be aware that the estimates, percent distributions, and rates presented in this report, unless otherwise indicated, reflect average annual estimates for 1989 and 1990 based on the combined data. The Patient Record, the survey instrument utilized by participating physicians to record information about their patients' office visits, is shown in figure 1.

The reader should keep in mind that the estimates presented in this report are based on a sample, rather than on the entire universe of office visits, and are subject to sampling variability. The sample design, sampling errors, and guidelines for judging the precision of NAMCS estimates are discussed in the technical notes. Several publications are available that discuss overall findings from the 1989 and 1990 NAMCS (4–6), and reports on special topics are also available (7–10). Additional reports on visits made during 1989 and 1990 to other physician specialties are forthcoming.

Data Highlights

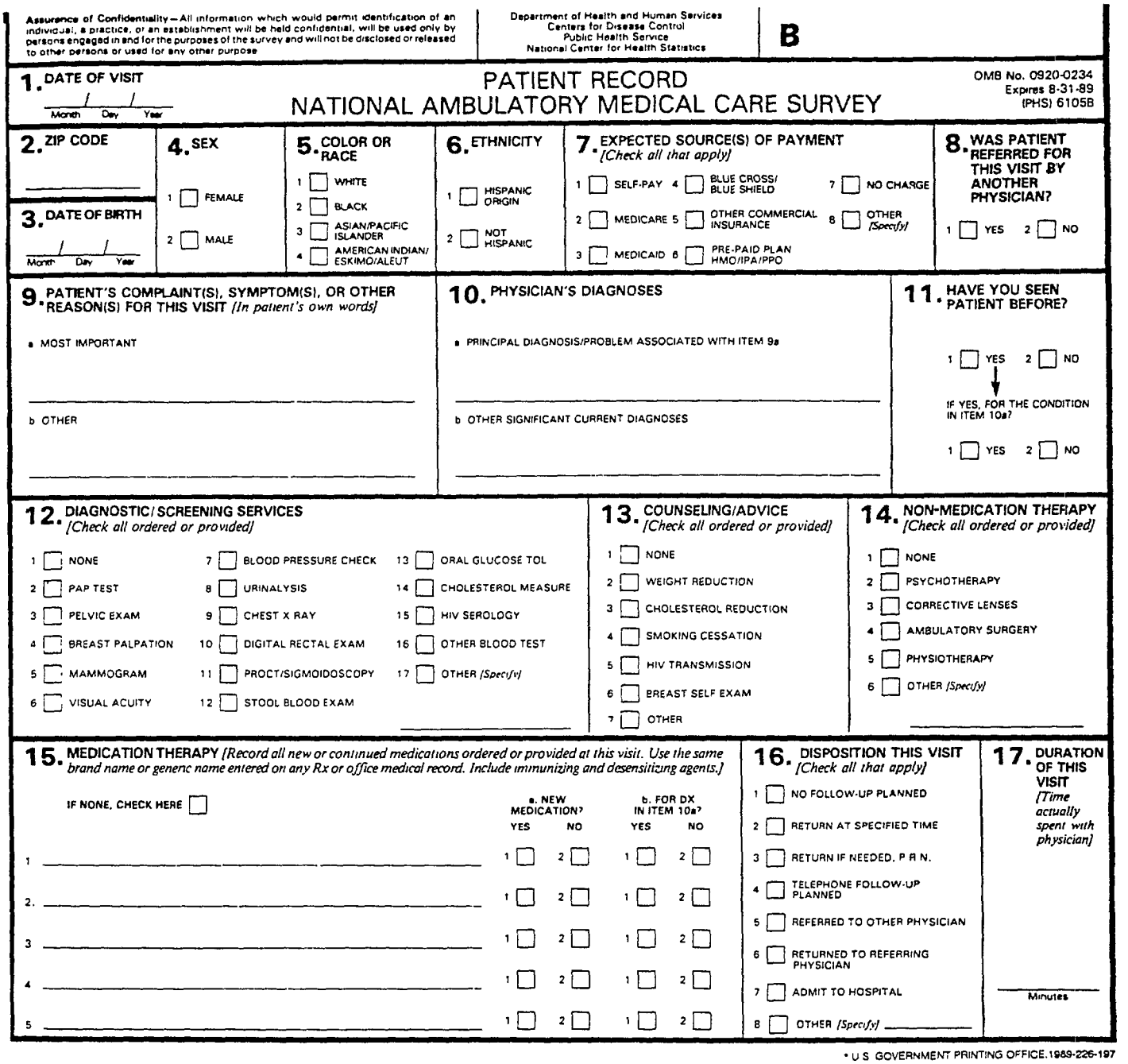
Patient characteristics

Approximately 99.4 percent of visits to obstetricians and gynecologists were made by females,[a] and, of these, 85.7 percent were made by females between the ages of 15 and 44 years. These percentages reflect the principal reason for visits to this specialty: routine prenatal examination. Visits by females according to age and race are shown in table 1.

[a]This report focuses primarily on visits made to obstetricians and gynecologists by females (an average of 59,475,000 visits per year for 1989 and 1990). The estimated number of visits by males (an average of 337,000 per year for 1989 and 1990) is too small to be statistically reliable and thus does not permit meaningful analysis. A general discussion of visits made by males to what is essentially a specialty dealing with women's reproductive health issues can be found in an earlier publication (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



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

PATIENT RECORD
NATIONAL AMBULATORY MEDICAL CARE SURVEY

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

1. DATE OF VISIT — Month / Day / Year

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. 1989 National Ambulatory Medical Care Survey Patient Record

The age distribution of visits by females to obstetricians and gynecologists has shifted over the years. While 32.7 percent of these visits were made by patients 15–24 years of age in 1975–76, only 21.4 percent were made by patients in this age group in 1989–90. Correspondingly, females aged 25–44 years comprised 51.7 percent of the total in 1975–76, but had increased their share to 64.3 percent by 1989–90 (figure 2).

However, visit rates appeared not to have changed significantly over the years within any of the five age groups analyzed (figure 3). Females in the age group 25–44 years had the highest rate of visits to obstetricians and gynecologists (94.5 visits per 100 females in 1989–90), followed by females aged 15–24 years (71.6 visits per 100). Females under age 15 were the least likely to visit this specialty, with only 1.3 visits per 100 females.

White females made 84.7 percent of all female visits to obstetricians and gynecologists during 1989–90, while black females accounted for 8.6 percent, and Asian/Pacific Islanders accounted for 3 percent. The visit rate for white females was higher (47.7 visits per 100) than the corresponding rate for black females (31.8 visits per 100). Visit rates for white females did not appear to change significantly during the years

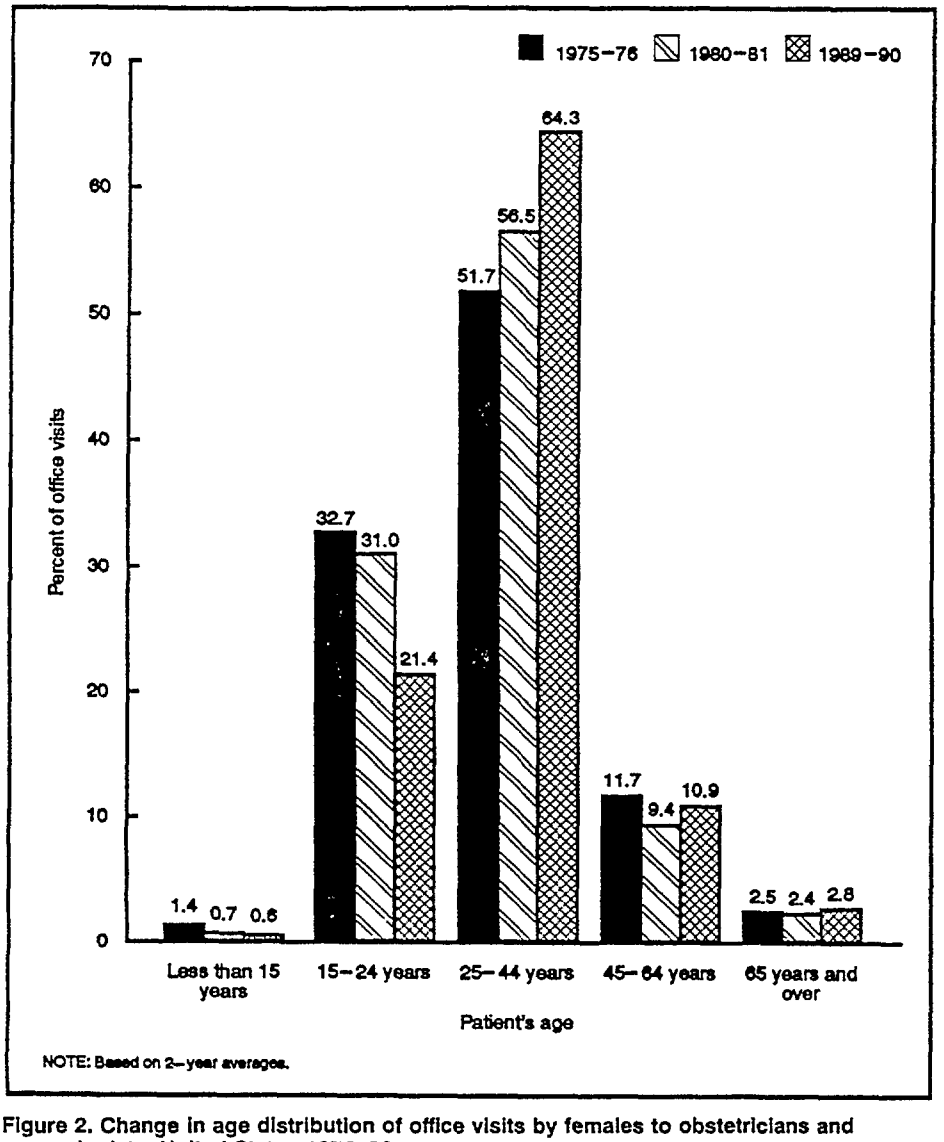


Figure 2. Change in age distribution of office visits by females to obstetricians and gynecologists: United States 1975–90

analyzed. Moreover, no significant differences were found in visit rates for black females in 1975–76 compared with 1989–90, although a somewhat lower visit rate was noted in 1980–81.

Physician practice characteristics

Obstetrics and gynecology was the fourth most visited physician specialty after general and family practice, internal medicine, and pediatrics, and accounted for an average of 8.6 percent of all office visits for 1989 and 1990 (table 2). This percentage did not differ appreciably from figures reported in 1975 and 1980–81.

Of the average number of office visits made by women during 1989 and 1990 to all specialties, about 14.1 percent were made to obstetricians and gynecologists. However, among women aged 15–44 years, this share was 29.1 percent (figure 4). General and family practice physicians received 30.4 percent of the total for this age group, with other specialties receiving significantly smaller percentages.

Visit characteristics

More than two-thirds of all visits made by females to obstetricians and gynecologists (69.6 percent) were made by patients who had seen the physician previously and were returning for care of their condition. This reflects, to some extent, the ongoing character of prenatal care. Only 4.7 percent of visits were the result of a referral from another physician (table 3).

Private insurance (including commercial insurance and Blue Cross/Blue Shield) was listed as an expected source of payment at nearly half (48.1 percent) of all visits (table 4). Self-payment was the expected source of payment at 26.7 percent of visits, followed by HMO/prepaid plan (14.4 percent). It should be noted that, physicians were allowed to list more than one expected source of payment per visit.

The patient's principal reason for visit is shown in tables 5 and 6. Data in table 5 are categorized according to the eight reason for visit modules, or groups of reasons, outlined in *A Reason for Visit Classification for Ambulatory Care* (RVC) (10). The 15 most frequently mentioned principal reasons for visiting obstetricians and gynecologists are listed in table 6.

The principal reason for visit (item 9a on the Patient Record) is the patient's most important complaint(s), symptom(s), or other reason(s) for this visit expressed in the patient's own words. Up to three reasons per visit may be coded based upon the classification system found in the RVC.

More than half (59.6 percent) of all visits by females to obstetricians and gynecologists were classified within the diagnostic, screening, and preventive module, reflecting the large percentage of visits (32.8 percent) made for the specific reason of routine prenatal examination. Visits made because of a symptomatic problem or complaint accounted for 23.7 percent of the total; symptomatic problems or complaints were most often related to the genitourinary system.

Diagnostic services ordered or provided at the visit are shown in table 7. The vast majority of visits included some type of diagnostic service (94.4 percent), and 36.5 percent of visits included four or more diagnostic services, a significantly higher percentage than

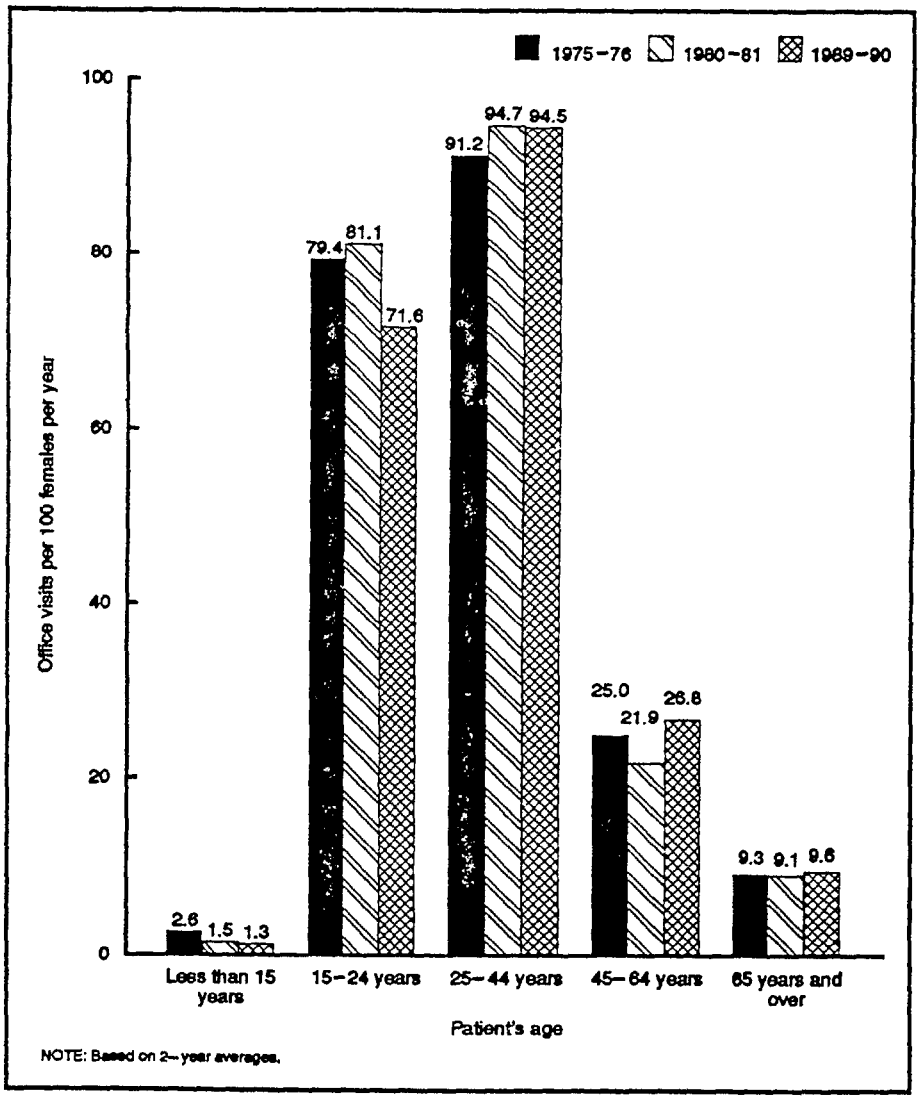


Figure 3. Annual visit rates for females to obstetricians and gynecologists by patient's age: United States, 1975–90

that found at visits to all other specialties.

The most frequently performed service was a blood pressure check (72.7 percent of visits), followed by pelvic exam (58.5 percent), urinalysis (45.4 percent), pap test (34.7 percent), and breast palpation (32.1 percent).

Data on principal diagnoses rendered at visits to obstetricians and gynecologists are shown in table 8. Item 10a of the Patient Record requests that the physician record the principal diagnosis associated with the patient's most important reason for visit. Diagnoses are classified and coded according to the *International Classification of Diseases, 9th Revision Clinical Modification,* (ICD-9-CM) (12). They are shown according to major ICD-9 coding classes in table 8 and by the 15 most frequently mentioned principal diagnoses in table 9.

Paralleling the principal reason for visit data, the majority (55.6 percent) of visits reported a principal diagnosis in the supplementary classification (ICD-9-CM codes V01-V82), which includes all diagnoses that are not related to illness or injury. About 22.2 percent of visits reported diagnoses classified as diseases of the genitourinary tract (ICD-9-CM codes 580–629).

Normal pregnancy was the most frequently reported principal diagnosis, listed at 31.3 percent of visits. The most frequently reported morbidity-related principal diagnosis was menopausal and postmenopausal disorders, listed at 3.6 percent of visits. (Morbidity-related diagnoses are those referable to illness or injury.)

Therapeutic services ordered or provided by the physician are shown in table 10. Less than half of the visits (47.3 percent) included some form of counseling or advice by the physician; breast self-exam was the specific type of counseling reported most frequently, occurring at 10.6 percent of visits. However, 35.1 percent of visits included a reference to "other" counseling, which may include various forms of medical, social, and family counseling. More detailed data in this area have been collected in the 1991 NAMCS.

Less than half (44.0 percent) of visits to obstetricians and gynecologists included a mention of medication therapy, compared with 61.7 percent of visits to all other specialties, again reflecting the predominance of visits made for reasons other than illness and injury. 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, including both prescription and nonprescription preparations, immunizing agents, and desensitizing agents. An earlier report is available that describes the method and instruments used in collecting and processing NAMCS drug data (13).

The number of drug mentions by therapeutic classification is shown in table 11. The classification system used here was adapted from the therapeutic categories found in the National Drug Code Directory, 1985 (14). 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.

"Drug mentions" refer to the total number of medications listed in item 15 of the Patient Record. Physicians may record multiple medications per visit, so that the total

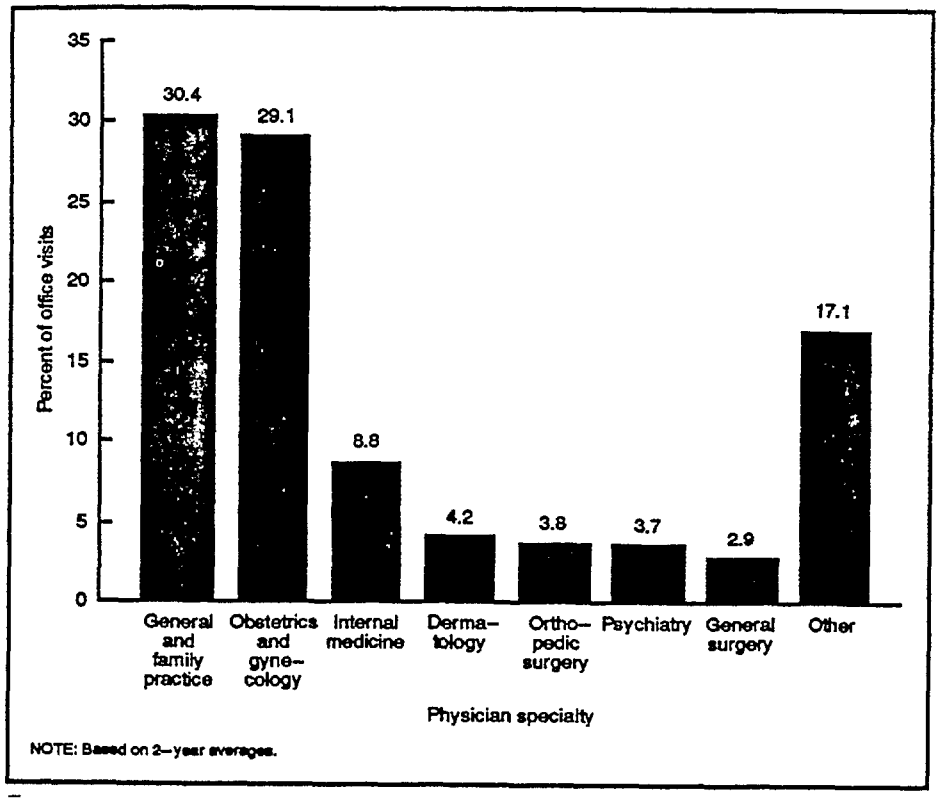


Figure 4. Percent distribution of office visits by females 15–44 years, according to physician specialty: United States, 1989–90.

number of drug mentions may exceed the total number of visits. This was not the case for visits to obstetricians and gynecologists, however, where only about 1.3 drugs were prescribed per drug visit, and where just 6 mentions of medication were made for every 10 visits in general. "Drug visit" refers to visits with at least one mention of medication ordered or provided by the physician.

Of the average yearly estimate of 34.7 million drug mentions at visits to obstetricians and gynecologists for 1989 and 1990, the largest percentage of mentions (34.8 percent) was for hormones and agents affecting hormonal mechanisms. This was followed by metabolic and nutrient agents, which accounted for 23.5 percent of all drug mentions.

The 20 most frequently used generic substances occurring in drug mentions by obstetricians and gynecologists are listed in table 12. The most frequently mentioned generic substance was estradiol, listed as an ingredient in 15.5 percent of drug mentions. (It is important to note that the rank ordering presented in this and other tables in this report may not always be reliable because near estimates may not be significantly different from each other due to sampling variability.) Among the top 20 generic substances were 5 hormonal agents, and 10 metabolic and nutrient agents. The 10 most frequently mentioned medications according to the entry name of the drug, that is, the actual reference made to it by the physician on the Patient Record, whether by brand name, generic name, or therapeutic effect, is shown in table 13.

Data on disposition of visit are displayed in table 14. Most visits to obstetricians and gynecologists by females included an instruction to return at a specified time (76.7 percent).

Duration of visit is shown in table 15. More than half of all visits by females (69.3 percent) lasted 15 minutes or less. Average duration of physician-patient contact (excluding visits of zero minutes duration in which no direct face-to-face contact between physician and patient occurred) was 15.5 minutes for visits to obstetricians and gynecologists.

Selected visit characteristics for obstetricians and gynecologists as compared with all other specialties are shown in tables 16 and 17. Visits to obstetricians and gynecologists were more likely to be made by female patients and by patients aged 15–44 years than were visits to all other specialties (table 16). Other areas of difference involve the greater likelihood of private insurance as an expected source of payment at visits to this specialty, the predominance of diagnostic, screening, and preventive reasons for visit as opposed to symptomatic complaints, the greater likelihood of nonillness and noninjury diagnoses, the higher number as well as the type of diagnostic services performed, the greater likelihood of counseling for breast self-examination, the lower percentage of visits at which medication therapy was mentioned, and the higher proportion of visits at which a return visit was scheduled.

Data in table 17 represent the distribution of visits by physician specialty for 10 reasons for visit and 10 diagnoses selected from those reported most often at visits to obstetricians and gynecologists. Obstetricians and gynecologists received 79.1 percent of all visits for routine prenatal examination compared with 19.1 percent for general and family practitioners. On the other hand, general and family practitioners received about half (50.1 percent) of all visits made for the reason of having a pap smear, which is not significantly different than the proportion made to obstetricians and gynecologists (41.3 percent).

For the 10 diagnoses listed in table 17, obstetricians and gynecologists received a significantly greater proportion of visits for each diagnosis listed, with two exceptions—visits having a diagnosis of candidiasis and visits with a diagnosis of inflammatory disease of the cervix, vagina, and vulva. General

and family practitioners received a substantial proportion of visits with these diagnoses (35.9 percent and 40.6 percent, respectively).

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Table 1. Annual number, percent distribution, and rate of office visits by females to obstetricians and gynecologists, by patient's age and race, averaged over a 2-year period: United States, 1989–90

Patient characteristic	Number of visits in thousands	Percent distribution	Visit rate per 100 females[1]
All visits	59,475	100.0	47.2
Age			
Less than 15 years	349	0.6	1.3
15–24 years	12,749	21.4	71.6
25–44 years	38,247	64.3	94.5
45–64 years	6,476	10.9	26.8
65 years and over	1,655	2.8	9.6
Race			
White	50,403	84.7	47.7
Less than 15 years	264	0.4	1.2
15–24 years	10,485	17.6	72.8
25–44 years	32,349	54.4	95.9
45–64 years	5,783	9.7	27.8
65 years and over	1,523	2.6	9.8
Black	5,113	8.6	31.8
Less than 15 years	*64	*0.1	*1.5
15–24 years	1,496	2.5	55.6
25–44 years	3,173	5.3	62.0
45–64 years	324	0.5	12.3
65 years and over	*54	*0.1	*3.7
Asian/Pacific Islander	1,763	3.0	.
American Indian/Alaskan Native	152	0.3	.
Unspecified	2,046	3.4	.

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

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]47.2
Ophthalmology	41,302	5.9	16.9
Orthopedic surgery	34,033	4.9	13.9
Dermatology	25,165	3.6	10.3
General surgery	23,891	3.4	9.8
Psychiatry	18,790	2.7	7.7
Otolaryngology	16,958	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]Rate based on female visits and female population. Females made 99.4 percent of all visits to this specialty during 1989–90, for an average annual estimate of 59,475,000 visits.

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

Visit characteristic	Number of visits in thousands	Percent distribution
All visits	59,475	100.0
Patient's referral status		
Patient was referred to this visit by another physician	2,818	4.7
Patient was not referred to this visit by another physician	56,657	95.3
Patient's prior-visit status		
New patient	7,725	13.0
Old patient, new problem	10,352	17.4
Old patient, old problem	41,398	69.6

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

Expected source of payment[1]	Number of visits in thousands	Percent distribution
All visits	59,475	100.0
Commercial insurance	20,357	34.2
Self-pay	15,852	26.7
HMO/Prepaid plan	8,568	14.4
Blue Cross/Blue Shield	8,254	13.9
Medicaid	4,579	7.7
No charge	1,963	3.3
Medicare	1,411	2.4
Other	1,439	2.4
Unknown	2,423	4.1

[1]Number may not add to totals because more than one source of payment may be coded for each visit.

Table 5. Annual number and percent distribution of office visits by females to obstetricians and gynecologists 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	59,475	100.0
Symptom module: .S001–S999	14,125	23.7
Symptoms referable to the genitourinary system .S640–S829	9,741	16.4
Disease module .D001–D999	1,645	2.8
Diagnostic, screening, and preventive module .X100–X599	35,473	59.6
Treatment module .T100–T899	4,236	7.1
Injury and adverse effects module J001–J999	*57	*0.1
Test results module .R100–R700	1,884	3.2
Administrative module .A100–A140	*38	*0.1
Other[2] .U990–U999	2,019	3.4

[1]Based on "A Reason for Visit Classification for Ambulatory Care," (RVC), Vital Health Stat 2(78), Feb. 1979.
[2]Includes blanks, problems, and complaints not elsewhere classified, entries of "none," and illegible entries.

Table 6. Annual number and percent distribution of office visits by females to obstetricians and gynecologists by the 15 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	59,475	100.0
Routine prenatal examination .X205	19,530	32.8
General medical examination .X100	6,971	11.7
Postoperative visit .T205	2,363	4.0
Postpartum examination .X215	2,051	3 4
Pap smear .X365	1,749	2.9
For cytology findings .R300	1,573	2.6
Gynecological examination .X225	1,990	3.3
Other vaginal symptoms .S765	1,264	2.1
Family planning, not otherwise specified .X500	1,031	1.7
Absence of menstruation .S730	843	1.4
Stomach pain, cramps, and spasms .S545	817	1.4
Uterine and vaginal bleeding .S755	791	1.3
Problems of pregnancy and the postpartum period .S790	735	1.2
Menopausal symptoms .S750	716	1.2
Pelvic symptoms .S775	714	1.2
All other reasons	16,342	27.5

[1]Based on "A Reason for Visit Classification for Ambulatory Care," (RVC), Vital Health Stat 2(78), Feb. 1979.

Table 7. Annual number and percent distribution of office visits by females to obstetricians and gynecologists by diagnostic service, averaged over a 2-year period: United States, 1989–90

Diagnostic and screening service	*Number of visits in thousands*	*Percent distribution*
All visits	59,475	100.0
Number of diagnostic services performed at visit		
0	3,326	5.6
1	10,157	17.1
2	13,203	22.2
3	11,029	18.5
4	7,431	12.5
5	5,296	8.9
More than 5	9,033	15.1
Diagnostic and screening services performed at visit[1]		
Blood pressure check	43,234	72.7
Pelvic exam	34,796	58.5
Urinalysis	27,060	45.4
Pap test	20,642	34.7
Breast palpation	19,114	32.1
Other blood test	8,853	14.9
Digital-rectal exam	7,660	12.9
Mammogram	3,932	6.6
Cholesterol measure	2,268	3.8
Stool blood exam	2,223	3.7
Oral glucose tolerance	939	1.6
HIV serology[2]	273	0.5
Chest x ray	207	0.3
Visual acuity	190	0.3
Proctoscopy/ sigmoidoscopy	*71	*0.1
Other diagnostic service	17,366	29.2

[1]Number may not add to totals because more than one diagnostic service may be performed at each visit.
[2]HIV is human immunodeficiency virus.

Table 8. Annual number and percent distribution of office visits by females to obstetricians and gynecologists by principal diagnosis, 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	59,475	100.0
Infectious and parasitic diseases .001–139	1,864	3.1
Neoplasm .140–239	1,161	2.0
Endocrine, nutritional, and metabolic diseases and immunity disorders .240–279	732	1.2
Mental disorders .290–319	171	0.3
Diseases of the nervous system and sense organs .320–389	174	0.3
Diseases of the circulatory system .390–459	336	0.6
Diseases of the respiratory system .460–519	526	0.9
Diseases of the digestive system .520–579	342	0.6
Diseases of the genitourinary system .580–629	13,180	22.2
Diseases of the skin and subcutaneous tissue .680–709	315	0.5
Diseases of the musculoskeletal system and connective tissue .710–739	150	0.3
Symptoms, signs, and ill-defined conditions .780–799	1,478	2.5
Injury and poisoning .800–999	188	0.3
Supplementary classification .V01–V82	33,060	55.6
All other diagnoses[2]	3,764	6.3
Unknown[3]	2,036	3.4

[1]Based on the International Classification of Diseases, 9th Revision, Clinical Modification (ICD–9–CM).
[2]Includes diseases of the blood and blood-forming organs (280–289); complications of pregnancy, childbirth, and the puerperium (630–676); congenital anomalies (740–759); and certain conditions originating in the perinatal period (760–799).
[3]Includes blank diagnoses, uncodable diagnoses, and illegible diagnoses.

Table 9. Annual number and percent distribution of office visits by females to obstetricians and gynecologists by the 15 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	59,475	100.0
Normal pregnancy .V22	18,701	31.3
General medical examination .V70	4,399	7.4
Menopausal and postmenopausal disorders .627	2,126	3.6
Disorders of menstruation and other abnormalities .626	2,062	3.4
Contraceptive management .V25	2,015	3.4
Special investigations and examinations .V72	1,764	2.9
Postpartum care and examination .V24	1,688	2.8
Inflammatory disease of cervix, vagina, and vulva .616	1,643	2.7
Pain and other symptoms associated with female genital organs .625	1,416	2.4
Noninflammatory disorders of cervix .622	1,109	1.9
Other postsurgical states .V45	930	1.6
Candidiasis .112	814	1.4
Female infertility .628	797	1.3
Observation and evaluation for suspected conditions .V71	747	1.2
Nonspecific abnormal histological and immunological findings .795	700	1.2
All other diagnoses	18,570	31.5

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

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

Therapeutic service ordered or provided[1]	Number of visits in thousands	Percent distribution
All visits	59,475	100.0
New or continuing medication	26,148	44.0
Counseling/advice		
None	31,351	52.7
Weight reduction	2,876	4.8
Cholesterol reduction	1,014	1.7
Smoking cessation	1,137	1.9
HIV transmission	*134	*0.2
Breast self-exam	6,294	10.6
Other	20,900	35.1
Other non-medication therapy		
None	54,587	91.8
Psychotherapy	201	0.3
Ambulatory surgery	821	1.4
Physiotherapy	*114	*0.2
Other	3,784	6.4

[1]Numbers may not add to totals because more than one type of therapy may be ordered or provided at each visit.

Table 11. Annual number and percent distribution of drug mentions at office visits by females to obstetricians and gynecologists 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	34,738	100.0
Hormones and agents affecting hormonal mechanisms	12,088	34.8
Contraceptive agents	6,243	18.0
Estrogens and progestins	4,709	13.6
Metabolic and nutrient agents	8,167	23.5
Vitamins, minerals	7,946	22.9
Antimicrobial	4,334	12.5
Tetracyclines	1,063	3.1
Penicillins	761	2.2
Skin, mucous membrane	2,989	8.6
Dermatologics	2,736	7.9
Pain relief	1,934	5.6
Antiarthritics	1,148	3.3
Hematologic	1,154	3.3
Agents used to treat deficiency anemias	1,127	3.2
Respiratory tract	752	2.2
Cardiovascular-renal	437	1.3
Psychopharmacologic	437	1.3
Gastrointestinal	312	0.9
Immunologic	123	0.4
Neurologic	*65	0.2
Ophthalmic	*40	*0.1
Other and unclassified[2]	1,908	5.5

[1]Therapeutic classification is based on the standard drug classification used in the National Drug Code Directory, 1985 Edition.
[2]Includes anesthetics, oncolytics, otological drugs, antiparasitic agents, and other unclassified and miscellaneous agents.

Table 12. Annual number, percent distribution, and therapeutic classification of drug mentions at office visits by females to obstetricians and gynecologists 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	34,738	100.0	...
Estradiol	5,370	15.5	Contraceptive agents
Ergocalciferol	5,287	15.2	Vitamins, minerals
Vitamin A	5,272	15.2	Vitamins, minerals
Riboflavin	4,660	13.4	Vitamins, minerals
Pyridoxine	4,642	13.4	Vitamins, minerals
Thiamine	4,031	11.6	Vitamins, minerals
Norethindrone	3,157	9.1	Contraceptive agents
Iron preparations	2,997	8.6	Vitamins, minerals
Estrogens	2,445	7.0	Estrogens and progestins
Medroxyprogesterone	1,673	4.8	Estrogens and progestins
Calcium ion	1,644	4.7	Vitamins, minerals
Thimerosal	1,498	4.3	Vitamins, minerals
Vitamin C	1,080	3.1	Vitamins, minerals
Norgestrel	1,038	3.0	Contraceptive agents
Vitamin E	978	2.8	Vitamins, minerals
Terconazole	665	1.9	Dermatologics
Miconazole	647	1.9	Dermatologics
Doxycycline	636	1.8	Tetracyclines
Metronidazole	631	1.8	Miscellaneous antibacterial agents
Naproxen	599	1.7	Antiarthritics

[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. In cases where a generic substance had more than one therapeutic classification, it was listed in the classification for which it was most frequently used.

Table 13. Annual number, percent distribution, and therapeutic classification of the 10 drugs most frequently prescribed at visits by females to obstetricians and gynecologists by entry name of drug, averaged over a 2-year period: United States, 1989–90

Entry name of drug[1]	Number of drug mentions in thousands	Percent distribution	Therapeutic classification[2]
Total mentions	34,738	100.0	...
Premarin	2,296	6.6	Estrogens and progestins
Prenatal vitamins	2,085	5.9	Vitamins, minerals
Ortho-novum	2,053	5.9	Contraceptive agents
Prenatal formula (vitamins)	1,796	5.2	Vitamins, minerals
Materna	1,644	4.7	Vitamins, minerals
Provera	1,563	4.5	Estrogens and progestins
Contraceptive agent	725	2.1	Contraceptive agents
Terazol	665	1.9	Dermatologics
Natalins	588	1.7	Vitamins, minerals
Anaprox	554	1.6	Antiarthritics

[1]The trade or generic name used by the physician on the prescription or other medical records.
[2]Therapeutic classification is based on the standard drug classification used in the National Drug Code Directory, 1982 Edition. In cases where a drug had more than one therapeutic classification, it was listed in the classification for which it was most frequently used.

Table 14. Annual number and percent distribution of office visits by females to obstetricians and gynecologists by disposition of visit, averaged over a 2-year period: United States, 1989–90

Disposition of visit[1]	Number of visits in thousands	Percent distribution
All visits	59,475	100.0
No followup planned	2,808	4.7
Return at specified time	45,641	76.7
Return if needed	9,307	15.6
Telephone followup planned	1,479	2.5
Refer to other physician	1,463	2.5
Return to referring physician	306	0.5
Admit to hospital	766	1.3
Other disposition	1,063	1.8

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

Table 15. Annual number and percent distribution of office visits by females to obstetricians and gynecologists by duration of visit, averaged over a 2-year period: United States, 1989–90

Duration of visit	Number of visits in thousands	Percent distribution
All visits	59,475	100.0
0 minutes[1]	399	0.7
1–5 minutes	6,563	11.0
6–10 minutes	16,269	27.4
11–15 minutes	17,962	30.2
16–30 minutes	15,599	26.2
31–60 minutes	2,627	4.4
More than 60 minutes	*57	*0.1

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

Table 16. Annual number and percent of office visits to obstetricians and gynecologists and to all other physician specialties by selected visit characteristics, averaged over a 2-year period: United States, 1989–90

Selected visit characteristic	Obstetricians and gynecologists	All other specialties
	Number of visits in thousands	
All visits	59,812	638,841
	Percent	
Female patients	99.4	56.8
Patients 15–44 years of age	85.5	32.9
Patients returning for care of previously treated condition	69.5	60.3
Private insurance as expected pay source (includes commercial insurance and Blue Cross/ Blue Shield)	47.9	33.2
Principal reason for visit in symptom module	24.0	60.0
Principal reason for visit in diagnostic, screening, and preventive module	59.4	11.6
Principal reason for visit of routine prenatal exam	32.7	0.8
Principal diagnosis in diseases of the genitourinary system	22.1	4.2
Principal diagnosis in supplementary classification	55.3	11.3
Principal diagnosis of normal pregnancy	31.3	0.8
Three or more diagnostic services performed	54.9	10.4
Blood pressure check	72.6	33.4
Pelvic exam	58.2	2.6
Urinalysis	45.3	9.7
Pap test	34.5	2.0
Breast palpation	32.0	3.1
Mammogram	6.6	1.1
Counseling for breast self-exam	10.5	1.5
Drug visits	44.1	61.7
Return visit scheduled	76.6	60.3

Table 17. Annual number and percent distribution of office visits by physician specialty according to selected principal reasons for visit and principal diagnoses, averaged over a 2-year period: United States, 1989–90

Principal reason for visit and principal diagnosis	Number of visits in thousands	Total	Obstetrics and gynecology	General and family practice	All other specialties
			Percent distribution		
All visits	422,324	100.0	14.1	30.0	55.9
Principal reason for visit and RVC code[1]					
Routine prenatal examination .X205	24,663	100.0	79.1	19.1	1.8
Stomach pains, cramps, and spasms .S545	8,311	100.0	9.8	38.1	52.1
Pap smear .X365	4,233	100.0	41.3	50.1	8.6
Other vaginal symptoms .S765	2,689	100.0	47.0	37.0	16.0
Postpartum examination .X215	2,315	100.0	88.6	*9.7	*1.7
For cytology findings .R300	2,209	100.0	71.2	17.5	*11.3
Gynecological examination .X225	2,008	100.0	74.2	13.6	*12.2
Family planning, not otherwise specified .X500	1,362	100.0	75.7	*16.0	*8.3
Uterine and vaginal bleeding .S755	1,333	100.0	59.3	27.6	*13.1
Absence of menstruation .S730	1,048	100.0	80.4	*14.5	*5.1
Principal diagnosis and ICD-9-CM code[2]					
Normal pregnancy .V22	23,570	100.0	79.3	19.1	1.6
Menopausal and postmenopausal disorders .627	3,719	100.0	57.2	30.1	12.7
Inflammatory disease of cervix, vagina, and vulva .616	3,554	100.0	46.2	40.6	13.2
Disorders of menstruation and other abnormalities .626	3,012	100.0	68.5	24.4	*7.1
Contraceptive management .V25	2,816	100.0	71.6	19.8	*8.6
Pain and other symptoms associated with female genital organs .625	2,194	100.0	64.5	16.5	19.0
Postpartum care and examination .V24	2,022	100.0	83.5	14.2	*2.3
Candidiasis .112	2,017	100.0	39.6	35.9	24.5
Noninflammatory disorders of cervix .622	1,519	100.0	73.0	*13.3	*13.7
Female infertility .628	987	100.0	80.7	*9.8	*9.5

[1]Based on "A Reason for Visit Classification for Ambulatory Care," (RVC), Vital Health Stat 2(78), Feb. 1979.
[2]Based on the International Classification of Diseases, 9th Revision, Clinical Modification, ICD-9-CM.

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

Source of data and sample design

The information in this report is based on data collected through 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 samples of primary sampling units (PSU's), physician practices within PSU's, and patient visits within physician practices. Physicians were stratified into 15 specialty groups during the second stage of the survey design. Detailed descriptions of the 1989 and 1990 NAMCS survey design have been published (5,15,16), and the reader is urged to consult these sources for further technical information.

The 1989 NAMCS physician sample included 2,535 physicians who were selected from master files maintained by the American Medical Association and the American Osteopathic Association; 164 of these were obstetricians and gynecologists. Physicians were screened at the time of the survey to ensure that they were eligible for survey participation, based upon a set of design criteria. Of those screened, 608 physicians, including 31 obstetricians and gynecologists, were ruled ineligible (out-of-scope) due to reasons such as being retired or employed primarily in teaching, research, or administration. Of the remaining 1,927 physicians, 74 percent responded to the survey, including 133 obstetricians and gynecologists, or 71 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 Patient Records, including 2,504 forms completed by obstetricians and gynecologists.

For 1990, a sample of 3,063 non-Federal, office-based physicians was selected from master files maintained by the American Medical Association and American Osteopathic Association. Of this number, 197 were obstetricians and gynecologists. The overall response rate for the 2,269 in-scope physicians was 74 percent; the rate was 73 percent for the 157 in-scope obstetricians and gynecologists. Responding physicians completed 43,469 Patient Records, including 2,969 forms from obstetricians and gynecologists.

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 collecting the survey data. 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.

The 1989 and 1990 NAMCS were identical in terms of survey instruments, definitions, and procedures. The resulting two 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. The result is then expressed as a percent of the estimate. Relative standard errors for estimated numbers of total office visits to obstetricians and gynecologists in 1989–90 are shown in table I, and relative standard errors for estimated numbers of drug mentions are shown in table II. Readers wishing to utilize these tables should keep in mind that the numbers refer to combined years of data rather than average annual estimates. Standard errors for

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

Estimated numbers of office visits in thousands	Physician speciality		
	All[1]	Obstetrics and gynecology[2]	General and family practice[3]
	Relative standard error in percent		
100	72.7	49.2	61.4
200	51.5	35.3	43.7
500	32.6	23.3	28.1
1,000	23.2	17.6	20.5
2,000	16.5	13.9	15.2
5,000	10.7	11.1	11.0
10,000	7.9	9.9	9.1
20,000	6.0	9.3	6.0
50,000	4.5	9.0	7.3
100,000	3.9	8.8	7.0
200,000	3.5	8.8	6.9
500,000	3.9	8.7	6.8
1,000,000	3.2	8.7	6.8
1,400,000	3.2	8.7	6.8

[1]For all specialties, the smallest reliable estimate is 593,000 visits. Estimates below this figure have a relative standard error greater than 30 percent.
[2]For obstetrics and gynecology, the smallest reliable estimate is 285,000 visits.
[3]For general and family practice, the smallest reliable estimate is 437,000 visits.

Example of use of table: An aggregate estimate of 1 million visits to obstetricians and gynecologists has a relative standard error of 17.6 percent or a standard error of 176,000 visits (17.6 percent of 1 million).

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

Estimated number of drug mentions in thousands[1]	Relative standard error in percent
100	36.1
200	27.0
500	19.7
1,000	16.6
2,000	14.7
5,000	13.5
10,000	13.1
20,000	12.9
50,000	12.8
100,000	12.7
1,000,000	12.7

[1]The smallest reliable estimate is 155,000 mentions. 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 13.1 percent or a standard error of 1,310,000 mentions (13.1 percent of 10 million).

estimated percents of visits are shown in table III.

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.

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

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.

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

Adjustments for non-response

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. No comment about 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.

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— An office is the space physicians identify as a location for their ambulatory practice. Offices customarily include consultation,

Table III. Standard errors for percents of estimated numbers of office visits to obstetricians and gynecologists: 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					
100	4.8	10.6	14.5	19.4	22.2	24.2
200	3 4	7.5	10.3	13.7	15.7	17.1
500	2.2	4.7	6 5	8.7	9.9	10.8
1,000	1.5	3.3	4.6	6.1	7.0	7.7
2 000	1.1	2.4	3.3	4.3	5.0	5.4
5,000	0.7	1.5	2.1	2.7	3.1	3.4
10,000	0.5	1.1	1.5	1.9	2.2	2.4
20,000	0.3	0.8	1.0	1.4	1.6	1.7
50,000	0.2	0.5	0.7	0.9	1.0	1.9
100,000	0.2	0.3	0.5	0.6	0.7	0.8
200,000	0.1	0.2	0.3	0.4	0.5	0.5
500,000	0.1	0.2	0.2	0.3	0.3	0.3
1,000,000	0.1	0.1	0.1	0.2	0.2	0.2

Example of use of table: An estimate of 20 percent based on an aggregate estimate of 5 million visits has a standard error of 2.7 percent or a relative standard error of 13.5 percent (2.7 percent divided by 20 percent).

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	
	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 disease, 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 disease, urological surgery, dermatology, neurology, ophthalmology, otolaryngology, obstetrics and gynecology, pediatrics	0.01603845	11.42009384
All other	0.01877082	70.35063675

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.

Obstetrics and gynecology—The physician practice specialty of obstetrics and gynecology includes physicians who report a specialty to the American Medical Association in any of the following areas—gynecology, gynecological oncology, maternal and fetal medicine, obstetrics, obstetrics and gynecology, and reproductive endocrinology.

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Advance Data

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

Teenage Tobacco Use:

Data Estimates From the Teenage Attitudes and Practices Survey, United States, 1989

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Introduction

Cigarette smoking has been identified as one of the leading preventable causes of disability and premature death in the United States (1). The relationship between smoking and disease has made the reduction in smoking prevalence one of the major public health goals of the Nation. The United States Public Health Service has set a goal that smoking prevalence in the United States be reduced to 15 percent by the year 2000 (2). Achievement of this goal will require a major reduction in the uptake of smoking by young Americans. Rates for adolescent smoking prevalence differ among various surveys (1); however, prevalence as high as 36 percent has been reported (3). Uptake of smoking by adolescents is one of the primary barriers to reducing smoking prevalence. Teenage smoking behavior has remained relatively steady throughout the 1980's, although smoking among the adult population has decreased (1).

In addition, use of smokeless tobacco products, particularly chewing tobacco and snuff, increased substantially during the 1970's and 1980's (4). National estimates indicate that at least 10 million Americans used some form of smokeless tobacco during 1991 (5), with use increasing especially among male adolescents and young male adults (1). The increased use and appeal of these products assume major public health importance because the evidence reveals that smokeless tobacco can cause oral cancer and other oral conditions and can lead to nicotine addiction and dependence. In 1986, two-thirds of men who had ever used smokeless tobacco reported having started before age 21 (1).

Chronic use of tobacco is not an all-or-none behavior. The level of use changes over time. The different levels of use can be described as an uptake continuum. Determining where adolescents are on this continuum is important in planning preventive interventions. The 1989 Teenage Attitudes and Practices Survey (TAPS), a targeted-population study from the National Health Interview Survey, was undertaken by the National Center for Health Statistics, the Office on Smoking and Health, the National Cancer Institute, and the American Cancer Society to provide data for in-depth analysis of teenage smoking behavior and to describe the uptake continuum for sub-populations of adolescents.

Methods

The 1989 TAPS was designed with the intention of providing regular surveillance of teenage smoking behavior and attitudes beginning with the collection of baseline data in 1989 and conducting periodic cross-sectional and/or longitudinal surveys every 3–4 years. The TAPS sample included all 12–18-year-olds living in households contacted and interviewed in the last two quarters of the 1988 and the first two quarters of the 1989 National Health Interview Survey. The TAPS obtained information on prevalence and for classification by smoking

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status, knowledge of smoking risks, attitudes about smoking, and correlates of smoking uptake—such as attitudes about school, risk-taking behavior, and peer smoking practices.

The primary method of data collection for the TAPS was computer assisted-telephone interviewing (CATI), whereby interviewers conducted a telephone interview by reading questions from a computer screen and recording responses electronically. Teenagers in the TAPS who were not available by telephone were sent a mail questionnaire. Overall, 9,965 interviews were completed either by telephone or mail with a resulting survey response rate of 82 percent. For a description of the survey design, see Allen, Moss, Botman, et al. (6).

This report presents frequencies and/or percent distributions for virtually all the data items from the TAPS questionnaire. It is intended to provide a convenient source of comprehensive data related to the use of tobacco products by adolescents and to encourage interested readers to undertake further analysis of the TAPS data. For other reports on the TAPS survey, see references 7–10.

Estimated percentages for the United States population of noninstitutionalized youths 12–18 years old are presented in this report by age, sex, race, ethnicity, and adolescent smoking status. Generally, except for knowledge questions that accept "don't know" as an appropriate response, "don't know" and other unacceptable responses have been excluded from the denominator in the calculation of the percent estimates. When possible, the actual question wording is shown along with response categories in the tables. However, many of the questions have been paraphrased or combined.

Selected findings

Table 1 shows respondents' self-perception of peer attitudes regarding various health-risk behaviors. For most behaviors, current teenage smokers reported that their peers cared less about behaviors that affected their health than did teenagers who had never smoked. Half of the teenagers who had never smoked cared "a lot" about staying away from drugs, compared with one in five teenagers that currently smoked. Of those who never smoked tobacco, 57 percent cared a lot about not using marijuana, compared with 23 percent of current tobacco smokers. Current smokers cared more about keeping their weight down than did those who had never smoked: 79 percent cared a lot or cared somewhat, compared with 73 percent of teenagers who had never smoked. This perception was consistent with current smokers' response to the question "Do you believe smoking helps people keep their weight down?" (table 7); 30 percent of current smokers believed this to be true, and only 13 percent of those who had never smoked reported believing this. The functional utility of smoking was perceived to be much greater by current smokers than by those who had never smoked—current smokers also perceived their peers as caring more about controlling their weight than teenagers who had never smoked (table 1).

Among all current teenage smokers in 1989, brand preference was overwhelmingly Marlboro: 68 percent of those who usually bought their own cigarettes bought that brand. The most striking difference in brand preference among sociodemographic subgroups is shown in table 2 for race. White teenagers clearly preferred Marlboros (70 percent, versus 9 percent of black teenagers). However, black teenagers bought Newports most often (61 percent, compared with 6 percent of white teenagers). Data pertaining to the brand of choice by most adolescent current smokers also indicated a definite increase in the number of adolescents smoking Camels (11).

Regardless of age, sex, race, or ethnicity, adolescent smokers purchased cigarettes more often from small stores, such as convenience stores, than from vending machines or large stores: 69 percent often bought cigarettes from small stores, 6 percent often bought cigarettes from vending machines, and 26 percent often bought cigarettes from large stores.

Of currently smoking teenagers who had ever seriously thought about quitting smoking, 86 percent reported having tried to quit at least once, and 76 percent of those who had ever tried to quit reported having tried to quit in the past 6 months. When asked the question "Do you think you will be smoking 1 year from now?", more than half of all teenage smokers said they would definitely or probably not be smoking in a year. Considering the percentage of teenagers who had tried to quit and failed, especially in the past 6 months, it is somewhat surprising to note that so many current teenage smokers (54 percent) still believed that they would not be smoking in 1 year. These statistics clearly illustrate the naivete of adolescents with regard to the addictiveness of cigarette smoking.

Adolescents who had never smoked a cigarette or never tried or experimented with cigarette smoking reported on all measures of "intention to smoke" that they had no intention to smoke in the future, with very little variation by sociodemographic subgroups. When asked "Do you think you will try a cigarette soon?", adolescents, regardless of age, were consistent in their resolve not to smoke even though their exposure to and the availability of cigarettes is shown by this data to increase with age. More than 97 percent of 16–18-year-olds, 96 percent of 14–15-year-olds, and 94 percent of 12–13-year-olds reported that they would not try a cigarette soon (table 3). At ages 12–13, only 24 percent of teenagers reported having been offered a cigarette, but more than half (54 percent) of the teenagers who had never smoked had been offered a cigarette by the time they were between 16 and 18 years of age. Older teenagers also believed it would be easy for them to get

cigarettes if they wanted some: 89 percent of 16–18-year-olds said it would be easy to get cigarettes if they wanted some, compared with 67 percent of 14–15-year-olds and only 39 percent of 12–13-year-olds.

A strong correlate of smoking uptake among adolescents is the smoking practices of family and peers (1). Of all current teenage smokers, 17 percent reported living with an older sibling who smoked, but only 5 percent of teenagers who had never smoked lived with siblings who smoked (table 4). Teenagers who smoked also reported more frequently having a parent who smoked: 46 percent of current teenage smokers reported that their parents smoked, and 36 percent of teenagers who had never smoked lived with at least one parent who smoked. Current teenage smokers associated more with other smokers than did teenagers who had never smoked. When asked the question "Of your four best male/female friends, how many smoke?", 82 percent of current smokers reported having at least one best male friend, and 78 percent cited at least one best female friend who smoked. In response to this same question, of adolescents who had never smoked, only 20 percent reported having at least one best male friend, and 18 percent reported having at least one best female friend who smoked.

Teenagers who smoked tobacco also reported knowing more people who used chewing tobacco, snuff, marijuana, crack, or cocaine; drank alcohol; and had had sex than did teenagers who had never smoked. In addition, at least half of all current smokers said that most or all of the people they knew who were their age smoked cigarettes, drank alcohol, got drunk at least once a month, or had had sex.

School performance and attitudes about school were also strong correlates of smoking uptake among adolescents. Again, more current smokers than teenagers who had never smoked reported liking school less, doing poorly in school, and perceiving what they learned in school as less useful to them later in life. Current smokers also missed more time from school in the 2 weeks prior to the interview and reported cutting school more often.

In table 4, a scale to measure depression was adapted for telephone interviewing from a scale originally designed for self-enumeration application (12). Teenagers who currently smoked were tired; had trouble sleeping; were sad or depressed; felt hopeless, tense, or nervous; and worried more often than teenagers who had never smoked.

Adolescents who smoked were more likely to be involved in risky behaviors, another correlate of smoking uptake, than teenagers who have never smoked. Teenage smokers were twice as likely to have been involved in one or more physical fights in the past year and ridden a motorcycle or minibike often or sometimes in the past year. Smokers were almost three times more likely to rarely or never wear seat belts and six times more likely to have ridden in a car driven by someone who had been using drugs or drinking than those teenagers who had never smoked.

Estimates from the TAPS also showed an important difference between teenagers who smoked and those who had never smoked, in terms of social and family functioning. For example:

- Seventy-eight percent of teenagers who had never smoked reported that they strongly disliked being around people who were smoking, and 94 percent preferred to date nonsmokers, but only 19 percent of current smokers strongly disliked being around others who were smoking, and 51 percent preferred to date nonsmokers.
- More than 90 percent of teenagers who smoked, compared with 57 percent who have never smoked, had had a steady boyfriend or girlfriend. Almost half of those teenage smokers reported that their boyfriend or girlfriend also smoked, but only 8 percent of teenagers who had never smoked reported having a boyfriend or girlfriend who smoked (table 4).
- Teenage smokers had more spendable income than teenagers who had never smoked. More than 45 percent of current smokers had more than $20.00 a week to spend any way they wanted to, compared with half as many teenagers who had never smoked. Teenage smokers consequently had more money to spend for cigarettes (table 4).
- Teenagers who smoked were likely to go to a friend if they needed help with a serious problem, but teenagers who had never smoked were more likely to confide in a parent (table 4).
- Almost twice as many teenagers who smoked were left alone at home without parental or adult supervision for 10 or more hours a week as were teenagers who had never smoked (table 4).
- More than half the teenagers who smoked attended religious services rarely or never, compared with fewer than a third of teenagers who have never smoked (table 4).

As shown in table 5, prevalence for males who "ever used" and "ever regularly used" smokeless tobacco products, such as chewing tobacco or snuff, increased with age and was more common among white respondents than among black respondents, and more common among non-Hispanics than among Hispanics. When asked the question "How many of the people you know, who are about your age, use chewing tobacco or snuff?", 14 percent of teenagers who had ever used smokeless tobacco reported that most or all of the people they knew used some form of smokeless tobacco, compared with only 3 percent of teenagers who had never used smokeless tobacco (table 6). Twenty-two percent of male teenagers had ever used chewing tobacco or snuff regularly (table 5). More than 29 percent of these teenagers reported that all or most of the

people they knew used smokeless tobacco. More than 95 percent knew that using smokeless tobacco can cause cancer (table 6).

A significant number of teenagers reported having been exposed to information related to the health risks of smoking regardless of adolescent smoking status. More than 80 percent of both current smokers and teenagers who had never smoked said they had heard or seen something in the media recently about the risks of smoking, and more than 70 percent had taken a class or course at school about the health risks of smoking (table 7). More than 80 percent of current smokers and teenagers who had never smoked also believed that almost all doctors are strongly against cigarette smoking. Despite similar knowledge levels about smoking health risks, current smokers were more likely than teenagers who had never smoked to believe that it was safe to smoke for a year or 2, that there was no harm in having an occasional cigarette, and that they could stop smoking anytime they wanted to (table 7).

What teenagers believed to be true about smoking was clearly influenced by the benefits they perceived from smoking. Current adolescent smokers were significantly more likely to believe that cigarette smoking helps people when they are bored, helps people relax, helps reduce stress, helps people feel more comfortable in social situations, and helps keep their weight down. For current teenage smokers, the perceived functional utility of smoking clearly outweighed the risks of smoking.

Discussion

These data highlight several areas of concern. For many adolescents, the perceived benefits of smoking outweighed the risks involved. Adolescent smokers appeared to overestimate their ability to quit smoking. As reported, quit attempts are often met with failure, a symptom of nicotine addiction (13). In addition, the ease of adolescent access to cigarettes, shown in the TAPS and elsewhere (14,15), highlights the need for better control of tobacco sales to minors.

The United States Public Health Service is committed to reducing the initiation of tobacco use among our Nation's youth (2). One national health objective (Objective 3.10) calls for the establishment of tobacco-free environments and the inclusion of tobacco-use prevention in the curricula of all elementary, middle, and secondary schools, preferably as part of quality school health education (2). Another goal (Objective 3.13) is to enact and enforce laws that prohibit the sale of tobacco products to minors in all 50 States and the District of Columbia (2). As of September 1992, 49 States and the District of Columbia had laws in place restricting the sale of tobacco products to minors (CDC, unpublished data). Although there appears to be widespread support for effective minors' access laws (16), such laws are only rarely enforced (17).

Many perceptions of adolescents about cigarette smoking may result from image-based advertisements (1,2,11). The national health objectives also call for the elimination or severe restriction of tobacco-product advertising and promotion to which youths are likely to be exposed (Objective 3.15) (2). Other effective strategies may include the development of statewide tobacco-control plans to reduce tobacco use, especially among youth (Objective 3.14) (2) and raising state excise taxes on tobacco products (1,18). Progress in the reduction of tobacco-use initiation among adolescents will be enhanced by cooperative efforts among local and state health and education officials, parents, physicians and other health care providers, media, legislators, regulatory agencies, and community youth organizations (3).

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Symbols

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

Table 1. Number and percent distribution of teenagers by perceived peer risk behaviors, according to adolescent smoking status: United States, 1989

Perceived peer risk behaviors	Adolescent smoking status									
		Never smoked					Current smoker			
	All statuses	All never smoked	No intention	May smoke	Experimenter	Former smoker	All current smokers[1]	Heavy	Light	Occasional
	Number in thousands									
All teenagers[2]	23,528	12,561	10,098	1,615	6,826	342	3,688	1,619	632	1,206
Care about wearing seat belts										
Don't care	13,445	6,782	5,390	956	4,045	226	2,332	1,131	358	709
Care a lot	2,236	1,263	1,035	119	642	45	274	90	*19	133
Care somewhat	4,919	2,741	2,340	269	1,400	53	717	244	181	252
Care a little	2,495	1,537	1,241	247	625	*15	304	126	53	101
Care about keeping weight down										
Don't care	2,964	1,709	1,292	271	822	*33	377	153	57	134
Care a lot	12,272	6,297	5,265	685	3,613	197	2,114	915	434	644
Care somewhat	5,455	2,882	2,276	404	1,677	90	793	394	85	265
Care a little	2,447	1,441	1,166	228	625	*16	354	130	46	152
Care about staying away from drugs										
Don't care	4,821	1,842	1,459	236	1,552	122	1,277	681	218	328
Care a lot	9,306	6,184	5,120	723	2,302	54	721	260	96	301
Care somewhat	6,842	3,258	2,673	428	2,243	126	1,195	510	193	413
Care a little	1,835	955	727	197	505	*21	352	112	75	128
Care about not getting high on alcohol										
Don't care	11,070	4,783	3,915	590	3,640	213	2,402	1,129	377	753
Care a lot	5,013	3,654	3,015	418	932	*32	370	144	71	136
Care somewhat	4,364	2,445	2,028	319	1,285	63	552	196	112	202
Care a little	1,869	1,022	808	195	608	*19	218	75	44	77
Care about not getting drunk on alcohol										
Don't care	12,253	5,446	4,472	676	3,984	231	2,549	1,145	415	847
Care a lot	4,899	3,521	2,918	413	966	*34	354	163	49	122
Care somewhat	3,648	2,041	1,615	333	1,090	51	452	174	91	152
Care a little	1,764	990	830	133	524	*12	234	96	*40	70
Care about staying off cigarettes										
Don't care	10,138	4,321	3,479	598	3,179	200	2,391	1,174	413	669
Care a lot	5,831	4,072	3,410	427	1,380	46	295	86	*37	153
Care somewhat	5,057	2,845	2,306	359	1,532	64	608	223	105	218
Care a little	1,942	1,060	829	205	587	*24	266	83	42	126
Care about eating healthy foods										
Don't care	15,015	7,703	6,306	945	4,581	230	2,445	1,130	400	766
Care a lot	1,952	1,229	907	186	424	*13	271	117	*36	*95
Care somewhat	4,073	2,261	1,861	293	1,090	63	648	259	128	224
Care a little	2,206	1,232	1,003	185	650	27	287	95	54	114
Care about staying away from marijuana										
Don't care	4,883	1,878	1,494	221	1,550	119	1,312	710	208	337
Care a lot	10,882	7,213	5,938	856	2,693	75	857	288	119	380
Care somewhat	5,572	2,482	1,992	377	1,861	109	1,102	439	220	355
Care a little	1,617	744	588	140	542	*27	298	125	42	114
Care about not drinking and driving										
Don't care	4,589	2,200	1,723	308	1,446	93	817	398	129	245
Care a lot	12,244	6,863	5,661	806	3,403	140	1,794	743	323	599
Care somewhat	4,765	2,455	2,013	331	1,407	85	808	380	113	278
Care a little	1,437	754	596	143	450	*15	213	86	44	61
Care about being fit and exercising										
Don't care	6,320	3,303	2,660	449	1,850	82	1,048	524	173	298
Care a lot	6,664	3,676	2,948	460	1,937	92	934	393	160	317
Care somewhat	7,703	4,033	3,341	474	2,194	122	1,327	558	233	447
Care a little	2,455	1,376	1,104	224	714	*32	324	125	49	126

See footnote at end of table.

Table 1. Number and percent distribution of teenagers by perceived peer risk behaviors, according to adolescent smoking status: United States, 1989—Con.

Perceived peer risk behaviors	Adolescent smoking status									
		Never smoked					Current smoker			
	All statuses	All never smoked	No intention	May smoke	Experimenter	Former smoker	All current smokers[1]	Heavy	Light	Occasional
	Percent distribution									
All teenagers[2]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Care about wearing seat belts										
Don't care	57.1	54.0	53.4	59.2	59.3	66.1	63.2	69.9	56.6	58.8
Care a lot	9.5	10.1	10.2	7.4	9.4	13.2	7.4	5.6	*3.0	11.0
Care somewhat	20.9	21.8	23.2	16.7	20.5	15.5	19.4	15.1	28.6	20.9
Care a little	10.6	12.2	12.3	15.3	9.2	*4.4	8.2	7.8	8.4	8.4
Care about keeping weight down										
Don't care	12.6	13.6	12.8	16.8	12.0	*9.6	10.2	9.5	9.0	11.1
Care a lot	52.2	50.1	52.1	42.4	52.9	57.6	57.3	56.5	68.7	53.4
Care somewhat	23.2	22.9	22.5	25.0	24.6	26.3	21.5	24.3	13.4	22.0
Care a little	10.4	11.5	11.5	14.1	9.2	*4.7	9.6	8.0	7.3	12.6
Care about staying away from drugs										
Don't care	20.5	14.7	14.4	14.6	22.7	35.7	34.6	42.1	34.5	27.2
Care a lot	39.6	49.2	50.7	44.8	33.7	15.8	19.5	16.1	15.2	25.0
Care somewhat	29.1	25.9	26.5	26.5	32.9	36.8	32.4	31.5	30.5	34.2
Care a little	7.8	7.6	7.2	12.2	7.4	*6.1	9.5	6.9	11.9	10.6
Care about not getting high on alcohol										
Don't care	47.1	38.1	38.8	36.5	53.3	62.3	65.1	69.7	59.7	62.4
Care a lot	21.3	29.1	29.9	25.9	13.7	*9.4	10.0	8.9	11.2	11.3
Care somewhat	18.5	19.5	20.1	19.8	18.8	18.4	15.0	12.1	17.7	16.7
Care a little	7.9	8.1	8.0	12.1	8.9	*5.6	5.9	4.6	7.0	6.4
Care about not getting drunk on alcohol										
Don't care	52.1	43.4	44.3	41.9	58.4	67.5	69.1	70.7	65.7	70.2
Care a lot	20.8	28.0	28.9	25.6	14.2	*9.9	9.6	10.1	7.8	10.1
Care somewhat	15.5	16.2	16.0	20.6	16.0	14.9	12.3	10.7	14.4	12.6
Care a little	7.5	7.9	8.2	8.2	7.7	*3.5	6.3	5.9	*6.3	5.8
Care about staying off cigarettes										
Don't care	43.1	34.4	34.5	37.0	46.6	58.8	64.8	72.5	65.3	55.5
Care a lot	24.8	32.4	33.8	26.4	20.2	13.5	8.0	5.3	*5.9	12.7
Care somewhat	21.5	22.6	22.8	22.2	22.4	18.7	16.5	13.8	16.6	18.1
Care a little	8.3	8.4	8.2	12.7	8.6	*7.0	7.2	5.1	6.6	10.4
Care about eating healthy foods										
Don't care	63.8	61.3	62.4	58.5	67.1	67.3	66.3	69.8	63.3	63.5
Care a lot	8.3	9.8	9.0	11.5	6.2	*3.8	7.3	7.2	*5.7	7.9
Care somewhat	17.3	18.0	18.4	18.1	16.0	18.4	17.6	16.0	20.3	18.6
Care a little	9.4	9.8	9.9	11.5	9.5	*7.9	7.8	5.9	8.5	9.5
Care about staying away from marijuana										
Don't care	20.8	15.0	14.8	13.7	22.7	34.8	35.6	43.9	32.9	27.9
Care a lot	46.3	57.4	58.8	53.0	39.5	21.9	23.2	17.8	18.8	31.5
Care somewhat	23.7	19.8	19.7	23.3	27.3	31.9	29.9	27.1	34.8	29.4
Care a little	6.9	5.9	5.8	8.7	7.9	*7.9	8.1	7.7	6.6	9.5
Care about not drinking and driving										
Don't care	19.5	17.5	17.1	19.1	21.2	27.2	22.2	24.6	20.4	20.3
Care a lot	52.0	54.6	56.1	49.9	49.9	40.9	48.6	45.9	51.1	49.7
Care somewhat	20.3	19.5	19.9	20.5	20.6	24.9	21.9	23.5	17.9	23.1
Care a little	6.1	6.0	5.9	8.9	6.6	*4.4	5.8	5.3	7.0	5.1
Care about being fit and exercising										
Don't care	26.9	26.3	26.3	27.8	27.1	24.0	28.4	32.4	27.4	24.7
Care a lot	28.3	29.3	29.2	28.5	28.4	26.9	25.3	24.3	25.3	26.3
Care somewhat	32.7	32.1	33.1	29.3	32.1	35.7	36.0	34.5	36.9	37.1
Care a little	10.4	11.0	10.9	13.9	10.5	*9.4	8.8	7.7	7.8	10.4

[1]Includes unknown type of current smoker.
[2]Includes unknowns.

Table 2. Number and percent distribution of current teenage smokers by accessibility of cigarettes, quit attempts, and future use, according to age, sex, race, and Hispanic origin: United States, 1989

Accessibility, quit attempts, and future use	Current smokers[1]	Age			Sex		Race		Hispanic origin	
		12–13	14–15	16–18	Male	Female	White	Black	Hispanic	Non-Hispanic
	Number in thousands									
Total[2]	3,620	234	834	2,552	1,948	1,672	3,332	212	241	3,387
"Usually buy your own cigarettes?"										
Yes	2,291	54	413	1,824	1,272	1,020	2,149	103	120	2,172
No	1,329	180	421	728	677	652	1,183	110	121	1,208
"What brand usually buy?"										
Marlboro	1,558	*36	321	1,202	865	694	1,519	*9	73	1,486
Winston	72	*5	*5	62	45	*27	72	*...	*...	72
Camel	184	*5	*38	141	137	47	178	*3	*9	175
Newport	187	*4	*20	163	91	96	120	63	*15	172
Other	269	*5	*27	237	117	152	239	*28	*22	247
"How often buy from a vending machine?"										
Often	141	*5	47	89	103	*38	125	*9	*...	141
Sometimes	157	*6	*34	117	89	68	143	*12	*17	140
Rarely	876	*17	166	693	464	412	836	*26	50	826
Never	1,116	*26	166	924	615	502	1,045	55	52	1,064
"How often buy from a large store?"										
Often	605	*5	103	497	349	256	569	*23	*40	565
Sometimes	564	*2	82	480	298	266	535	*18	*28	536
Rarely	673	*21	119	533	345	328	623	44	*32	641
Never	450	*26	109	314	280	170	422	*18	*20	430
"How often buy from a small store?"										
Often	1,588	*29	272	1,287	872	716	1,493	70	79	1,508
Sometimes	398	*...	68	330	209	189	373	*13	*29	370
Rarely	220	*20	44	156	125	95	203	*15	*7	213
Never	86	*6	*30	51	67	*19	81	*5	*5	81
"Ever seriously thought about quitting?"										
Yes	2,717	168	657	1,891	1,424	1,294	2,496	157	187	2,530
No	471	*23	91	357	267	204	427	*27	*39	431
Never smoked regularly	494	50	93	351	260	234	431	*33	42	452
"How many times have you tried to quit?"[3]										
Never	341	*12	75	254	203	138	310	*26	*26	315
One or more times	2,339	154	571	1,615	1,206	1,133	2,151	128	154	2,185
Once	748	50	223	474	401	347	694	*38	59	689
Two or three times	996	62	216	719	522	474	897	63	48	949
Four or more times	595	42	132	422	283	312	560	*27	47	548
"Have you tried to quit in the past 6 months?"[4]										
Yes	1,799	137	505	1,158	935	865	1,659	94	118	1,682
No	571	*20	78	473	284	287	523	*37	41	529
"Longest time you stayed off cigarettes?"										
1–6 days[5]	369	*22	78	269	182	186	347	*12	*8	361
7–29 days	684	46	161	477	382	301	639	*31	54	629
1–3 months	549	*38	139	372	293	257	502	*34	*25	525
4–6 months	400	*19	101	280	214	186	371	*20	*20	380
7–11 months	49	*...	*11	*37	*10	*38	41	*5	*3	46
12 months or more	176	*17	41	118	94	82	163	*13	*23	153
"Think you will be smoking one year from now?"										
Definitely yes	203	*9	41	153	117	86	187	*12	*19	184
Probably yes	1,373	*38	332	1,003	706	667	1,305	*40	94	1,279
Probably not	1,223	90	270	863	690	532	1,116	81	85	1,138
Definitely not	741	95	174	472	392	349	652	75	*36	705
Don't know	81	*2	*17	61	43	*38	72	*4	*7	73

See footnote at end of table.

Table 2. Number and percent distribution of current teenage smokers by accessibility of cigarettes, quit attempts, and future use, according to age, sex, race, and Hispanic origin: United States, 1989—Con.

Accessibility, quit attempts, and future use	Current smokers[1]	Age			Sex		Race		Hispanic origin	
		12–13	14–15	16–18	Male	Female	White	Black	Hispanic	Non-Hispanic
	Percent distribution									
Total[2]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
"Usually buy your own cigarettes?"										
Yes	63.3	23.1	49.5	71.5	65.3	61.0	64.5	48.6	49.8	64.3
No	36.7	76.9	50.5	28.5	34.8	39.0	35.5	51.9	50.2	35.7
"What brand usually buy?"										
Marlboro	68.0	*66.7	77.7	65.9	68.0	68.0	70.7	*8.7	60.8	68.4
Winston	3.1	*9.3	*1.2	3.4	3.5	*2.6	3.4	*...	*...	3.3
Camel	8.0	*9.3	*9.2	7.7	10.8	4.6	8.3	*2.9	*7.5	8.1
Newport	8.2	*7.4	*4.8	8.9	7.2	9.4	5.6	61.2	*12.5	7.9
Other	11.7	*9.3	*6.5	13.0	9.2	14.9	11.1	27.2	*18.3	11.4
"How often buy from a vending machine?"										
Often	6.2	*9.3	11.4	4.9	8.1	*3.7	5.8	*8.7	*...	6.5
Sometimes	6.9	*11.1	*8.2	6.4	7.0	6.7	6.7	*11.7	*14.2	6.4
Rarely	38.2	*31.5	40.2	38.0	36.5	40.4	38.9	*25.2	41.7	38.0
Never	48.7	*48.1	40.2	50.7	48.3	49.2	48.6	53.4	43.3	49.0
"How often buy from a large store?"										
Often	26.4	*9.3	24.9	27.2	27.4	25.1	26.5	*22.3	*33.3	26.0
Sometimes	24.6	*3.7	19.9	26.3	23.4	26.1	24.9	*17.5	*23.3	24.7
Rarely	29.4	*38.9	28.8	29.2	27.1	32.2	29.0	42.7	*26.7	29.5
Never	19.6	*48.1	26.4	17.2	22.0	16.7	19.6	*17.5	*16.7	19.8
"How often buy from a small store?"										
Often	69.3	*53.7	65.9	70.6	68.6	70.2	69.5	68.0	65.8	69.4
Sometimes	17.4	*...	16.5	18.1	16.4	18.5	17.4	*12.0	*24.2	17.0
Rarely	9.6	*37.0	10.7	8.6	9.8	9.3	9.4	*14.6	*5.8	9.8
Never	3.8	*11.1	*7.3	2.8	5.3	*1.9	3.8	*4.9	*4.2	3.7
"Ever seriously thought about quitting?"										
Yes	73.7	69.7	77.8	72.7	72.8	74.8	74.3	72.4	69.8	74.0
No	12.8	*9.5	*10.8	13.7	13.6	11.8	12.7	*12.4	*14.6	12.6
Never smoked regularly	13.4	20.7	11.0	13.5	13.3	13.5	12.8	*15.2	15.7	13.2
"How many times have you tried to quit?"[3]										
Never	12.6	*7.1	11.4	13.4	14.3	10.7	12.4	*16.6	*13.9	12.5
One or more times	86.1	91.7	86.9	85.4	84.8	87.5	86.1	81.5	82.4	86.4
Once	27.5	29.8	33.9	25.1	28.2	26.8	27.8	*24.2	31.6	27.2
Two or three times	36.7	36.9	32.9	38.0	36.7	36.6	35.9	40.1	25.7	37.5
Four or more times	21.9	25.0	20.1	22.3	19.9	24.1	22.4	*17.2	25.1	21.7
"Have you tried to quit in the past 6 months?"[4]										
Yes	75.7	87.3	86.8	70.7	76.6	74.8	75.9	71.8	72.8	75.9
No	24.0	*12.7	13.4	28.9	23.3	24.8	23.9	*28.2	25.3	23.9
"Longest time you stayed off cigarettes?"										
1–6 days[5]	16.4	*15.4	14.5	17.2	15.3	17.5	16.6	*10.3	*5.7	17.1
7–29 days	30.4	32.2	29.9	30.4	32.2	28.3	30.6	*26.7	38.6	29.8
1–3 months	24.4	*26.6	25.8	23.7	24.7	24.2	24.1	*29.3	*17.9	24.9
4–6 months	17.8	*13.3	18.7	17.9	18.0	17.5	17.8	*17.2	*14.3	18.0
7–11 months	2.2	*...	*2.0	*2.4	*0.8	*3.6	2.0	*4.3	*2.1	2.2
12 months or more	7.8	*11.9	7.6	7.5	7.9	7.7	7.8	*11.2	*16.4	7.3
"Think you will be smoking one year from now?"										
Definitely yes	5.6	*3.8	4.9	6.0	6.0	5.1	5.6	*5.7	*7.9	5.4
Probably yes	37.9	*16.2	39.8	39.3	36.2	39.9	39.2	*18.9	39.0	37.8
Probably not	33.8	38.5	32.4	33.8	35.4	31.8	33.5	38.2	35.3	33.7
Definitely not	20.5	40.6	20.9	18.5	20.1	20.9	19.6	35.4	14.9	20.9
Don't know	2.2	*0.9	*2.0	2.4	2.2	*2.3	2.2	*1.9	*2.9	2.2

[1] Includes all other races.
[2] Difference in number of total current smokers from table 1 due to Computer-Assisted Telephone Interviewing (CATI) versus CATI–mail sample size (see Technical notes). Includes unknown accessibility, quit attempts and future use.
[3] Includes persons who ever thought seriously about quitting smoking.
[4] Includes persons who ever tried to quit smoking.
[5] Includes less than 1 day.

Table 3. Number and percent distribution of teenagers who have never smoked a whole cigarette by smoking intention, according to age, sex, race, and Hispanic origin: United States, 1989

Smoking intention	Never smoked[1]	Age			Sex		Race		Hispanic origin	
		12–13	14–15	16–18	Male	Female	White	Black	Hispanic	Non-Hispanic
	Number in thousands									
Total[2]	12,822	5,017	3,651	4,154	6,386	6,436	9,991	2,289	1,234	11,588
"Think you will try a cigarette soon?"										
Yes	220	118	73	*29	116	104	175	*30	*32	188
No	12,255	4,704	3,491	4,060	6,066	6,189	9,551	2,194	1,116	11,139
Don't know	347	194	87	66	204	143	265	65	85	261
"Have you ever been offered a cigarette?"										
Yes	5,027	1,225	1,539	2,263	2,664	2,363	4,001	887	542	4,485
No	7,786	3,789	2,106	1,891	3,714	4,073	5,982	1,402	690	7,097
"Smoke cigarette if best friend offered?"										
Definitely or probably yes	112	45	42	*25	49	63	83	*21	*10	102
Definitely or probably not	12,683	4,964	3,604	4,115	6,310	6,373	9,881	2,268	1,221	11,462
"Would it be easy or hard to get cigarettes if you wanted some?"										
Easy	8,064	1,939	2,431	3,694	4,149	3,915	6,338	1,421	679	7,385
Hard	4,528	2,931	1,168	429	2,116	2,412	3,481	830	525	4,003
Don't know	230	146	52	*32	120	109	173	*38	*29	200
"Do you think you will be smoking 1 year from now?"										
Definitely or probably yes	82	*24	*27	*31	48	*34	56	*23	*30	52
Definitely or probably not	12,711	4,974	3,615	4,121	6,314	6,397	9,916	2,256	1,194	11,517
	Percent distribution									
Total[2]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
"Think you will try a cigarette soon?"										
Yes	1.7	2.4	2.0	*0.7	1.8	1.6	1.8	*1.3	*2.6	1.6
No	95.6	93.8	95.6	97.7	95.0	96.2	95.6	95.8	90.4	96.1
Don't know	2.7	3.9	2.4	1.6	3.2	2.2	2.7	2.8	6.9	2.3
"Have you ever been offered a cigarette?"										
Yes	39.2	24.4	42.2	54.5	41.7	36.7	40.0	38.8	43.9	38.7
No	60.7	75.5	57.7	45.5	58.2	63.3	59.9	61.2	55.9	61.2
"Smoke cigarette if best friend offered?"										
Definitely or probably yes	0.9	0.9	1.2	*0.6	0.8	0.9	0.8	*1.0	*0.8	0.9
Definitely or probably not	98.9	98.9	98.7	99.1	98.8	99.0	98.9	99.1	98.9	98.9
"Would it be easy or hard to get cigarettes if you wanted some?"										
Easy	62.9	38.6	66.6	88.9	65.0	60.8	63.4	62.1	55.0	63.7
Hard	35.3	58.4	32.0	10.3	33.1	37.5	34.8	36.3	42.5	34.5
Don't know	1.8	2.9	1.4	*0.8	1.9	1.7	1.7	*1.7	*2.4	1.7
"Do you think you will be smoking 1 year from now?"										
Definitely or probably yes	0.6	*0.5	*0.7	*0.7	0.8	*0.5	0.6	*1.0	*2.4	0.4
Definitely or probably not	99.1	99.1	99.0	99.2	98.9	99.4	99.2	98.6	96.8	99.4

[1]Includes all other races.
[2]Difference in total number of "never smoked" from table 1 due to Computer-Assisted Telephone Interviewing (CATI) versus CATI–mail sample size (see Technical notes). Includes unknown intent to smoke except for "Think you will try a cigarette soon?"

Table 4. Number and percent distribution of teenagers by correlates of smoking uptake and risk-taking behaviors, according to smoking status: United States, 1989

Correlates of smoking uptake and risk-taking behaviors	Smoking status									
		Never smoked					Current smoker			
	All statuses	All never smoked	No intention	May smoke	Experimenter	Former smoker	All current smokers[1]	Heavy	Light	Occasional
	Number in thousands									
All teenagers [2]	23,524	12,822	11,055	1,766	6,717	322	3,620	1,554	572	1,250
	Percent distribution									
All teenagers	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Persons in household who smoke										
No smoker	53.3	59.3	60.1	54.8	48.5	46.3	41.6	32.4	41.6	50.9
Both parents and no older sibling(s)	9.8	8.6	8.6	8.6	11.2	*9.9	11.7	13.4	12.1	9.4
Both parents and older sibling(s)	1.7	1.0	1.0	*1.2	1.8	*2.5	4.0	5.1	*4.7	*2.2
Either parent and no older sibling(s)	25.5	24.5	24.3	26.2	28.6	25.8	23.3	25.3	24.1	21.4
Either parent and older sibling(s)	2.9	1.7	1.6	2.3	2.8	*6.8	7.0	9.8	*6.3	3.8
Older sibling(s) and no parent	3.2	2.2	2.1	3.5	3.3	*4.3	6.1	5.9	*6.3	7.1
All others, excluding parent(s) and older sibling(s)	3.4	2.4	2.4	2.7	3.8	*5.0	6.2	8.0	*5.1	5.0
Relatives not in household who smoke										
No smoker	27.3	31.0	31.4	28.4	24.2	14.6	21.4	17.1	22.0	27.3
Both parents and no older sibling(s)	0.8	*0.3	*0.3	*0.3	1.2	*3.1	1.8	*2.6	*0.3	*1.4
Both parents and older sibling(s)	0.2	*0.0	*1.0	*...	*0.1	*...	*0.9	*1.7	*0.3	*...
Either parent and no older sibling(s)	5.0	3.7	3.8	3.1	6.0	*5.3	7.7	9.6	8.6	5.7
Either parent and older sibling(s)	0.7	*0.2	*0.2	*0.1	1.0	*3.7	1.7	2.8	*1.7	*0.8
Older sibling(s) and no parent	6.7	4.1	3.9	5.4	8.8	*10.9	11.4	13.8	10.3	7.7
All others, excluding parent(s) and older sibling(s)	58.0	59.1	58.9	60.5	57.7	61.2	54.5	52.3	54.9	56.6
"Of your four best male friends, how many smoke?"										
None	61.7	77.3	80.4	67.8	59.7	28.4	16.2	6.1	14.2	30.2
One	14.0	10.8	9.9	17.2	17.7	24.9	17.4	10.9	19.1	25.8
Two	9.3	5.3	4.9	7.6	11.3	17.5	18.0	15.8	20.9	17.7
Three	4.7	2.0	1.7	*2.4	4.4	*9.1	14.2	18.1	13.4	9.4
Four	8.0	2.2	2.0	2.7	4.7	18.1	32.8	47.8	28.8	16.0
"Of your four best female friends, how many smoke?"										
None	64.0	80.1	82.5	73.6	60.3	33.9	19.7	8.5	14.6	36.6
One	13.4	10.4	9.7	14.2	16.9	18.7	16.9	12.7	19.5	21.0
Two	9.9	4.8	4.3	7.2	11.8	20.2	22.6	21.8	20.3	23.0
Three	4.7	1.5	1.3	*1.7	5.4	*10.2	13.6	17.0	15.5	7.8
Four	6.1	1.4	1.4	*1.1	3.9	12.9	25.3	39.4	24.5	9.5
"How you think your best friends would feel about you smoking one or more packs[3] of cigarettes a day?"										
Approve	1.7	1.5	1.4	*2.2	1.7	*...	2.7	3.9	*1.9	*1.8
Disapprove	72.3	80.5	82.4	69.0	69.6	50.6	50.3	36.7	61.0	61.2
Not care	25.4	17.3	15.7	27.3	28.3	48.8	46.6	59.1	36.9	36.6
"Do friends who smoke ever say they should quit?"										
Yes	54.2	43.3	41.0	43.3	63.0	82.9	80.6	86.4	77.1	75.0
No	26.6	31.0	30.1	37.0	23.5	16.8	17.9	13.3	22.4	21.4
No friends who smoke	18.8	27.0	28.3	18.9	13.1	*0.6	1.4	*0.3	*0.5	3.3
"How many people your age smoke cigarettes?"										
None	13.9	22.3	21.9	18.6	*5.7	*1.2	1.2	*0.8	*0.8	*1.7
A few	38.0	42.4	43.3	40.1	42.1	19.0	17.4	9.0	14.6	29.4
Some	27.8	25.2	25.2	30.0	32.7	33.6	26.7	19.3	32.4	33.8
Most or all	19.8	9.4	9.5	10.6	19.0	46.2	54.5	70.5	51.9	34.5
"How many people your age use chewing tobacco or snuff?"										
None	52.8	61.0	60.4	63.2	47.3	28.4	37.6	36.3	36.7	38.0
A few	28.6	23.9	25.0	21.5	30.8	43.0	39.4	40.7	38.1	37.9
Some	13.2	10.8	11.0	11.0	15.4	17.0	17.0	18.0	16.8	17.6
Most or all	4.3	3.2	3.1	3.0	5.6	*8.5	5.3	4.4	*6.0	6.6
"How many people your age smoke marijuana?"										
None	54.0	69.7	70.2	70.3	44.6	21.9	21.2	15.1	17.2	29.3
A few	25.8	19.0	19.5	18.3	32.7	31.9	36.1	30.0	39.7	40.9
Some	12.6	7.3	7.3	7.8	14.9	30.1	24.2	29.3	22.6	19.4
Most or all	5.7	2.2	2.1	*2.1	6.0	*11.4	16.4	24.0	15.5	8.7

See footnote at end of table.

Table 4. Number and percent distribution of teenagers by correlates of smoking uptake and risk-taking behaviors, according to smoking status: United States, 1989—Con.

Correlates of smoking uptake and risk-taking behaviors	Smoking status									
		Never smoked					Current smoker			
	All statuses	All never smoked	No intention	May smoke	Experimenter	Former smoker	All current smokers[1]	Heavy	Light	Occasional
	Percent distribution									
"How many people your age use cocaine or crack?"										
None	80.6	85.3	85.9	85.5	80.0	65.5	66.8	61.0	68.7	72.6
A few	12.7	9.3	9.7	9.6	13.4	27.8	21.6	25.0	18.4	19.3
Some	3.6	2.7	2.7	2.6	3.5	*4.4	6.6	8.3	*5.7	5.1
Most or all	0.8	0.6	0.5	*0.9	*0.6	*0.9	2.1	2.8	*2.8	*0.9
"How many people your age drink alcohol at least once a week?"										
None	28.0	39.0	39.4	35.9	19.0	*7.9	9.4	7.3	9.8	12.4
A few	25.0	25.6	25.8	27.3	26.8	15.8	20.6	19.8	18.8	21.6
Some	20.8	19.3	19.0	23.5	23.9	23.1	19.5	17.2	19.0	21.8
Most or all	24.9	14.5	15.1	12.4	29.3	50.6	49.9	55.2	52.1	43.4
"How many people your age get drunk at least once a month?"										
None	33.4	47.1	47.1	45.7	22.5	*11.1	9.4	7.7	7.3	13.0
A few	24.3	23.3	23.7	23.6	28.9	16.7	19.8	14.7	24.1	23.4
Some	17.0	15.2	15.3	18.2	19.2	22.2	18.8	16.1	17.9	21.2
Most or all	23.4	12.3	13.0	9.8	27.9	49.4	50.7	60.6	47.3	41.5
"How many people you know have ever had sex?"										
None	24.8	37.4	37.7	37.8	13.8	*2.6	4.3	1.2	4.3	8.3
A few	22.3	24.5	25.0	25.7	24.0	12.9	12.7	8.1	10.1	19.1
Some	16.6	14.9	15.3	14.4	20.1	17.5	15.8	11.3	20.1	18.9
Most or all	32.8	18.9	19.2	15.5	39.5	62.6	65.1	77.6	62.3	51.4
"How much do/did you like school?"										
A lot	40.1	45.5	48.0	32.6	37.2	27.5	28.6	20.6	30.2	36.6
Some	47.5	46.4	45.2	55.0	51.0	55.8	44.3	41.9	44.6	48.5
Very little	8.4	5.5	4.6	9.7	9.1	*7.9	16.5	20.8	16.3	9.8
Not at all	3.7	2.2	1.9	*2.2	2.7	*8.5	10.2	15.6	8.5	5.1
"How do/did you do in school?"										
Much better than average	16.0	20.3	21.3	13.9	13.0	*7.1	7.5	4.7	8.2	10.6
Better than average	36.3	39.4	40.1	34.7	35.3	28.9	28.0	23.6	25.9	34.1
Average	43.4	38.0	36.7	46.1	48.0	55.3	52.9	53.6	56.1	50.2
Below average	3.9	1.9	1.5	4.4	3.6	*9.0	11.3	17.2	9.6	5.2
"How useful do you think the things you are learning in school will be to you later in life?"										
Very useful	54.3	61.0	61.6	57.0	50.2	43.2	39.0	34.0	42.5	42.5
Somewhat useful	42.7	37.0	36.6	39.5	47.4	51.2	53.8	53.9	53.3	53.4
Not at all useful	2.7	1.7	1.5	2.8	2.2	*5.9	7.0	11.3	*4.2	4.1
"Is there a rule at your school that students are not allowed to smoke on school property?"										
Yes	86.4	88.9	88.7	90.8	85.1	75.5	80.4	76.4	80.4	83.8
No	12.1	9.0	9.4	6.7	14.0	23.0	18.9	22.4	19.2	15.6
"How many students who smoke obey that rule?"										
None	14.8	13.7	14.1	11.2	14.6	24.7	18.7	22.6	17.4	14.7
A few	25.3	23.7	23.5	25.0	26.5	19.3	29.5	35.0	26.3	26.8
Some	16.6	16.1	15.7	18.5	17.4	18.5	17.2	14.7	19.6	18.5
Most	25.1	24.0	23.6	26.5	26.8	33.3	25.3	20.3	26.5	28.7
All of them	17.5	21.5	22.0	18.0	14.3	*4.1	9.2	7.3	10.2	11.4
"How many of the teachers in your school smoke cigarettes?"										
None	11.8	15.8	15.8	15.7	8.4	*2.2	4.9	4.3	*5.6	5.2
A few	37.8	39.4	39.3	39.8	36.6	31.1	35.4	34.6	37.6	37.0
Some	31.2	27.4	27.7	25.8	35.8	43.8	35.0	35.7	30.4	35.9
Most or all	11.3	9.3	8.9	11.5	11.6	14.9	17.5	18.9	16.6	14.9
"Have you ever taken a class or course at school in which the health risks of smoking were discussed?"										
Yes	75.2	73.7	74.9	66.7	78.0	82.0	74.4	73.7	77.1	74.2
No	24.1	25.4	24.5	31.6	21.5	18.0	24.6	24.4	22.6	25.4

See footnote at end of table.

Table 4. Number and percent distribution of teenagers by correlates of smoking uptake and risk-taking behaviors, according to smoking status: United States, 1989—Con.

Correlates of smoking uptake and risk-taking behaviors	Smoking status									
		Never smoked					Current smoker			
	All statuses	All never smoked	No intention	May smoke	Experimenter	Former smoker	All current smokers[1]	Heavy	Light	Occasional
	Percent distribution									
"Reason and total time missed from school in past 2 weeks?"[4]										
Did not cut, missed no days	56.2	63.2	63.3	61.7	53.7	46.5	37.9	27.3	46.0	46.4
Did not cut, missed 1 or more days	21.2	19.5	19.3	20.4	23.3	19.3	23.4	20.2	23.7	27.4
Cut, missed 1 or more days	4.0	1.6	1.4	*1.8	4.8	*9.4	9.7	11.2	8.4	8.8
"During the past year, how often have you felt too tired to do things?"										
Often	15.4	12.7	12.2	15.6	18.1	25.8	19.2	19.8	19.8	17.0
Sometimes	33.8	33.4	32.1	41.3	34.3	36.3	34.1	32.0	35.5	36.2
Rarely	41.7	43.0	44.3	34.8	40.9	31.1	39.5	40.6	35.5	40.0
Never	8.7	10.5	10.9	7.6	6.3	*6.8	6.9	6.8	8.9	6.7
"During the past year, how often have you had trouble going to sleep or staying asleep?"										
Often	14.7	11.3	11.2	12.1	16.6	25.5	22.1	25.7	21.5	19.0
Sometimes	24.6	23.5	22.7	28.6	26.9	22.4	23.8	21.4	25.3	25.9
Rarely	33.5	34.5	34.6	33.5	34.0	27.3	30.2	27.5	31.8	32.1
Never	26.7	30.2	31.1	24.7	22.0	23.9	23.4	24.5	20.3	23.0
"During the past year, how often have you felt unhappy, sad, or depressed?"										
Often	14.0	10.5	10.4	11.3	14.7	23.0	24.3	27.0	24.1	21.0
Sometimes	33.5	31.1	30.3	36.1	37.4	39.8	34.3	31.7	36.9	35.4
Rarely	38.1	40.5	41.1	36.9	36.8	31.4	32.9	33.1	28.7	35.3
Never	13.7	17.2	17.6	14.1	10.6	*5.9	8.0	7.4	9.4	8.0
"During the past year, how often have you felt hopeless about the future?"										
Often	7.7	5.8	5.3	8.5	7.6	*9.3	14.4	18.0	11.7	11.5
Sometimes	14.8	12.3	11.8	15.7	17.3	18.0	18.3	17.8	21.0	17.8
Rarely	30.9	28.6	28.4	29.7	34.5	31.4	32.7	31.5	31.5	34.6
Never	46.0	52.6	53.9	44.6	40.1	41.6	33.8	31.4	35.5	35.9
"During the past year, how often have you felt nervous or tense?"										
Often	18.6	14.7	14.3	17.0	21.4	28.3	26.7	29.3	26.7	22.6
Sometimes	37.7	37.6	37.3	39.4	37.5	50.0	37.2	35.1	39.9	41.0
Rarely	30.3	31.7	32.5	26.7	30.1	16.5	27.0	26.6	23.8	27.4
Never	12.9	15.5	15.5	15.7	10.6	*5.6	8.6	8.1	8.7	8.9
"During the past year, how often have you worried too much about things?"										
Often	25.9	20.7	20.5	22.3	30.5	39.8	34.6	35.1	35.8	32.4
Sometimes	32.6	32.9	32.1	38.2	33.5	33.9	29.6	28.0	23.8	34.6
Rarely	26.8	29.0	29.8	23.9	24.6	14.6	24.4	25.0	26.4	23.1
Never	14.2	16.8	17.2	14.6	11.0	*12.1	11.0	11.0	13.3	9.9
"During the past year have you had an accident, injury, or poisoning that required medical attention by a doctor, nurse, or medical assistant?"										
Yes	23.2	20.8	21.0	20.2	25.3	27.3	27.5	30.3	24.5	25.4
No	76.3	78.8	78.6	79.0	74.2	73.0	72.0	68.8	75.0	74.5
Frequency of fighting in past year										
Never	72.3	79.9	82.0	75.3	68.1	55.8	56.3	49.5	55.2	65.6
Once	10.0	8.2	7.6	8.5	11.6	*9.4	12.9	13.6	12.8	12.2
Twice	7.4	5.7	5.1	6.9	8.9	13.2	9.7	9.8	11.9	7.4
Three to five times	6.1	3.6	3.0	6.0	7.2	14.9	11.9	13.5	13.1	9.5
More than five times	3.4	1.7	1.5	*1.5	3.6	*5.8	8.4	12.4	6.6	4.9
Been in fight, DK times	0.5	0.6	*0.3	*1.0	0.4	*0.9	*0.4	*0.4	*0.3	*0.3
Frequency of riding on motorcycle or minibike in past year										
Often	12.4	8.8	8.6	10.3	14.0	24.5	21.0	24.3	20.1	18.7
Sometimes	9.3	7.4	7.0	10.1	10.3	*12.4	14.0	15.5	13.3	12.8
Rarely	18.2	14.8	14.8	14.7	21.2	21.1	24.0	25.8	28.1	19.0
Never	59.7	68.6	69.3	64.1	54.1	41.9	40.5	33.4	38.6	49.4
"How often do you wear a seat belt when you drive or ride in a car?"										
Always or most of the time	62.4	69.9	70.6	65.1	59.0	51.9	43.7	34.0	46.0	52.3
Sometimes	18.3	16.8	16.5	19.1	19.5	20.2	21.3	21.4	22.0	21.2
Rarely or never	18.9	12.9	12.6	15.1	21.2	28.0	34.6	43.8	32.0	26.5

See footnote at end of table.

Table 4. Number and percent distribution of teenagers by correlates of smoking uptake and risk-taking behaviors, according to smoking status: United States, 1989—Con.

Correlates of smoking uptake and risk-taking behaviors	Smoking status									
		Never smoked					Current smoker			
	All statuses	All never smoked	No intention	May smoke	Experimenter	Former smoker	All current smokers[1]	Heavy	Light	Occasional
	Percent distribution									
"During the last 4 weeks have you ridden in a vehicle driven by someone who had been drinking or using drugs?"										
Yes	10.9	4.7	4.5	5.5	11.8	21.7	30.2	37.5	24.0	25.9
No	88.7	94.9	95.0	93.7	87.8	78.3	69.3	61.3	76.0	74.0
"Including Saturdays and Sundays, how many nights a week do you usually go out for fun or recreation?"										
None	9.8	12.5	12.6	12.3	6.8	*7.5	5.7	6.1	*4.2	5.5
One to two nights	49.5	52.9	52.8	53.0	50.1	37.9	38.0	30.4	40.0	46.1
Three to four nights	29.7	26.9	27.0	26.2	31.2	41.0	35.7	35.8	39.0	33.8
Five nights or more	10.0	6.6	6.6	6.7	11.0	13.7	20.0	26.5	15.9	14.4
"Have you ever had a steady boyfriend/girlfriend?"										
Yes	69.0	56.6	56.7	56.3	79.7	91.0	90.6	93.9	91.8	85.6
No	30.6	42.9	42.9	43.0	19.9	9.3	9.0	5.2	8.0	14.4
"Did he or she smoke?"										
Yes	19.4	7.5	7.2	9.4	15.9	45.4	49.1	67.7	42.7	29.3
No	80.6	92.5	92.8	90.6	84.2	54.6	50.9	32.3	57.3	70.5
"About how much money do you have each week to spend on yourself any way you want to?"										
None	7.3	8.1	7.3	7.2	6.6	*8.5	5.6	5.4	6.5	5.5
$1–$5	17.9	23.1	22.7	23.4	13.6	*10.8	8.3	6.2	10.8	9.8
$6–$10	21.2	23.7	24.1	24.2	20.0	15.8	15.3	11.7	16.9	18.3
$11–$20	21.1	19.9	19.6	24.2	23.3	17.3	21.8	19.2	25.2	23.2
$21–$30	8.4	7.2	7.6	6.0	10.3	*7.9	9.2	7.9	10.1	10.6
$31–$50	10.7	8.3	8 8	6.4	12.3	19.3	15.0	17.9	10.6	14.3
More than $50	10.1	5.9	6.2	4.0	11.7	14.9	21.1	28.0	17.1	14.5
"In the past year have you participated in any kind of competitive and organized physical activity, such as team sports?"										
Yes	65.1	68.7	69.6	63.0	66.0	54.0	51.8	41.0	52.3	63.2
No	34.4	30.7	29.9	36.1	33.6	46.0	47.7	58.0	47.7	36.8
"If you had a serious problem, to whom would you talk or go for help?"										
No one	4.3	3.9	3.7	5.5	4.4	*5.0	5.4	6.5	*2.6	4.6
Either parent	52.4	59.3	59.8	56.2	47.0	39.1	38.8	36.4	41.3	41.7
Other relative or adult	23.5	21.6	21.5	21.9	25.7	25.8	25.8	23.9	24.7	27.2
Friend	19.2	14.6	14.5	15.2	22.3	30.1	29.0	31.3	31.3	25.7
"Number of hours per week you are at home without a parent or adult around?" [5]										
None or not on regular basis	39.4	41.3	41.6	39.8	37.7	30.1	32.8	31.1	29.2	33.9
1–5 hours	30.5	31.9	32.0	31.0	28.2	33.1	27.2	26.4	27.0	29.0
6–10 hours	16.1	15.1	15.0	15.4	17.1	*23.3	19.0	14.8	16.0	23.3
More than 10 hours	13.4	11.0	10.8	12.4	16.4	*13.5	20.4	26.6	26.6	13.5
"How often do you attend religious services?"										
Often	41.3	48.9	50.0	42.1	36.6	27.3	24.2	15.4	22.0	35.0
Sometimes	22.5	21.9	21.4	25.0	24.1	20.8	21.9	18.2	24.8	24.8
Rarely	21.6	17.4	17.2	18.5	24.5	34.5	30.1	33.5	32.7	25.2
Never	14.2	11.3	11.0	13.6	14.5	17.4	23.4	31.9	20.5	15.0
"Have you ever seen or read warning labels on any bottles or cans containing an alcoholic beverage?"										
Never seen	65.1	63.1	63.5	61.0	66.0	72.4	69.8	75.4	71.9	64.6
Seen, never read	13.1	13.8	13.4	16.3	13.1	*8.4	10.8	8.2	9.8	14.1
Read, reported one or more correct warnings	11.5	11.1	11.2	10.8	12.4	13.0	11.3	8.6	9.6	13.1
Read, reported no correct warnings	9.9	11.5	11.5	11.2	8.2	*6.2	7.6	6.7	8.2	8.0

[1]Includes unknown type of smoker.
[2]Difference in total number of teenagers from table 1 due to Computer-Assisted Telephone Interviewing (CATI) versus CATI–mail sample size (see Technical notes). Includes unknown smoking status, correlates of smoking uptake and risk behaviors.
[3]One pack contains 20 cigarettes.
[4]Excludes adolescents not enrolled in school at time of interview.
[5]Includes only 12–16-year-olds.

NOTE: Sums may not equal totals due to rounding.

Table 5. Number and percent distribution of male teenagers by smokeless tobacco–use status, according to age, race, and Hispanic origin: United States, 1989

Age, race, and Hispanic origin	Male teenagers[1]	Smokeless tobacco–use status				
		Never used	Ever used	Total ever used	Used regularly	Never used regularly
	Number in thousands					
Total[2]	12,219	8,386	3,819	3,819	840	2,979
Age						
12–13 years	3,391	2,961	422	422	51	371
14–15 years	3,434	2,466	969	969	182	786
16–18 years	5,394	2,959	2,428	2,428	607	1,821
Race						
White	9,915	6,370	3,530	3,530	800	2,731
Black	1,814	1,601	213	213	*16	197
Hispanic origin						
Hispanic	1,182	1,024	158	158	*15	143
Non-Hispanic	11,038	7,362	3,660	3,660	825	2,836
	Percent distribution					
Total[2]	100.0	68.6	31.3	100.0	22.0	78.0
Age						
12–13 years	100.0	87.3	12.4	100.0	12.1	87.9
14–15 years	100.0	71.8	28.2	100.0	18.8	81.1
16–18 years	100.0	54.9	45.0	100.0	25.0	75.0
Race						
White	100.0	64.2	35.6	100.0	22.7	77.4
Black	100.0	88.3	11.7	100.0	*7.5	92.5
Hispanic origin						
Hispanic	100.0	86.6	13.4	100.0	*9.5	90.5
Non-Hispanic	100.0	66.7	33.2	100.0	22.5	77.5

[1]Includes unknown smokeless tobacco–use status.
[2]Includes all other races.

Table 6. Number and percent distribution of male teenagers by correlate of use, according to smokeless tobacco–use status: United States, 1989

Correlates of smokeless tobacco–use	*Male teenagers*[1]	*Smokeless tobacco–use status*			
		Never used	*Ever used*	*Used regularly*	*Never used regularly*
	Number in thousands				
Total[2]	12,219	8,441	3,766	783	2,983
	Percent distribution				
Total	100.0	100.0	100.0	100.0	100.0
Persons in household who use chewing tobacco or snuff					
No user of smokeless tobacco	91.9	95.3	84 4	73.6	87.2
Father and no older brother(s)	4.2	2.6	7.9	11.1	7.0
Father and older brother(s)	*0.2	*0.1	*0.5	*1.9	0.2
Older brother(s) and not father	1.9	0.8	4.4	9.1	3.2
All others, excluding father and older brother(s)	1.6	1.1	2.8	*4.3	2.3
Relatives not in household who use chewing tobacco or snuff					
No user of smokeless tobacco	78.3	83.4	66.9	51.9	70.9
Father and no older brother(s)	0.5	*0.3	1.2	*2.6	0.8
Older brother(s) and not father	1.1	0.5	2.5	5.4	1.7
All others, excluding father and older brother(s)	17.6	13.4	27.1	39.1	24.0
"How you think your best friends would feel about you using chewing tobacco or snuff regularly?"					
Approve	2.2	1.4	4.0	12.1	1.8
Disapprove	65.3	74.6	44.5	24.6	49.7
Not care	31.8	23.1	51.4	62.8	48.3
"How many people your age use chewing tobacco or snuff?"					
None	47.2	59.9	19.2	*4.6	23.3
A few	30.2	26.0	39.7	38.5	40.0
Some	15.4	10.3	26.8	26.5	26.9
Most or all	6.1	2.5	13.9	29.2	9.6
"Do you believe using chewing tobacco and snuff can cause cancer?"					
Yes	94.4	93.3	96.8	95.8	97.0
No	2.8	3.1	2.1	*3.2	1.8
Don't know	2.6	3.4	*0.9	*0.7	*1.0

[1]Includes unknown smokeless tobacco–use status.
[2]Includes unknown correlates of use.

Table 7. Number and percent distribution of teenagers by knowledge and attitudes about smoking and exposure to smoking risks, according to smoking status: United States, 1989

Knowledge, attitudes, and risk exposure	Smoking status									
		Never smoked					Current smoker			
	All statuses	All never smoked	No intention	May smoke	Experimenter	Former smoker	All current smokers[1]	Heavy	Light	Occasional
	Number in thousands									
All teenagers[2]	23,528	12,822	11,055	1,766	6,717	322	3,620	1,554	572	1,250
	Percent distribution									
All teenagers	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
"Media, TV, radio exposure to health risks of smoking?"										
Yes	81.9	82.2	82.0	83.5	82.1	81.1	80.6	80.0	79.0	81.6
No	17.9	17.6	17.7	16.4	17.8	19.3	19.1	19.8	20.3	18.0
"Do you believe it is safe to smoke for only a year or 2?"										
Yes	7.1	3.3	2.8	6.3	6.7	15.2	20.6	25.2	20.6	15.0
No	91.9	95.9	96.5	91.9	92.2	84.2	78.1	72.6	79.0	84.2
Don't know	0.9	0.8	0.6	*1.5	1.0	*0.6	1.3	*2.0	*0.3	*0.9
"Do you believe there is any harm in having an occasional cigarette?"										
Yes	66.6	75.6	77.7	62.5	62.6	55.0	42.8	43.7	43.5	41.8
No	32.4	23.3	21.4	34.9	36.3	42.9	56.7	55.7	55.9	57.4
Don't know	0.9	1.0	0.7	2.3	0.9	*2.2	*0.5	*0.5	*0.5	*0.8
"Do you believe smoking can help people when they are bored?"										
Yes	7.0	3.8	3.3	7.3	6.4	9.9	18.8	23.0	18.7	14.1
No	92.1	95.1	95.8	90.8	92.9	89.4	80.3	75.3	81.3	85.3
Don't know	0.8	0.9	0.8	*1.5	*0.5	*0.6	*0.7	*1.3	*...	*0.6
"Do you believe cigarette smoking helps people relax?"										
Yes	26.6	16.4	15.7	24.3	27.5	47.4	58.5	63.6	63.0	48.9
No	69.7	79.9	81.5	72.4	68.8	49.1	38.7	33.7	30.2	49.8
Don't know	3.5	3.6	2.8	3.0	3.7	*2.3	2.6	*2.3	6.6	*1.2
"Do you believe cigarette smoking helps reduce stress?"										
Yes	19.5	12.0	10.9	18.7	18.7	29.8	46.5	54.4	53.0	33.9
No	77.7	84.9	86.2	77.2	78.5	68.9	51.7	43.1	45.1	64.9
Don't know	2.6	3.0	2.8	3.7	2.5	*1.6	1.6	*2.1	*1.7	*1.1
"Do you believe smoking helps people feel more comfortable in social situations?"										
Yes	39.1	29.7	28.6	36.9	45.8	53.1	58.6	57.5	65.4	55.9
No	58.1	66.8	68.2	58.4	51.8	46.0	40.0	40.5	33.7	42.8
Don't know	2.6	3.3	3.1	4.3	2.2	*0.9	1.3	*1.6	*0.9	*1.3
"Do you believe smoking helps people keep their weight down?"										
Yes	17.8	13.2	13.0	15.1	19.2	25.5	30.3	36.2	28.8	24.3
No	79.8	84.4	84.7	82.1	78.4	73.9	67.5	61.4	69.4	73.2
Don't know	2.2	2.2	2.2	2.4	2.3	*0.9	2.0	*1.9	*1.7	*2.5
"Do you believe almost all doctors are strongly against smoking?"										
Yes	79.7	80.1	82.3	76.7	78.8	80.1	80.5	81.6	79.6	80.1
No	17.7	17.3	16.1	21.4	18.8	17.3	16.7	15.7	16.3	17.7
Don't know	2.5	2.5	1.5	*1.4	2.3	*2.6	2.6	*2.4	*4.1	*2.2
"Do you believe using chewing tobacco and snuff can cause cancer?"										
Yes	94.5	94.2	95.3	93.3	94.9	93.0	95.4	94.6	95.6	95.6
No	2.3	2.6	2.5	2.8	2.0	*2.0	2.1	*2.2	*1.7	*2.6
Don't know	3.0	3.0	2.2	3.5	3.0	*5.0	2.2	2.5	*2.5	*1.8
"I strongly dislike being around people who are smoking."										
Agree	64.9	77.8	79.6	66.5	66.0	37.6	19.4	10.9	15.4	32.3
Disagree	22.4	12.9	12.1	17.8	18.9	38.2	60.9	73.9	68.2	40.2
No opinion	12.5	9.0	8.0	15.2	14.9	24.2	19.4	14.5	16.4	27.3

See footnote at end of table.

Table 7. Number and percent distribution of teenagers by knowledge and attitudes about smoking and exposure to smoking risks, according to smoking status: United States, 1989—Con.

Knowledge, attitudes, and risk exposure	Smoking status									
		Never smoked					Current smoker			
	All statuses	All never smoked	No intention	May smoke	Experimenter	Former smoker	All current smokers[1]	Heavy	Light	Occasional
	Percent distribution									
"When I'm older my parents won't mind if I smoke."										
Agree	17.2	10.6	9.8	15.7	17.8	25.5	38.7	49.9	41.8	24.7
Disagree	77.6	84.5	85.9	75.6	77.8	70.2	53.9	42.1	49.7	69.7
No opinion	4.8	4.5	3.9	7.9	4.1	*4.3	7.2	7.4	8.4	5.6
"Seeing someone smoking turns me off."										
Agree	67.1	78.5	80.9	63.9	71.0	39.8	22.3	11.1	15.2	37.5
Disagree	22.4	12.9	11.6	21.5	18.1	41.6	62.2	76.5	70.5	42.4
No opinion	10.2	8.2	7.3	14.2	10.7	18.6	15.2	11.6	14.3	20.1
"I'd rather date people who don't smoke."										
Agree	85.9	94.1	94.7	90.2	90.1	71.4	50.9	32.7	43.4	74.2
Disagree	7.9	3.2	2.7	6.2	5.1	*9.6	29.4	41.7	32.7	13.8
No opinion	5.9	2.4	2.3	3.1	4.5	19.3	19.4	24.8	23.8	11.9
"(If I started) I could stop smoking anytime I wanted."										
Agree	17.8	11.4	11.3	11.9	18.1	29.8	38.5	19.0	46.7	56.1
Disagree	72.6	78.7	79.0	76.6	72.1	66.8	53.0	72.2	46.5	35.5
No opinion	9.0	9.3	9.2	10.0	9.3	*3.4	8.0	7.8	*6.8	8.4
"I personally don't mind being around people who are smoking."										
Agree	34.8	22.3	20.5	33.6	35.1	57.5	76.7	85.5	84.8	62.2
Disagree	58.0	70.9	73.2	56.3	57.0	34.8	16.6	9.7	10.8	27.1
No opinion	6.8	6.5	6.0	9.7	7.7	*8.1	6.2	4.1	*4.4	10.0
"I get a kick out of doing things every now and then that are a little risky or dangerous."										
Agree	41.9	30.2	28.5	37.5	52.8	59.1	60.6	59.9	66.5	59.4
Disagree	49.6	60.8	62.5	49.8	39.2	33.6	31.8	32.7	26.7	31.8
No opinion	7.9	8.4	8.5	12.1	7.6	*7.3	7.1	6.5	*6.2	8.9
"Have you ever taken a class or course at school in which the health risks of smoking were discussed."										
Yes	75.2	73.7	74.9	66.7	78.0	82.0	74.4	73.7	77.1	74.2
No	24.1	25.4	24.5	31.6	21.5	18.0	24.6	24.4	22.6	25.4

[1]Includes unknown type of current smoker.
[2]Difference in total number of teenagers from table 1 due to Computer-Assisted Telephone Interviewing (CAT)I versus CATI–Mail sample size (see Technical notes). Includes unknowns.

Technical notes

Source and description of data

This report contains data from the 1989 Teenage Attitudes and Practices Survey (TAPS). The TAPS was a targeted population study of U.S. teenagers 12–18 years of age. The study was conducted by the National Center for Health Statistic's National Health Interview Survey (NHIS) and co-sponsored by the Centers for Disease Control's Office on Smoking and Health, the National Cancer Institute, and the American Cancer Society.

The TAPS survey was designed to obtain current national household data about current cigarette-smoking behavior and lifetime smoking practices of adolescents and their beliefs about smoking. Selected correlate measures associated with smoking uptake were also addressed in the study.

The TAPS sample was derived from NHIS household interviews conducted during the final two quarters of 1988 and the first two quarters of 1989. Included in the sample were all sample teenagers living in households contacted and interviewed during this period that were 12–18 years of age as of November 1, 1989. The eligible sample for the TAPS was 12,097 persons.

TAPS utilized two modes of data collection. The primary method consisted of computer-assisted telephone interviewing (CATI) in households where a telephone number was provided during the original NHIS interview. In addition, self-administered questionnaires were mailed to sample teenagers living in households without telephones or an available telephone number. Mail questionnaires were also sent to those teenagers that could not be reached using the CATI method. Telephone interviews and all other data-collection activities were performed by U.S. Bureau of the Census personnel. Data collection began in August 1989 and continued through March 1990.

Unlike the original NHIS interview, the TAPS survey design required that all teenagers respond for themselves. However, prior to the initial telephone contact, advance letters were mailed to a parent or guardian and to each eligible teenager in the household explaining the sponsorship and objectives of the upcoming survey and assuring confidentiality.

The total interviewed TAPS sample included 9,965 adolescents—9,135 responded in CATI interviews and 830 completed mail questionnaires. The total combined response rate for the TAPS from these two data collection procedures was 82.4 percent. Most of the nonresponse resulted from teenagers' failure to return the mail questionnaire. Only 3.1 percent of interviews of adolescents reached by telephone ended in a refusal, either because of the parents or teenagers initial refusal or because of subsequent termination of the interview. Item nonresponse was less than 1 percent for the questions discussed in this report. More details about non-response are available in a recent report (17).

Sampling errors

Because estimates shown in this report are based on a sample of the population rather than on the entire population, they are subject to sampling error. When an estimate or the numerator or denominator of a percent is small, the sampling error may be relatively high. In addition, the complex sample design of the NHIS has the effect of making the sampling errors larger than they would be had a simple random sample of equal size been used.

The following method for computing sampling errors is presented for the convenience of readers who want a simple method to use in calculating standard errors for estimates in this report. More precise methods, such as that available in the software program SUDAAN (19), which estimates standard errors for complex surveys using Taylor linearization, are recommended for detailed analysis of NHIS data.

Approximate standard errors of the estimated numbers (x) in this report (except for all teenagers, by age, race, and sex when the standard error is assumed to be 0.0) may be calculated using the formula

$$SE(x) = \sqrt{0.0000307(x)^2 + 3{,}640(x)}$$

Except as noted, approximate standard errors of the estimated percents in this report may be calculated using the formula

$$SE(p) = \sqrt{\frac{3{,}640\ (p)\ (100 - p)}{y}}$$

where p is the estimated percent and y is the population denominator.

Approximate standard errors for the percents in table 5, by age and race, may be calculated by using the formula

$$SE(p) = p\ \sqrt{0.0000307 + 3{,}640/x}$$

where p is the estimated percent and $x = py/100$ with y = the population denominator.

If x_1 and x_2 are two estimates, then the approximate standard error of the difference (x_{1-x_2}) can be computed as follows:

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

where $SE(x_1)$ and $SE\ (x_2)$ are computed using the appropriate formulas previously presented in this section, and r is the correlation coefficient between x_1 and x_2 (assuming $r = 0.0$ will result in an accurate standard error if the two estimates are actually uncorrelated and will result in an overestimate of the standard error if the correlation is positive or an underestimate if the correlation is negative).

In this report, unless otherwise noted, a difference was considered statistically significant at the 5-percent level if the difference $(x_1 - x_2)$ was at least twice as large as its standard error.

Related documentation

More detailed discussion of the sample design of the NHIS, estimating procedures, procedures for estimating standard errors, nonsampling errors, and definitions of other sociodemographic terms used in this report have been published in *Vital and Health Statistics,* Series 10, numbers 160 and 176; Series 1, number 18; and Series 2, number 110 (20–23).

A public use data file based on the 1989 TAPS was released in February 1992. Information regarding its purchase may be obtained by writing to the Division of Health Interview Statistics, National Center for Health Statistics, 6525 Belcrest Road, Hyattsville, Maryland 20782.

Definition of terms— TAPS Adolescent smoking status categories

Never smoked—Never smoked a cigarette.

Never smoked, no intention—Never smoked a cigarette or tried or experimented with cigarette smoking; will not try a cigarette soon; and definitely will not be smoking in 1 year.

Never smoked, may smoke—Never smoked a cigarette or tried or experimented with cigarette smoking; may try a cigarette soon or may be smoking in 1 year.

Experimenter—Has either smoked a cigarette or tried or experimented with cigarette smoking, but has never smoked 100 cigarettes and has not smoked in the past 30 days.

Former smoker—Has smoked at least 100 cigarettes but has not smoked in the past 30 days.

Current smoker—Has smoked a cigarette in the past 30 days.

Current light smoker—Has smoked 10 or more days in the past 30 days, and smoked an average of fewer than five cigarettes per day in the past 7 days.

Current heavy smoker—Has smoked 10 or more days in the past 30 days, and smoked an average of five cigarettes or more per day in the past 7 days.

Current occasional smoker—Has smoked 1 to 9 days in the past 30 days.

Suggested citation

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National Center for Health Statistics

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Advance Data

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

AIDS Knowledge and Attitudes for 1991

Data From the National Health Interview Survey

by Shella M. Aguilar and Ann M. Hardy, Dr.P.H., Division of Health Interview Statistics

Highlights

In 1991, levels of knowledge about the major modes of transmission of human immunodeficiency virus (HIV) remained high in all sociodemographic groups examined. Knowledge about other aspects of acquired immunodeficiency syndrome (AIDS) was more variable, with older and less-educated adults generally being less knowledgeable. Several changes in responses to survey items between 1990 and 1991 were noted, including:

- An increase from 19 to 29 percent in the proportion who felt they knew "a lot" about AIDS.
- An increase from 79 to 86 percent in the proportion who had heard the AIDS virus referred to as "HIV."
- An increase of 3–6 percentage points in the percent of adults stating that various forms of casual contact were "very unlikely" or "definitely not possible" ways to transmit HIV.
- A slight increase in the proportion who reported ever having HIV antibody testing—excluding blood donation (from 11 to 15 percent) and testing through all means (from 26 to 29 percent).

In addition, some changes in responses were noted during 1991, particularly in the fourth quarter compared with earlier quarters. Noteworthy changes seen during 1991 included:

- The proportion who received information about AIDS from television programs in the month before the interview increased from 72 to 78 percent.
- The percentage of parents who had ever discussed AIDS with their children rose from 66 percent in the first quarter to 72 percent in the last quarter of 1991.
- The proportion who knew a person can be infected with the AIDS virus and not have the disease AIDS increased by 5 percentage points (from 77 to 82 percent).
- Those planning future testing for HIV antibodies who indicated such testing would be voluntary increased from 65 to 71 percent.
- The proportion who had heard of zidovudine (also known as AZT or azidothymidine and by the brand name "Retrovir") increased from 50 to 55 percent.

Introduction

The National Center for Health Statistics (NCHS) has included questions about HIV and AIDS as part of the National Health Interview Survey (NHIS) since 1987. The purpose of these questions is to provide population-based data on adults' knowledge about AIDS and transmission of HIV and on their experience with HIV antibody testing. Such information is used to help plan and monitor various educational and prevention programs. The questionnaire used in 1991 is the fourth version of this survey (1). Although new questions have been introduced in each version to meet changing data needs, many questions have been used repeatedly to allow for examination of trends. NCHS has routinely published results from this survey in *Advance Data From Vital and Health Statistics* (2–9). In addition, public use data tapes of the 1987–90 surveys are currently available and more detailed exploration of the data is encouraged.

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

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

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

Data and methods

This report presents a summary of data for the entire 1991 data-collection year. Thus there is some overlap with the earlier report that described results from the first quarter of 1991 (9). Unless otherwise stated, the results described were consistent throughout 1991. For certain items, some differences were noted for the fourth quarter of 1991, and these are pointed out. While the exact cause of these variations for that particular quarter is not known, most readers are probably aware of the considerable amount of publicity that occurred in the fourth quarter of 1991 after Earvin "Magic" Johnson announced that he was infected with HIV. Further analyses are underway to determine the impact of this announcement on responses to the NHIS and other AIDS surveys. Also, 1990 data cited in this report for comparison refers to data reported from the fourth quarter of 1990 (8). Details about the sample design and the estimation procedure can be found in "Technical notes" at the end of this report.

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

When interpreting trend data, revisions in the questionnaire, whether in actual wording or in context and location of questions, must be considered. There were several important changes and additions to the 1991 version of the survey. First, the series of knowledge items that contain selected statements about HIV and AIDS (question 5 in the 1991 survey) had five possible responses in earlier versions of the questionnaire: "definitely true," "probably true," "probably false," "definitely false," and "don't know." In 1991, the distinction between definitely and probably was eliminated leaving "true," "false," and "don't know" as the only possible response choices.

Before 1991, the section on HIV antibody testing began with a question assessing whether persons had heard of the blood test to detect the AIDS virus infection; those who were not aware of the test were skipped past the remainder of this section. In 1991, this lead-in was eliminated because of concern about people attempting to end the survey prematurely. Persons who truly were not familiar with HIV antibody testing still had the option of responding "don't know" to questions in this section.

Several new items were added to the 1991 survey, including the perceived likelihood of becoming infected by receiving care from an infected health care worker or by donating blood. Reasons why persons had not been tested for HIV were examined. Items were added to assess respondents' knowledge about the HIV antibody test, about AZT, and about the proper use of condoms. Finally, in 1991, a distinction was made between having a co-worker with HIV or AIDS and having other friends or relatives with the disease.

Selected findings

The following highlights describe survey results of the NHIS AIDS Knowledge and Attitudes Survey for 1991. Unless otherwise noted in the text, all measures described remained stable over this period. All differences cited in the text are statistically significant at the .05 level. Table II shows provisional estimates of the standard errors associated with these results.

Sources of information

In 1991, 86 percent of adults stated that they had received information about AIDS in the past month. This was consistent with the figure reported for 1990. Of all categories listed, the primary sources of information were television programs (73 percent), newspaper articles (47 percent), magazine articles (40 percent), and radio programs (35 percent). From the third to fourth quarter of 1991, there was a notable increase in the proportion receiving AIDS information. During this time the percent of adults hearing or seeing information from any of the sources mentioned above rose from 1 to 6 percentage points.

When specifically asked about exposure to public service announcements (PSA's) in the previous month, 80 percent reported viewing them on television, 45 percent hearing them on radio, and 9 percent seeing posters in airports. For all three sources, those 18–29 years old, and those with more than 12 years of education appeared to have had more exposure to PSA's than had their counterparts.

Of parents of 10–17-year-olds, 69 percent reported ever discussing AIDS with those children. Overall, white and black parents were more likely to talk to their children about AIDS than were Hispanic parents (70 percent, compared with 61 percent). Women and those 30–49 years old were also more likely to discuss the topic. The percentage of parents discussing AIDS with their children increased with years of

education, from 56 percent for those with less than 12 years of education to 75 percent for those with more than 12 years of education. Seventy-four percent of parents reported that their children received instruction about AIDS at school. This figure is similar to the percent reported for 1990. The percentage of parents who reported talking to their children about AIDS increased in the fourth quarter of 1991 (72 percent, compared with the earlier quarters' range of 66–69 percent).

General knowledge about AIDS

In 1991, of the adults asked to assess their knowledge of AIDS, 29 percent stated they knew "a lot," and 44 percent stated they knew "some." The percentage of those who knew "a lot" had increased 10 percentage points since 1990, whereas the percent answering "some" remained stable throughout 1991. The percentages decreased for those who answered "a little" (25 percent in 1990 to 19 percent in 1991) and "nothing" (10 percent in 1990 to 8 percent in 1991).

Also in 1991, a higher percentage of people reported having heard the AIDS virus called "HIV"—86 percent in 1991, compared with 79 percent in 1990. Awareness was lower among persons with less than 12 years of education, those over 50 years old, and those of Hispanic descent (67 percent, 78 percent, and 72 percent, respectively).

In 1991, new sets of responses were used for questions pertaining to knowledge about AIDS. Prior to 1991, four responses were possible, ranging from "definitely true" to "definitely false." In 1991, the response categories were changed to "true" or "false." "Don't know" also remained an acceptable response in the 1991 questionnaire. This decrease in categories may have accounted for the change in proportions with correct responses from 1990.

Ninety-five percent of adults knew that AIDS is transmissible through sexual intercourse, 94 percent believed a pregnant woman infected with AIDS can give it to her baby, 92 percent knew there is no cure for AIDS at present, 85 percent knew AIDS reduces the body's natural protection against disease, and 81 percent knew it is an infectious disease caused by a virus. Persons who commonly answered incorrectly included those 50 years old and over and those with 12 or fewer years of education. However, more individuals answered "don't know" than provided the incorrect true-false response.

Correct responses to other AIDS–knowledge questions were lower. Eighty percent of adults knew that a person who has the AIDS virus can look and feel healthy, but 78 percent knew that a person can be infected with HIV and not have the disease AIDS. Sixty-seven percent of adults were aware of the availability of drugs that can lengthen the life of a person infected with AIDS. For these items, the proportion with the correct response was 4–5 percentage points higher in the fourth quarter of 1991 than in previous quarters.

Also in 1991, more than half of all adults knew that early treatment of HIV can reduce symptoms in an infected person and that AIDS can damage the brain. As before, knowledge levels were lower for older individuals and those with less education.

Misconceptions about HIV transmission

The NHIS AIDS supplement provides information on respondents' perceptions of the likelihood of HIV transmission associated with several forms of contact. There were five response categories, which ranged from "very likely" to "definitely not possible." The proportion of adults who believed the various modes of transmission were "very unlikely" and "definitely not possible" remained stable throughout 1991 but for most were slightly higher than in 1990. For these two response categories, the highest percentages were reported for questions that assessed transmission by working near someone with AIDS, attending school with a child who has AIDS, using public toilets, eating in a restaurant where the cook has AIDS, and being coughed or sneezed on.

Although general knowledge levels about AIDS were high, perceived likelihood of transmission persisted for questions evaluating transmission through casual contact with a health care worker (27 percent reported "very likely," and 33 percent reported "somewhat likely"); by sharing plates, forks, or glasses (10 and 18 percent); and through mosquitoes or other insects (9 and 16 percent). As with previous reports, younger persons, those with more education, and white adults were more likely to view these modes as unlikely or impossible factors in HIV transmission.

Blood donation and blood screening

Patterns of past blood donation were similar in 1991 to those seen in previous years. Overall, 42 percent of adults reported ever having donated blood; 18 percent had donated since March 1985 (when routine screening of donated blood for HIV began); and 6 percent had donated in the past year. In general, men were more likely to have donated than women, and donations increased with years of education.

In 1991, 60 percent of adults knew that a person could not get HIV while donating blood for use by others; 30 percent believed that they could; and 10 percent did not know. Misconceptions about transmission of HIV by donating blood were higher among black adults (43 percent believed that AIDS could be transmitted this way, compared with 27 percent of white adults), and those with less than 12 years of education (38 percent, compared with 24 percent of those with more than 12 years of schooling). It should be noted that the data did not distinguish between a respondent who believed that such transmission was likely and one who thought it was just a theoretical possibility if standard blood bank practices were not followed. Also, despite attempts to

make the wording clear, some respondents may still have mistakenly believed that the question referred to getting HIV from *receiving* blood. Further refinement of this question may help clarify the responses being elicited.

Seventy-six percent of adults in 1991 believed that blood donations were routinely tested for the AIDS virus. This figure remained stable throughout 1991, but it was higher than that reported in the last quarter of 1990 (68 percent). Also, the proportion who did not know the answer to this question more than doubled between 1990 and 1991 (from 7 to 16 percent). These changes may have been due in part to the elimination in 1991 of the question sequence that first asked if persons were aware of the blood test to detect HIV infection and then proceeded to other questions related to HIV testing.

HIV antibody testing

Considering HIV testing done for all reasons (including blood donation), an estimated 29 percent of adults in the United States reported having been tested for antibodies to HIV. In 1991, the percent of adults ever tested for HIV—apart from blood donation—was 15 percent, up slightly from 11 percent in the last quarter of 1990. In the remainder of this report, all reference to HIV testing is restricted to testing for reasons other than blood donation.

In 1991, the NHIS asked those adults who had not been tested for HIV why they had not. The most common response, given by 84 percent of those never tested, was that they did not consider themselves to be at risk for AIDS. Very few respondents (less than 2 percent) chose recognized barriers to testing—such as fear of discrimination, not knowing where to go for testing, and not trusting the medical community to keep results confidential—as reasons they had not been tested. The remainder listed fear of needles (1 percent), chose another unspecified reason (6 percent), or said they did not know why they had not been tested (9 percent). These figures remained essentially the same through all of 1991.

For those who had ever been tested, about two-thirds had been tested once, and one-third had been tested more than once. This pattern was similar in all subgroups examined. About one-half of those who had been tested had had the test in the 12 months before the interview.

The reported reasons for HIV antibody testing were similar in 1991 to those reported in 1990. Twenty-five percent of those tested did so solely to find out if they were infected. Another 6 percent cited referral by their doctor, the health department, or their sex partner. Fourteen percent had been tested in preparation for hospitalization or a surgical procedure, 14 percent to apply for health or life insurance, and 7 percent each for military induction or service and for employment. Although immigration was mentioned by only 6 percent of all adults tested, it was the reason most commonly cited by Hispanic persons (31 percent). As in 1990, most of those in 1991 who reported being tested had had their last test at their doctor's office or health maintenance organization (HMO) (30 percent); at a hospital, emergency room, or outpatient clinic (25 percent); or at a community health clinic (7 percent).

As in the past, about three-quarters (79 percent) of those tested received their results. This figure decreased with age and was higher among Hispanic adults who were tested than among black or white adults who were tested (85 percent compared with 81 and 78 percent, respectively). In 1991, 60 percent of those who were tested received their results in person. This figure showed a slight decrease in the second half of 1991 from the first half (62 percent compared with 57 percent). In 1991, almost all adults tested said they felt their results were accurate (99 percent) and that their results were handled properly in terms of confidentiality (95 percent).

The proportion who indicated intention to be tested in the next year was 9 percent, similar to that reported previously. The figure was highest among black adults (21 percent). Of those who planned to be tested, most (67 percent) said they would be tested voluntarily because they wanted to know if they were infected. The proportion of those planning testing who mentioned this as a reason increased slightly from 65 percent in the first quarter of 1991 to 71 percent in the last quarter. In addition to this reason, another 19 percent said they would be tested as part of a blood donation, and 8 percent each indicated it would be to apply for a job or for insurance (health or life). The percentages for the places where respondents said they would go to have their blood tested were similar to those for places cited by those already tested.

Seventy-four percent of adults recognized that "after a person is infected with the AIDS virus, there can be a period of time before the [blood] test shows the infection"; 23 percent responded "don't know" to this statement. The proportion with the correct response to this item increased slightly in 1991 (70 percent correct in the first quarter compared with 76 percent in the last quarter). Persons less likely to be aware of this fact included those with less than 12 years of education (55 percent correct), Hispanic adults (61 percent correct), and those 50 years and over (64 percent correct).

Awareness about zidovudine

A new question was added to the 1991 NHIS AIDS supplement to assess an individual's awareness of zidovudine (also known as AZT or azidothymidine and by the brand name "Retrovir"). AZT was the first antiviral drug approved for use in the treatment of HIV. More than one-half of all adults reported that they had heard of this drug. A notable increase in awareness occurred from the third to fourth

quarter of 1991 (50 to 55 percent). Persons between the ages of 30 and 49 (59 percent), and those having higher levels of education were more familiar with the drug (24 percent for adults with less than 12 years of education compared with 69 percent for those with more than 12 years of education). Hispanic adults were less aware of AZT than white or black adults (32 percent compared with 55 and 43 percent, respectively).

Among persons who had heard of AZT, 89 percent were aware that AZT does not cure people with AIDS, 81 percent knew it can delay or slow down the symptoms of HIV infection, and 59 percent knew of the drug's side effects. Thirty-four percent knew AZT is only appropriate for an HIV–infected individual at certain times during the illness. Proportionately more people answered "don't know" to this question (55 percent), as opposed to those giving the incorrect response (11 percent). Half of the adults surveyed knew there are other drugs available to treat AIDS–related illnesses. Between the third and fourth quarters, this percentage rose five points (from 49 to 54 percent). However, 35 percent answered "don't know," and 14 percent did not believe other drugs existed. Slight percentage fluctuations across all sociodemographic groups indicated no specific pattern for those who answered "don't know" as opposed to the correct response. For each question, more people answered "don't know" rather than giving the incorrect response.

Perceptions about condom use

As in previous years, the 1991 NHIS asked respondents to evaluate the efficacy of condom use as a means of preventing sexual transmission of HIV. Overall, since 1990, the percentages responding "very effective" and "don't know" increased (25 and 15 percent in 1990 compared with 28 and 17 percent in 1991, respectively), and those who answered "somewhat effective" decreased from 53 percent in 1990 to 49 percent in 1991.

The proportions of individuals who answered "very effective" stayed consistently below one-third throughout 1991. For the adults who believed condom use to be "somewhat effective" in preventing HIV infection, there was a 2-percent increase between the third and fourth quarters of 1991 (49 to 51 percent). Persons least likely to believe in the efficacy of condoms were females, black adults, those of Hispanic descent, and those with less than 12 years of education (19, 22, 21, and 32 percent, respectively).

Two new questions in the 1991 AIDS supplement gauged knowledge of correct condom use. These questions evaluated respondents' ability to distinguish the relative effectiveness of latex versus natural-membrane condoms and whether they knew the dangers of using oil-based lubricants with latex condoms. For both of these questions, more people chose "don't know" than the correct response.

Although 77 percent of adults considered condom use at least somewhat effective in preventing HIV infection, 61 percent of adults did not know if there was a difference between the effectiveness of latex and natural-membrane condoms. Nineteen percent recognized that there was a difference, and 18 percent felt there was no difference in effectiveness between the two types of condoms. Persons 30–49, white persons, and those with more than 12 years of education were more likely to provide the correct response; however, even in these groups more than half responded "don't know." Similarly, only 27 percent knew that oil-based lubricants cause latex condoms to break, and 65 percent were unsure of this effect. Six percent called the statement "false." Males and younger individuals were more likely to give the correct answer (31 and 36 percent, respectively). Correct responses increased with years of education—16 percent for those with less than 12 years of education up to 34 percent for those with more than 12 years of education. Those more likely to respond "don't know" included females (70 percent), those 50 years of age and over (76 percent), individuals of Hispanic descent (67 percent), and persons with less than 12 years of education (73 percent).

Risk of HIV infection

In 1991, 80 percent of adults felt they had no chance of being infected with HIV, and 72 percent said they had no chance of getting it in the future. Black adults were somewhat less likely than white or Hispanic persons to rate their chances of having or getting HIV as "none." Also, those 18–29 years of age were less likely than older persons to feel they had no chance of being or becoming infected. Only 1–2 percent of adults felt their chances of having or getting HIV were "high" or "medium" (these proportions varied little among the sociodemographic groups). As in the past, only a small proportion of adults (3 percent) reported being in any of the behavior categories associated with an increased risk of HIV infection.

Knowing someone with AIDS

In the past, the NHIS AIDS survey has asked respondents if they had ever personally known someone with HIV infection or AIDS. In 1991, the distinction was made between having a co-worker with HIV or AIDS and knowing others (friends or relatives) with the infection. Four percent of adults reported having had a co-worker with HIV or AIDS. This figure increased with years of education, from 2 percent of those with less than 12 years to 7 percent for those with more than 12 years. Nine percent of persons reported having a friend or relative with the disease. This also increased with years of education and was higher for those 30–49 years of age than for younger or older persons. For both situations, the proportion who said they personally knew someone with AIDS was stable throughout 1991.

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Symbols

- - -	Data not available
. . .	Category not applicable
-	Quantity zero
0.0	Quantity more than zero but less than 0.5
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)

Table 1. Estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1991 National Health Interview Survey, by selected characteristics: United States, 1991

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

AIDS knowledge or attitude	Total	Age			Sex		Race or ethnicity			Education		
		18–29 years	30–49 years	50 years and over	Male	Female	Non-Hispanic White	Non-Hispanic Black	Hispanic	Less than 12 years	12 years	More than 12 years
	Percent distribution											
Total	100	100	100	100	100	100	100	100	100	100	100	100
1. How much would you say you know about AIDS?												
A lot	29	32	34	20	28	29	29	26	28	15	24	39
Some	44	50	47	37	44	45	46	38	38	31	48	47
A little	19	16	15	27	21	18	18	23	23	31	22	12
Nothing	8	3	3	17	8	7	6	13	11	23	5	2
Don't know	0	0	0	0	0	0	0	0	–	0	0	0
2. In the past month have you–												
2a. Seen any public service announcements about AIDS on television?												
Yes	80	82	82	77	81	80	81	83	74	72	82	83
No	18	17	16	20	17	18	17	16	25	25	16	16
Don't know	2	1	2	3	2	2	2	1	2	3	2	2
2b. Heard any public service announcements about AIDS on the radio?												
Yes	45	53	49	33	50	40	43	52	50	34	45	50
No	52	45	48	63	48	57	54	46	47	63	52	47
Don't know	3	2	3	4	3	3	3	2	3	3	3	3
2c. Seen any public service posters in airports about AIDS?												
Yes	9	11	10	6	10	8	8	12	13	6	7	12
No	89	87	88	91	88	91	90	87	83	92	91	86
Don't know	2	1	2	2	2	2	2	2	4	2	1	2
3. In the past month, have you received information about AIDS from any of these sources?[1]												
Television programs	73	74	75	72	75	72	74	75	71	68	75	75
Radio programs	35	41	39	26	40	31	34	41	41	27	35	39
Magazine articles	40	43	43	34	38	42	41	38	37	24	39	49
Newspaper articles	47	41	50	49	49	46	49	42	42	33	46	56
Street signs/billboards	16	22	17	9	18	13	15	20	18	9	14	20
Store displays/store-distributed brochures	7	9	7	4	8	6	6	10	10	5	7	8
Bus/streetcar/subway displays	6	10	6	3	7	5	5	13	9	4	5	8
Health department brochures	13	19	14	8	12	15	12	19	18	10	13	15
Workplace-distributed brochures	10	10	14	5	11	10	9	15	10	4	9	14
School-distributed brochures	7	14	8	2	7	8	6	10	10	5	6	9
Church-distributed brochures	4	3	4	3	3	4	3	6	6	3	4	4
Community organization	4	4	4	3	4	3	3	6	5	2	3	5
Friend/acquaintance	8	11	9	5	8	8	7	11	10	6	8	9
AIDS hotline	1	1	1	0	1	1	0	1	1	1	1	1
Other	3	3	4	2	3	3	3	3	3	2	3	4
Don't know	1	0	1	1	1	1	1	1	1	1	1	0
Received no AIDS information in past month	14	13	12	17	14	14	14	14	16	22	14	10
4. Have you heard the AIDS virus called by the name "HIV"?												
Yes	86	91	91	78	86	86	89	85	72	67	88	94
No	12	9	8	19	12	12	10	12	24	28	10	5
Don't know	2	1	1	4	2	2	1	3	3	5	1	1
5. Tell me whether you think the following statements are true or false or if you don't know if they are true or false.												
5a. AIDS can reduce the body's natural protection against disease.												
True	85	88	91	76	87	84	88	73	77	65	86	95
False	4	4	3	5	3	4	3	8	4	6	4	2
Don't know	11	8	6	19	10	12	9	19	19	28	10	3
5b. AIDS can damage the brain.												
True	55	46	56	60	56	54	54	60	58	55	55	54
False	16	26	18	8	17	16	17	12	15	8	16	21
Don't know	29	28	26	32	27	30	29	28	26	36	29	25
5c. AIDS is an infectious disease caused by a virus.												
True	81	88	86	70	83	79	81	82	79	68	81	88
False	6	5	6	7	5	7	6	5	4	5	7	5
Don't know	13	8	8	24	12	14	13	14	16	27	13	7
5d. A person can be infected with the AIDS virus and not have the disease AIDS.												
True	78	81	85	69	78	78	81	72	68	59	79	88
False	6	9	6	5	7	6	5	9	9	8	7	5
Don't know	15	10	9	26	15	16	13	19	23	33	14	7

See footnotes at end of table.

Table 1. Estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1991 National Health Interview Survey, by selected characteristics: United States, 1991—Con.

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

AIDS knowledge or attitude	Total	Age			Sex		Race or ethnicity			Education		
		18–29 years	30–49 years	50 years and over	Male	Female	Non-Hispanic White	Non-Hispanic Black	Hispanic	Less than 12 years	12 years	More than 12 years
	Percent distribution											
5e. ANY person with the AIDS virus can pass it on to someone else through sexual intercourse.												
True	95	97	97	92	95	95	96	94	94	90	96	97
False	1	1	1	1	1	1	1	1	1	1	1	1
Don't know	4	2	2	7	4	4	3	5	5	10	3	2
5f. A pregnant woman who has the AIDS virus can give it to her baby.												
True	94	96	96	90	93	95	95	93	93	87	95	97
False	1	0	0	1	1	0	0	1	1	1	1	0
Don't know	6	4	3	10	6	5	5	6	6	12	5	3
5g. A person who has the AIDS virus can look and feel well and healthy.												
True	80	85	86	69	81	79	83	75	68	60	80	90
False	8	7	6	10	7	8	6	10	13	12	9	4
Don't know	12	8	8	21	12	13	11	15	19	28	12	5
5h. There are drugs available which can lengthen the life of a person infected with the AIDS virus.												
True	67	66	72	62	68	66	70	58	58	50	65	77
False	9	12	9	8	10	9	8	14	11	10	11	8
Don't know	24	23	19	31	22	25	22	27	31	40	24	15
5i. Early treatment of the AIDS virus infection can reduce symptoms in an infected person.												
True	56	56	61	49	57	54	57	50	51	40	54	65
False	12	14	12	10	12	11	11	15	11	11	13	11
Don't know	33	31	27	41	31	34	32	35	38	49	34	24
5j. There is a vaccine available to the public that protects a person from getting the AIDS virus.												
True	4	4	3	4	4	3	2	7	7	6	3	2
False	82	85	88	72	84	80	85	72	71	64	83	90
Don't know	15	11	9	24	13	17	12	21	22	30	14	8
5k. There is no cure for AIDS at present.												
True	92	94	95	88	93	92	94	89	85	82	94	97
False	2	2	2	2	2	2	2	3	4	4	2	1
Don't know	5	4	3	9	5	6	4	8	11	14	4	2
6. How likely do you think it is that a person will get AIDS or the AIDS virus infection from—												
6a. Working near someone with the AIDS virus?												
Very likely	2	2	2	3	2	2	2	4	4	4	2	1
Somewhat likely	5	4	5	5	5	5	4	6	6	6	5	4
Somewhat unlikely	6	6	6	6	6	6	6	7	8	7	7	5
Very unlikely	41	41	42	41	43	40	43	39	32	36	42	44
Definitely not possible	39	45	42	32	38	40	40	35	42	31	39	44
Don't know	6	3	3	12	6	7	5	9	9	16	5	2
6b. Eating in a restaurant where the cook has the AIDS virus?												
Very likely	6	5	6	8	6	6	5	10	7	9	7	4
Somewhat likely	16	16	16	17	17	16	16	18	16	18	18	14
Somewhat unlikely	12	15	12	10	12	12	12	11	13	10	12	13
Very unlikely	35	36	37	30	36	33	36	31	27	25	33	41
Definitely not possible	20	22	22	17	20	20	20	17	23	15	19	24
Don't know	10	6	7	18	9	11	10	13	13	22	10	5
6c. Sharing plates, forks, or glasses with someone who has the AIDS virus?												
Very likely	10	7	10	12	10	10	9	13	10	13	12	7
Somewhat likely	18	16	18	20	18	18	18	20	17	20	19	16
Somewhat unlikely	12	12	13	10	12	11	12	10	11	9	12	13
Very unlikely	31	34	33	27	31	31	32	29	26	24	30	36
Definitely not possible	19	25	20	14	19	20	19	16	23	15	19	22
Don't know	10	5	7	17	9	10	9	12	12	20	9	5
6d. Using public toilets?												
Very likely	6	5	5	7	5	6	5	9	8	10	6	3
Somewhat likely	11	10	9	13	11	11	10	13	12	14	12	8
Somewhat unlikely	10	11	10	9	10	10	10	10	11	8	11	11
Very unlikely	36	36	39	33	37	35	38	33	30	28	35	41
Definitely not possible	28	33	31	21	29	28	29	23	28	20	28	33
Don't know	9	5	5	16	8	10	8	12	11	19	8	4

See footnotes at end of table.

Table 1. Estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1991 National Health Interview Survey, by selected characteristics: United States, 1991—Con.

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

AIDS knowledge or attitude	Total	Age			Sex		Race or ethnicity			Education		
							Non-Hispanic					
		18–29 years	30–49 years	50 years and over	Male	Female	White	Black	Hispanic	Less than 12 years	12 years	More than 12 years
	Percent distribution											
6e. Sharing needles for drug use with someone who has the AIDS virus?												
Very likely	95	97	97	91	95	95	96	92	94	89	96	97
Somewhat likely	2	1	1	2	1	2	1	3	1	2	2	1
Somewhat unlikely	0	0	0	0	0	0	0	0	0	0	0	0
Very unlikely	0	0	1	0	1	0	0	1	1	0	1	0
Definitely not possible	0	0	0	0	0	0	0	0	0	0	0	0
Don't know	3	1	1	6	2	3	2	4	4	8	2	1
6f. Being coughed or sneezed on by someone who has the AIDS virus?												
Very likely	9	6	8	12	8	9	8	12	11	13	10	6
Somewhat likely	18	15	18	20	18	18	18	18	17	19	19	16
Somewhat unlikely	13	14	14	11	14	13	13	11	13	9	13	15
Very unlikely	31	36	33	26	32	31	33	28	26	23	30	37
Definitely not possible	17	23	18	11	17	17	17	15	19	13	17	19
Don't know	11	7	8	19	10	12	11	14	14	22	11	6
6g. Attending school with a child who has the AIDS virus?												
Very likely	2	1	2	3	2	2	1	3	3	3	2	1
Somewhat likely	4	3	4	5	5	4	4	6	5	6	5	3
Somewhat unlikely	7	6	7	7	7	7	6	8	7	6	7	6
Very unlikely	41	40	42	40	42	40	43	37	31	34	41	44
Definitely not possible	39	47	41	31	38	40	39	35	45	32	39	43
Don't know	7	3	4	14	7	7	6	10	10	18	6	3
6h. Mosquitoes or other insects?												
Very likely	9	9	9	9	10	9	8	14	13	13	10	6
Somewhat likely	16	18	16	15	17	15	15	20	18	17	17	14
Somewhat unlikely	8	10	9	6	8	8	8	7	8	6	8	9
Very unlikely	25	25	27	23	26	24	26	21	19	17	24	30
Definitely not possible	22	22	24	19	21	22	23	16	21	15	20	26
Don't know	21	16	16	29	18	22	20	22	22	31	21	15
6i. Being cared for by a nurse, doctor, dentist, or other health care worker who has the AIDS virus?												
Very likely	27	22	25	32	25	28	25	35	29	34	31	20
Somewhat likely	33	33	35	32	33	33	35	29	29	27	35	35
Somewhat unlikely	13	16	14	10	14	12	14	9	10	8	11	17
Very unlikely	15	18	17	12	17	14	16	12	13	11	13	20
Definitely not possible	4	6	4	2	4	4	3	5	8	5	4	4
Don't know	7	5	5	12	7	8	6	11	12	16	6	4
7. Can a person get AIDS or the AIDS virus infection while giving or donating blood for use by others?												
Yes	30	31	29	30	31	28	27	43	37	38	32	24
No	60	61	65	55	60	61	65	44	49	41	59	71
Don't know	10	7	6	16	9	11	9	13	14	21	9	5
10. Have you ever discussed AIDS with any of your children 10–17 years of age?[2]												
Yes	69	55	70	60	57	79	70	70	61	56	67	75
No	31	41	30	37	42	20	29	29	39	43	32	25
Don't know	0	0	0	–	0	0	0	–	–	–	0	0
11. Have any or all of your children 10–17 years of age had instruction at school about AIDS?[2]												
Yes	74	53	75	75	70	77	74	77	73	69	72	77
No	9	16	9	5	7	10	9	6	11	8	9	9
Don't know	17	27	16	17	22	12	17	16	16	21	18	14
12. Have you ever given or donated blood?												
Yes	42	35	45	44	53	32	45	35	27	28	39	51
No	58	65	54	56	47	67	54	65	73	71	60	48
Don't know	0	0	0	0	0	0	0	0	0	0	0	0
13a. Have you donated blood since March 1985?												
Yes	18	26	22	8	22	15	20	14	13	7	17	26
No	81	73	77	91	77	84	80	85	86	93	83	74
Don't know	1	0	1	1	1	1	1	1	1	0	1	1
13b. Have you donated blood in the past 12 months?												
Yes	6	9	8	3	8	5	7	4	4	2	6	9
No	93	91	91	96	92	94	92	96	96	97	94	90
Don't know	1	0	1	1	1	1	1	1	1	1	1	1

See footnotes at end of table.

Table 1. Estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1991 National Health Interview Survey, by selected characteristics: United States, 1991—Con.

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

AIDS knowledge or attitude	Total	Age			Sex		Race or ethnicity			Education		
		18–29 years	30–49 years	50 years and over	Male	Female	Non-Hispanic White	Non-Hispanic Black	Hispanic	Less than 12 years	12 years	More than 12 years
	Percent distribution											
14. How many times in the past 12 months have you donated blood?												
Once	3	5	4	1	4	3	4	2	2	1	3	5
Twice	2	2	2	1	2	1	2	1	1	0	1	2
Three times or more	1	1	2	1	2	1	2	1	1	0	1	2
Don't know	0	0	0	0	0	0	0	0	–	0	0	–
Did not donate blood in past 12 months[3]	94	92	92	97	92	95	93	96	96	98	94	91
15. To the best of your knowledge, are blood donations routinely tested for the AIDS virus infection?												
Yes	76	80	82	67	76	76	79	67	64	59	77	84
No	8	7	7	9	8	8	7	13	11	11	9	6
Don't know	16	13	11	24	16	16	14	20	25	30	15	10
16. Was one of your reasons for donating blood because you wanted to be tested for the AIDS virus infection?[4]												
Yes	3	4	2	2	4	2	2	6	5	8	3	2
No	90	88	91	93	89	91	91	85	87	83	90	91
Don't know	0	0	–	–	0	–	0	–	–	–	0	–
17a. Except for blood donations since 1985, have you had your blood tested for the AIDS virus infection?												
Yes	15	22	17	6	17	13	13	21	24	13	13	17
No	79	74	78	86	77	81	82	73	70	80	81	78
Don't know	6	4	5	8	6	5	6	6	6	7	6	5
17b. Why haven't you been tested?[1,5]												
Don't consider myself at risk of AIDS	84	77	84	87	83	84	85	76	79	79	83	86
Don't believe anything can be done if I am positive	0	0	1	0	0	0	0	1	1	0	0	0
Don't like needles	1	2	1	0	1	1	1	2	1	1	1	1
Afraid of losing job, insurance, housing, friends, family if people knew I was positive	0	0	0	0	0	0	0	0	0	0	0	0
Don't trust medical clinics/hospitals to keep test results confidential	0	0	0	0	0	0	0	0	0	0	0	0
Already know whether I have the AIDS virus infection	1	1	1	0	1	1	1	1	1	1	1	1
Don't know where to go for a test	1	1	1	0	1	1	0	2	1	1	1	0
Other	7	9	7	6	7	7	7	8	9	7	7	7
Don't know	8	12	8	6	9	8	7	12	10	11	9	5
18. How many times have you had your blood tested for the AIDS virus infection, not including blood donations?												
Once	10	14	12	4	10	9	8	12	18	9	9	11
Twice	3	4	3	1	3	2	2	5	4	2	2	3
Three times or more	2	3	2	1	3	1	2	3	2	1	2	2
Don't know	0	0	0	0	0	0	0	1	0	0	0	0
Never had test[6]	86	78	83	94	84	87	88	79	76	87	87	84
19. How many times in the past 12 months have you had your blood tested for the AIDS virus infection, not including blood donations?												
None	7	10	9	3	8	6	6	8	13	6	6	8
Once	6	10	7	3	7	6	5	10	9	5	6	7
Twice	1	1	1	0	1	1	1	2	2	1	1	1
Three times or more	0	1	0	0	0	0	0	1	0	0	0	0
Don't know	0	0	0	0	0	0	0	0	0	0	0	0
Never had test[6]	86	78	83	94	84	87	88	79	76	87	87	83
20. Did you have any of the AIDS blood tests:[1,7]												
For hospitalization or a surgical procedure?	14	12	14	21	10	19	14	16	13	19	15	12
To apply for health insurance?	4	2	5	3	4	3	5	2	1	1	3	5
To apply for life insurance?	10	5	13	8	12	6	12	5	5	2	6	15
For employment?	7	8	7	5	8	6	6	11	6	5	8	7
To apply for a marriage license?	5	6	4	1	5	4	6	2	3	3	5	5
For military induction or military service?	7	12	5	2	12	2	8	7	4	2	9	8
For immigration?	6	7	6	4	7	6	1	2	31	18	3	4
Just to find out if you were infected?	25	27	24	23	25	26	24	36	23	26	26	24
Because of referral by the doctor?	4	4	4	4	3	5	4	5	3	4	5	3
Because of referral by the Health Department?	1	1	0	0	0	1	0	1	0	1	1	0
Referred by your sex partner?	1	1	1	0	1	0	1	1	1	1	0	1
Other	20	20	19	21	16	24	21	18	15	19	20	20
Don't know	0	0	0	1	0	0	0	0	0	0	0	0

See footnotes at end of table.

Table 1. Estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1991 National Health Interview Survey, by selected characteristics: United States, 1991—Con.

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

AIDS knowledge or attitude	Total	Age			Sex		Race or ethnicity			Education		
		18–29 years	30–49 years	50 years and over	Male	Female	Non-Hispanic White	Non-Hispanic Black	Hispanic	Less than 12 years	12 years	More than 12 years
	Percent distribution											
21. When was your last AIDS blood test for the AIDS virus infection not including blood donation?[7]												
1991	25	27	23	26	26	24	24	33	20	22	24	26
1990	29	31	29	26	28	31	29	32	26	28	30	29
1989	16	17	18	12	17	16	17	13	19	14	17	17
1988	10	11	10	8	10	10	10	6	14	13	10	9
1987	5	4	7	4	5	5	5	4	9	7	5	5
1986	3	2	3	3	3	3	3	2	2	3	3	3
1985	1	1	1	2	1	1	1	0	1	1	2	1
Don't know	6	4	6	8	6	5	5	7	6	8	6	4
22. Did you have your last AIDS blood test—[1,7]												
For hospitalization or a surgical procedure?	14	11	13	22	10	18	14	16	11	18	14	11
To apply for health insurance?	3	2	5	2	4	3	4	2	2	1	3	5
To apply for life insurance?	9	5	13	8	12	6	12	4	5	1	6	15
For employment?	7	7	7	5	8	5	6	11	6	5	8	7
To apply for a marriage license?	4	5	4	1	4	3	5	2	2	3	4	4
For military induction or military service?	7	11	5	2	12	2	8	7	3	2	9	8
For immigration?	6	7	6	4	6	6	1	2	31	18	3	4
Just to find out if you were infected?	25	27	24	23	24	26	23	36	22	26	26	23
Because of referral by the doctor?	4	4	3	4	3	5	4	5	3	5	4	3
Because of referral by the Health Department?	0	1	0	0	0	1	0	1	0	1	1	0
Referred by your sex partner?	1	1	1	0	1	0	1	1	0	1	0	1
Other	20	21	19	24	17	25	22	18	16	20	22	20
Don't know	0	0	0	1	0	0	0	0	0	1	0	0
23. Not including a blood donation, where did you have your last blood test for the AIDS virus?[7]												
AIDS clinic/counseling/testing site	1	1	2	1	2	1	2	1	2	1	1	2
Community health clinic	7	10	6	4	7	8	6	12	11	10	8	6
Clinic run by employer	3	2	3	2	3	2	2	3	2	1	2	3
Doctor/HMO	30	29	30	35	28	33	30	26	33	29	30	30
Hospital/emergency room/outpatient clinic	25	23	24	32	20	30	24	31	19	31	26	21
STD clinic	0	1	0	0	0	0	0	0	0	1	0	0
Family planning clinic	1	1	0	0	0	1	1	1	2	1	0	1
Prenatal clinic	0	1	0	–	0	1	0	1	1	1	1	0
Tuberculosis clinic	–	–	–	–	–	–	–	–	–	–	–	–
Public clinic	3	4	3	1	3	3	2	4	5	6	3	2
Other clinic	3	3	3	2	3	3	3	2	3	2	3	3
Drug treatment facility	0	0	0	–	0	0	0	0	0	0	0	0
Military induction/service site	7	11	6	3	11	2	8	7	3	2	9	7
Immigration site	2	2	1	0	2	1	0	0	8	5	1	1
Other	11	10	13	9	14	9	13	8	7	5	10	15
Don't know	0	0	0	0	0	0	0	0	0	1	0	0
25. Did you get the results of your last test?[7]												
Yes	79	83	79	72	78	81	78	81	85	82	79	78
No	20	17	21	27	22	18	21	18	14	17	21	21
Don't know	1	1	0	0	0	1	1	1	0	1	0	0
26. Was this because you decided you didn't want the results or was it because you were unable to get the results?[8]												
Didn't want	9	9	9	11	10	9	9	13	11	9	11	8
Unable to get	21	26	20	15	24	17	19	21	32	27	19	20
Both	1	1	1	2	1	1	1	2	1	3	0	1
Other	53	51	56	51	50	59	56	44	43	36	53	59
Don't know	13	11	12	20	14	13	13	17	10	24	15	9
28. Were the results given in person, by telephone, by mail, or in some other way?[9]												
In person	60	63	56	65	58	62	54	70	75	76	61	53
By telephone	17	15	19	16	15	19	20	12	8	13	17	18
By mail	15	16	15	13	18	12	16	13	13	9	15	18
Other	8	7	9	6	9	7	9	4	4	2	7	10
Don't know	0	0	0	–	0	0	0	0	0	0	0	0
29. Do you believe the results of your last test were accurate?[9]												
Yes	99	99	99	98	98	99	99	98	98	98	99	99
No	0	0	0	0	0	0	0	0	1	1	0	0
Don't know	1	1	1	1	1	1	1	1	1	1	1	1

See footnotes at end of table.

Table 1. Estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1991 National Health Interview Survey, by selected characteristics: United States, 1991—Con.

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

AIDS knowledge or attitude	Total	Age			Sex		Race or ethnicity			Education		
		18–29 years	30–49 years	50 years and over	Male	Female	Non-Hispanic White	Non-Hispanic Black	Hispanic	Less than 12 years	12 years	More than 12 years
	Percent distribution											
30. Do you feel that the confidentiality of the results of your last test for the AIDS virus infection was handled properly?[9]												
Yes	95	95	94	96	94	95	94	97	92	94	95	95
No	2	2	3	2	3	2	3	1	3	2	2	3
Don't know	3	2	4	2	3	2	3	1	5	4	2	3
31. Do you expect to have a blood test for the AIDS virus infection in the next 12 months?												
Yes	9	15	9	4	10	7	7	21	15	8	9	9
No	84	75	84	90	82	85	88	66	74	81	84	85
Don't know	7	9	7	6	7	7	6	13	11	11	7	6
32. Tell me if each of these statements explains why you expect to have the blood test in the next 12 months.[10]												
Because it will be part of a blood donation	19	18	20	18	22	15	24	10	15	11	20	21
Because it will be part of hospitalization or surgery you expect to have	6	6	6	10	5	8	6	7	6	9	7	5
Because you expect to apply for life or health insurance	8	9	7	4	9	6	8	7	7	5	8	9
Because you expect to apply for a job	8	10	7	2	9	6	6	10	8	7	9	7
Because you expect to join the military	3	5	2	–	5	1	3	4	2	3	3	3
Because you expect to apply for a marriage license	7	12	5	1	8	6	7	8	8	3	8	8
Because you want to know the results	67	74	62	59	64	71	59	77	78	79	66	61
Because it will be a required part of some other activity that includes automatic AIDS testing	21	18	23	25	23	19	21	22	19	17	21	23
33. Where will you go to have a blood test for the AIDS virus infection?[10]												
AIDS clinic/counseling/testing site	2	3	2	1	2	2	2	3	1	2	2	2
Community health clinic	10	12	9	7	10	10	8	13	14	15	11	8
Clinic run by employer	3	2	4	2	4	2	3	2	5	2	3	3
Doctor/HMO	39	37	39	46	36	43	41	38	33	35	40	40
Hospital/emergency room/outpatient clinic	17	18	16	21	16	19	14	23	19	22	18	14
STD clinic	0	0	0	0	0	0	0	0	–	0	0	0
Family planning clinic	1	1	1	0	0	2	1	1	2	1	0	1
Prenatal clinic	0	0	0	–	0	0	0	0	–	–	0	–
Tuberculosis clinic	0	0	–	–	0	–	–	0	–	–	0	–
Public clinic	3	4	3	2	3	4	3	5	4	6	3	3
Other clinic	2	2	2	2	2	2	2	1	3	3	2	2
Drug treatment facility	–	–	–	–	–	–	–	–	–	–	–	–
Military induction/service site	4	5	5	2	7	2	5	5	1	1	4	6
Immigration site	0	0	–	–	0	–	0	–	0	–	0	0
Other	2	1	2	3	2	1	2	1	1	1	2	2
Don't know	6	7	5	3	6	5	5	5	9	7	4	6
34. Tell me whether you think the following statements about the blood test for the AIDS virus infection are true or false or if you do not know whether they are true or false.												
34a. Sometimes the results of a blood test for the AIDS virus infection can be wrong.												
True	73	72	77	69	74	72	75	68	61	58	73	80
False	6	9	7	3	6	6	5	8	9	6	6	6
Don't know	21	19	16	28	20	22	19	24	30	36	21	14
34b. After a person becomes infected with the AIDS virus, there can be a period of time before the test shows the infection.												
True	74	79	79	64	74	73	76	71	61	55	74	82
False	3	4	3	2	3	3	3	3	4	3	3	3
Don't know	23	18	18	34	23	24	21	26	35	41	23	15
37. Have you ever heard of a drug called AZT, also known as zidovudine or Retrovir?												
Yes	51	50	59	42	52	50	55	43	32	24	46	69
No	45	47	38	53	45	46	42	53	62	70	50	29
Don't know	4	3	3	5	3	4	3	5	6	5	4	3

See footnotes at end of table.

Table 1. Estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1991 National Health Interview Survey, by selected characteristics: United States, 1991—Con.

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AIDS knowledge or attitude	Total	Age			Sex		Race or ethnicity			Education		
		18–29 years	30–49 years	50 years and over	Male	Female	Non-Hispanic White	Non-Hispanic Black	Hispanic	Less than 12 years	12 years	More than 12 years
	Percent distribution											
38. Tell me whether you think the following statements about AZT are true or false or if you don't know whether they are true or false.[11]												
38a. AZT can delay or slow down the symptoms of AIDS virus infection.												
True	81	82	83	76	81	80	81	75	78	71	77	85
False	2	2	2	2	2	2	2	3	3	3	2	2
Don't know	17	16	15	22	16	18	17	21	19	26	20	14
38b. AZT cures people with AIDS.												
True	1	1	1	1	1	1	1	2	2	3	1	1
False	89	91	91	85	90	89	90	84	87	80	88	92
Don't know	9	7	7	14	9	10	9	13	11	17	11	7
38c. AZT has no known side effects.												
True	4	5	4	5	5	4	4	8	7	7	5	4
False	59	62	64	50	60	59	61	52	53	43	53	66
Don't know	36	33	32	45	35	37	35	39	41	50	41	30
38d. AZT is appropriate for a person with the AIDS virus infection only at certain times during the illness.												
True	34	38	36	25	34	33	33	36	37	27	29	37
False	11	11	12	10	12	11	11	13	13	11	12	11
Don't know	55	50	51	64	53	56	56	50	51	62	59	51
38e. There are other drugs available to treat AIDS-related illnesses.												
True	50	48	55	44	54	47	51	46	45	36	44	57
False	14	16	14	14	14	15	14	16	19	18	16	13
Don't know	35	36	31	41	32	38	35	37	37	46	40	30
39. Did you have a blood transfusion at any time between 1977 and 1985?												
Yes	5	2	4	7	5	5	5	5	3	6	5	4
No	94	97	95	91	94	94	94	94	96	93	94	95
Don't know	1	1	1	2	1	1	1	1	1	2	1	1
40. Do you have frequent blood transfusions because of sickle cell or chronic anemia?												
Yes	0	0	0	0	0	0	0	0	0	0	0	0
No	100	100	100	100	100	100	100	99	99	99	100	100
Don't know	0	0	0	0	0	0	0	0	0	0	0	0
41. How effective do you think the use of a condom is to prevent getting the AIDS virus through sexual activity?												
Very effective	28	34	31	19	32	24	28	29	27	19	26	33
Somewhat effective	49	51	52	43	48	50	51	41	41	37	51	53
Not at all effective	4	3	4	4	3	4	3	5	5	5	4	3
Don't know how effective	17	10	12	29	15	19	16	22	21	32	18	10
Don't know method	2	1	1	4	2	3	2	2	6	6	2	1
42. Tell me whether you think the following statements are true or false or whether you don't know if they are true or false.												
42a. Latex condoms and natural-membrane condoms are equally good at preventing transmission of the AIDS virus.												
True	18	25	19	11	21	14	17	23	19	15	19	18
False	19	24	24	11	22	17	21	14	14	8	16	28
Don't know	61	50	56	74	55	66	61	60	61	71	63	53
Don't know method	2	1	1	4	2	3	2	2	7	6	2	1
42b. Oil-based lubricants can cause latex condoms to break.												
True	27	36	30	15	31	22	27	27	20	16	24	34
False	6	7	6	4	7	4	5	8	6	5	6	6
Don't know	65	56	62	76	60	70	65	63	67	73	68	59
Don't know method	2	1	1	4	2	3	2	2	7	6	2	1
43. What are your chances of having the AIDS virus?												
High	0	0	0	0	0	0	0	1	1	0	0	0
Medium	1	2	2	1	2	1	1	3	2	2	1	1
Low	17	24	18	10	18	15	17	18	12	10	15	21
None	80	72	78	87	78	81	80	73	81	83	81	77
Don't know	2	2	2	3	2	2	1	5	4	5	2	1

See footnotes at end of table.

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		18–29 years	30–49 years	50 years and over	Male	Female	Non-Hispanic White	Non-Hispanic Black	Hispanic	Less than 12 years	12 years	More than 12 years
	Percent distribution											
44. What are your chances of getting the AIDS virus?												
High	0	1	0	0	0	0	0	1	0	0	0	0
Medium	2	3	2	1	2	2	2	3	3	2	2	2
Low	23	30	26	14	25	21	24	23	18	13	21	30
None	72	63	69	81	69	74	72	67	74	79	74	66
Don't know	2	2	2	3	2	3	2	5	4	5	2	1
N/A—High chance of already having the AIDS virus	0	0	0	0	0	0	0	1	1	0	0	0
45. Have you ever had a co-worker who had AIDS or the AIDS virus?												
Yes	4	4	6	3	4	5	4	5	5	2	3	7
No	87	88	85	89	86	88	88	84	84	90	89	84
Never worked, never had a co-worker	1	1	0	1	0	1	1	1	2	2	1	0
Don't know	7	7	8	7	9	6	7	10	8	6	7	9
46. Besides a co-worker, have you ever had a friend or relative who had AIDS or the AIDS virus?												
Yes	9	9	12	6	8	10	9	13	11	6	8	12
No	87	88	85	90	88	87	88	81	85	90	89	84
Don't know	3	3	3	4	4	3	3	6	4	4	3	3
47. Are any of these statements true for you?												
a. You have hemophilia or another clotting disorder and have received clotting factor concentrations since 1977.												
b. You are a man who has had sex with another man at some time since 1977, even 1 time.												
c. You have taken illegal drugs by needle at any time since 1977.												
d. You have had sex for money or drugs at any time since 1977.												
e. Since 1977, you are or have been the sex partner of any person who would answer yes to any of the items above (a–d)												
Yes to at least 1 statement	3	5	4	1	4	3	3	4	4	3	3	4
No to all statements	97	95	96	99	96	97	97	96	96	97	97	96
Don't know	0	0	0	0	0	0	0	0	0	0	0	0

[1] Multiple responses may add to more than 100.

[2] Based on persons answering "yes" to question 8, "Do you have any children aged 10 through 17?"

[3] Based on persons answering "no" or "don't know" to questions 12, 13a, or 13b.

[4] Based on persons answering "yes" to questions 13a and 15.

[5] Based on persons answering "no" to question 17a.

[6] Based on persons answering "no" or "don't know" to question 17a.

[7] Based on persons answering "yes" to question 17a.

[8] Based on persons answering "no" or "don't know" to question 25.

[9] Based on persons answering "yes" to question 25.

[10] Based on persons answering "yes" to question 31.

[11] Based on persons answering "yes" to question 37.

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

Technical Notes

The National Health Interview Survey (NHIS) is a continuous, cross-sectional household interview survey. Each week, a probability sample of the civilian non-institutionalized population residing in the United States is interviewed by personnel of the U.S. Bureau of the Census to obtain information on the health and other characteristics of each member of the household. Information on special health topics is collected for all or a sample of household members. For the 1991 National Health Interview Survey of AIDS Knowledge and Attitudes, one randomly chosen adult 18 years of age or over was interviewed in each family. The estimates in this report are based on completed interviews with 42,726 individuals. In 1991, the response rate to the basic NHIS core questionnaire was 96 percent; for the NHIS AIDS supplement, it was 90 percent. Therefore, the overall response rate to the 1991 AIDS survey was 86 percent.

Table I contains the estimated population size of each of the demographic subgroups included in table 1 to allow readers to derive provisional estimates of the number of people in the United States with a given characteristic—for example, the number of women who have had their blood tested for HIV:

0.13 × 94,638,000 women tested

The population estimates in table I are based on 1989 data from the NHIS inflated to national population controls by age, race, and sex. The population controls are based on the 1980 census carried forward to 1989. These estimates, therefore, may differ from 1990 census results brought forward to the survey date. Population controls incorporating 1990 census results will be used for survey estimation beginning later in the decade.

Table II shows approximate standard errors for most of the estimates presented in table 1. These standard error estimates were derived by applying a design effect of 1.3 to the standard errors that would have been obtained with a simple random-sample design. The reader is cautioned about comparing estimates when the denominator is small (for example, when looking only at those persons who did not receive the results of their HIV antibody test). A final data file covering the entire 1991 data collection period will be available at the end of 1992.

Table I. Sample sizes for 1991 National Health Interview Survey of AIDS Knowledge and Attitudes and estimated adult population 18 years of age and over, by selected characteristics: United States, 1991.

Characteristic	*Sample size*	*Estimated population in thousands*
All adults	42,726	180,271
Age		
18–29 years	9,470	46,282
30–49 years	17,391	71,831
50 yeas and over	15,865	61,157
Sex		
Male	17,845	85,632
Female	24,881	94,638
Race and ethnicity		
Non-Hispanic:		
White	32,575	139,440
Black	5,608	19,585
Hispanic	3,079	14,118
Education		
Less than 12 years	9,081	36,782
12 years	15,712	72,418
More than 12 years	17,848	70,036

Table II. Standard errors, expressed in percentage points, of estimated percents from the 1991 National Health Interview Survey of AIDS Knowledge and Attitudes, by selected characteristics: United States, 1991

		Age			*Sex*		*Race and ethnicity*			*Education*		
Estimated percent	*Total*	*18–29 years*	*30–49 years*	*50 years and over*	*Male*	*Female*	*White*	*Black*	*Hispanic*	*Less than 12 years*	*12 years*	*More than 12 years*
5 or 95	0.1	0.3	0.2	0.2	0.2	0.2	0.2	0.4	0.5	0.3	0.2	0.2
10 or 90	0.2	0.4	0.3	0.3	0.3	0.2	0.2	0.5	0.7	0.4	0.3	0.3
15 or 85	0.2	0.5	0.3	0.4	0.3	0.3	0.3	0.6	0.8	0.5	0.4	0.3
20 or 80	0.2	0.5	0.4	0.4	0.4	0.3	0.3	0.7	0.9	0.5	0.4	0.4
25 or 75	0.3	0.6	0.4	0.4	0.4	0.4	0.3	0.7	1.0	0.6	0.4	0.4
30 or 70	0.3	0.6	0.4	0.5	0.4	0.4	0.3	0.8	1.1	0.6	0.5	0.4
35 or 65	0.3	0.6	0.5	0.5	0.5	0.4	0.3	0.8	1.1	0.6	0.5	0.5
40 or 60	0.3	0.6	0.5	0.5	0.5	0.4	0.3	0.8	1.1	0.7	0.5	0.5
45 or 55	0.3	0.7	0.5	0.5	0.5	0.4	0.4	0.9	1.2	0.7	0.5	0.5
50	0.3	0.7	0.5	0.5	0.5	0.4	0.4	0.9	1.2	0.7	0.5	0.5

Suggested citation

Aguilar SM, Hardy AM. AIDS knowledge and attitudes for 1991: data from the National Health Interview Survey. Advance data from vital and health statistics; no 225. Hyattsville, Maryland: National Center for Health Statistics. 1992.

National Center for Health Statistics

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Jack R. Anderson

Number 226 • March 4, 1993

Advance Data

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

Office Visits to Cardiovascular Disease Specialists: United States, 1989–90

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

Introduction

An estimated 22.1 million visits were made in the United States during 1989 and 1990 to nonfederally employed, office-based physicians specializing in cardiovascular diseases—an average of about 11 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 information on office visits to specialists in cardiovascular diseases for the years 1975–76 and 1985 (1,2).

The information 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 NAMCS shared identical survey instruments, definitions, and procedures. The resulting two 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, which is 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 are subject to sampling variability. The sample design, sampling errors, and guidelines for judging the precision of NAMCS estimates are discussed in the technical notes. Several publications are available that discuss overall findings from the 1989 and 1990 NAMCS (3,4,5), and reports on special topics are also available (6,7,8,9,10). Additional reports on visits made during 1989 and 1990 to other physician specialties are forthcoming.

Patient characteristics

Visits to specialists in cardiovascular diseases by patient's age, sex, and race are displayed in table 1. Overall, this specialty received an average of 4.5 office visits per 100 persons per year for 1989 and 1990. The visit rate increased with age for both sexes and was highest among persons 65 years of age and over, who made an average of 20.3 visits per 100 persons per year. Visit rates were not significantly different for persons 65–74 years and 75 years of age and over. Also, no significant differences were found by sex within any of the five age groups analyzed (figure 2). However, white persons had a significantly higher rate of visits to cardiovascular disease specialists (4.8 visits per 100 persons per year) than did black persons (2.2 visits per 100 persons per year). In general, visit rates were not significantly different than those noted in 1985.

Patients over the age of 44 years accounted for 88.7 percent of all visits to this specialty during the 2-year period covered in this report; more than half (54.7 percent) of all office visits to cardiovascular disease specialists were made by persons 65 years of age and over. This age distribution is in sharp contrast to that of visits to all other specialists, where, in general, less than half of

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
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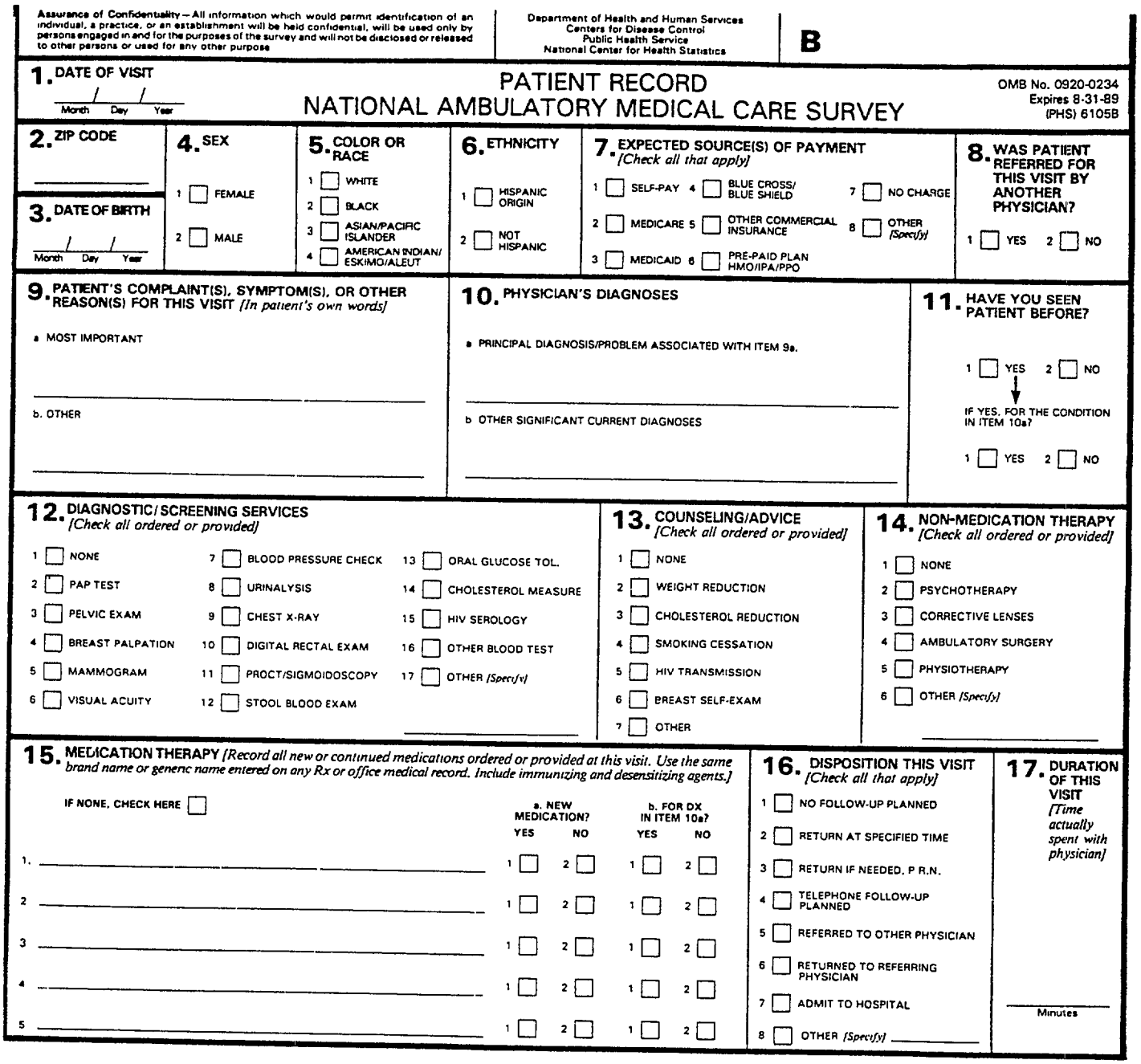

Assurance of Confidentiality—All information which would permit identification of an individual, a practice, or an establishment will be held confidential, will be used only by persons engaged in and for the purposes of the survey and will not be disclosed or released to other persons or used for any other purpose

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

B

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	NO	b. FOR DX IN ITEM 10a? YES	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. 1989 National Ambulatory Medical Care Survey Patient Record

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

the visits were made by persons over the age of 44 years (figure 3).

No significant difference was found in the percent of visits made by males and females (50.2 percent compared with 49.8 percent, respectively). This pattern is strikingly different from that found among visits to all other specialties, where the percent of visits by males was much lower overall (39.4 percent) than the percent of visits by females (60.6 percent). Among the 13 most visited physician specialties, the percentage of visits by females exceeded that of visits by males for all but four specialties—pediatrics, urology, orthopedic surgery, and cardiovascular diseases.

White persons made 90.2 percent of all visits to specialists in cardiovascular diseases and black persons accounted for 6.1 percent of the visits. Approximately 2.3 percent of the visits were made by Asians/Pacific Islanders.

Physician practice characteristics

Specialists in cardiovascular diseases received an average of 1.6 percent of the office visits made to ambulatory care physicians for 1989–90, making them the 11th most visited physician specialty (table 2). However, cardiovascular specialists received 2.5 percent of all visits made by persons 45–64 years of age. The share was even higher for visits made by older patients, with cardiovascular specialists receiving 4.0 percent of all

Table 1. Annual number, percent distribution, and rate of office visits to cardiovascular disease specialists, by patient's age, sex, and race, 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	11,040	100.0	4.5
Less than 25 years	260	2.4	0.3
25–44 years	990	9.0	1.2
45–64 years	3,754	34.0	8.1
65–74 years	3,334	30.2	18.6
75 years and over	2,703	24.5	23.4
Sex and age			
Female:			
All ages	5,497	49.8	4.4
Less than 25 years	146	1.3	0.3
25–44 years	504	4.6	1.2
45–64 years	1,606	14.5	6.6
65–74 years	1,666	15.1	16.7
75 years and over	1,576	14.3	21.7
Male:			
All ages	5,543	50.2	4.7
Less than 25 years	115	1.0	0.3
25–44 years	485	4.4	1.2
45–64 years	2,148	19.5	9.7
65–74 years	1,668	15.1	20.8
75 years and over	1,127	10.2	26.4
Race			
White	9,956	90.2	4.8
Black	674	6.1	2.2
Asian/Pacific Islander	259	2.3	---
American Indian/Eskimo/Aleut	*43	*0.4	---
Unspecified	109	1.0	---

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

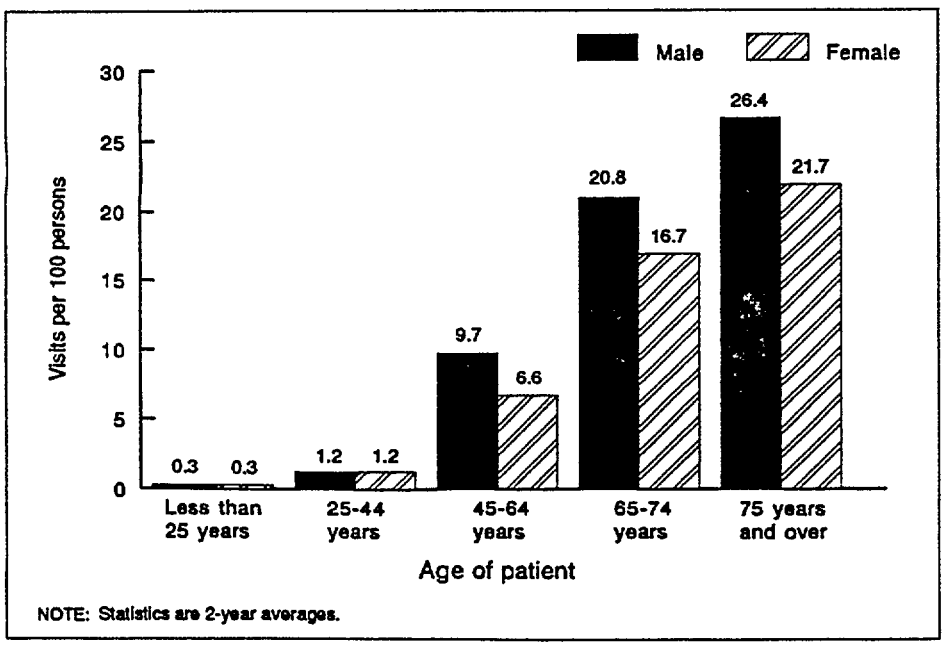

Figure 2. Annual rate of office visits to cardiovascular disease specialists, by patient's age and sex: United States, 1989–90

visits made by persons 65 years of age and over, an average of 6 million visits per year by persons in this age group.

Between 1975 and 1990, the number of visits made to cardiovascular disease specialists increased by about 64 percent, from a 2-year total of 13.5 million for 1975–76 to a 2-year total of 22.1 million visits for 1989–90. The 1975–76 total represented 1.2 percent of all visits to office-based physicians during that time. This was not significantly different than their 1989–90 share.

Visit characteristics

Referral status and prior-visit status

Nearly 10 percent of office visits to specialists in cardiovascular diseases were the result of a referral by another physician, compared with only 5.4 percent of visits to all other specialties. The chronic nature of cardiovascular diseases is underscored by the fact that more than three-quarters (78.7 percent) of the visits to this specialty were made by patients returning to the physician for care of a previously treated condition. Of the 13 most visited physician specialties, only psychiatry showed a higher percentage of visits of this type. Visits by referral status and prior-visit status are summarized in table 3.

Expected source of payment

Private insurance (including Blue Cross/Blue Shield and other commercial insurance) and Medicare were the expected sources of payment listed most frequently at visits to specialists in cardiovascular diseases (74.8 percent and 50.8 percent of visits, respectively), while self-payment was recorded at only 17.5 percent of visits. (It should be noted that more than one expected source of payment may be recorded per visit.) The emphasis on Medicare as an expected source of payment reflects the older age distribution of patients visiting this specialty. In contrast, among visits to all other

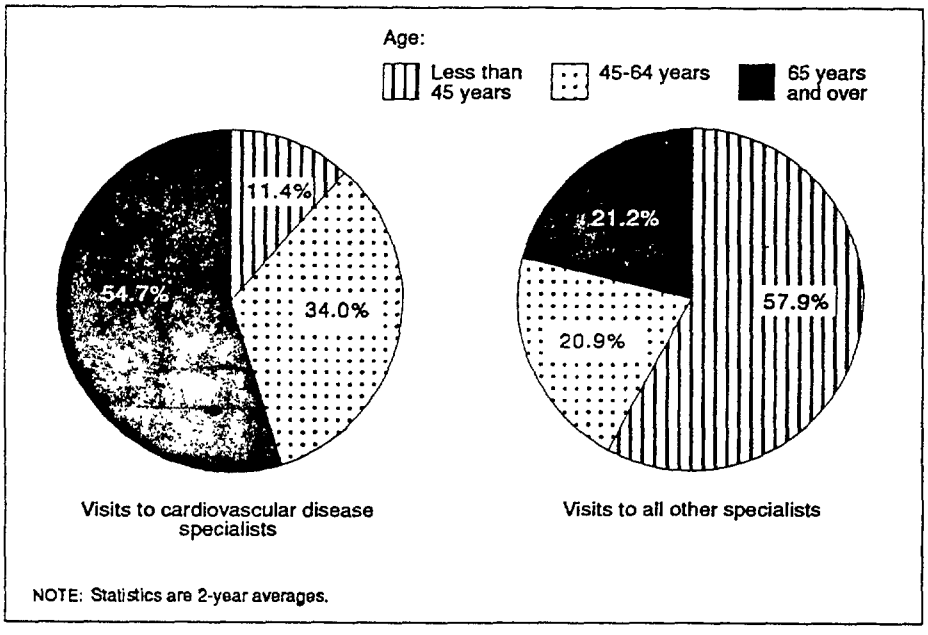

Figure 3. Percent distribution of office visits to cardiovascular disease specialists and to all other specialists, by patient's age: United States, 1989–90

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]47.2
Ophthalmology	41,302	5.9	16.9
Orthopedic surgery	34,033	4.9	13.9
Dermatology	25,165	3.6	10.3
General surgery	23,891	3.4	9.8
Psychiatry	18,790	2.7	7.7
Otolaryngology	16,958	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]Rate based on visits by females and female population. Females made 99.4 percent of all visits to this specialty during 1989–90, for an average annual estimate of 59,475,000 visits.

specialists, Medicare was listed at only 18.5 percent of visits, while self-payment was mentioned at 31.4 percent. Visits to cardiovascular specialists by expected source of payment are shown in table 4.

Patient's principal reason for visit

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) (11), is shown in table 5. The principal reason for visit (item 9a on the Patient Record) is the patient's most important complaint(s), symptom(s), 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 upon the classification system found in the RVC.

Nearly half (47.7 percent) of all visits to this specialty were due to a symptomatic problem or complaint, with the largest percentage of symptoms falling into the general category (17.7 percent). Also prominent were the disease module (16.8 percent) and the treatment module (16.2 percent), followed by the diagnostic, screening, and preventive module (12.3 percent of visits).

Specific reasons for visit are listed in table 6. The single most frequently mentioned principal reason for visiting a cardiovascular specialist was chest pain and related symptoms, recorded at 13.1 percent of visits. Ischemic heart disease and hypertension were the second and third most frequently mentioned reasons (5.6 percent and 5.0 percent of visits, respectively). It is important to keep in mind that the rank ordering 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.

It should also be noted that a large number of visits relating to cardiovascular symptoms and diseases were made to primary care physicians. Cardiologists received about 16 percent of all physicians' office visits made for the reason of chest pain during 1989–90. The majority were directed to primary care physicians, with general and family practitioners receiving 37.0 percent and internists receiving 29.2 percent. Similarly, about half of all visits for hypertension (that is, visits at which the patient's principal reason for visiting the physician was recorded as hypertension) were made to general and family practitioners (50.1 percent) and an additional one-third were made to internists (32.9 percent). Cardiovascular specialists received only 5.4 percent of these visits. However, for visits where patients expressed their principal reason for the current visit as ischemic heart disease, indicating an established diagnosis and ongoing treatment for this condition, cardiovascular specialists received

Table 3. Annual number and percent distribution of office visits to cardiovascular disease specialists and to all other specialists, by selected visit characteristics, averaged over a 2-year period: United States, 1989–90

Visit characteristic	Visits to cardiovascular disease specialists		Visits to all other specialists	
	Number of visits in thousands	Percent distribution	Number of visits in thousands	Percent distribution
All visits	11,040	100.0	687,613	100.0
Patient's referral status				
Patient was referred to this visit by another physician	1,065	9.6	37,160	5.4
Patient was not referred to this visit by another physician	9,975	90.4	650,453	94.6
Patient's prior-visit status				
New patient	1,401	12.7	113,008	16.4
Old patient, new problem	953	8.6	156,685	22.8
Old patient, old problem	8,687	78.7	417,920	60.8

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

Expected source of payment[1]	Visits to cardiovascular disease specialists		Visits to all other specialists	
	Number of visits in thousands	Percent distribution	Number of visits in thousands	Percent distribution
All visits	11,040	100.0	687,613	100.0
Commercial insurance	5,647	51.2	235,238	34.2
Medicare	5,613	50.8	127,422	18.5
Blue Cross/Blue Shield	2,604	23.6	79,015	11.5
Self-pay	1,930	17.5	216,132	31.4
Prepaid plan/HMO/IPA/PPO[2]	572	5.2	102,770	14.9
Medicaid	510	4.6	56,134	8.2
No charge	89	0.8	12,820	1.9
Other	392	3.6	37,861	5.5
Unknown	146	1.3	13,976	2.0

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

39.9 percent of the total, compared with internists (31.1 percent) and general and family practitioners (23.5 percent).

Diagnostic services

Visits made to cardiovascular disease specialists were more likely to include diagnostic services ordered or provided by the physician than were visits to all other specialists. About 89.5 percent of the former included at least one diagnostic service, compared with 62.3 percent of the latter. About three-quarters (74.0 percent) of the visits included a blood pressure check, compared with 36.1 percent of visits to all other specialties. Other blood test, cholesterol measure, and chest x ray were also performed more often at visits to cardiovascular specialists. Visits by the number and type of diagnostic services ordered or performed at cardiovascular visits are shown in table 7.

Principal diagnosis rendered by the physician

Data on principal diagnoses made 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 visit. Diagnoses are classified and coded according to the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (12).

Nearly two-thirds (65.4 percent) of all visits to specialists in cardiovascular diseases resulted in a principal diagnosis classifiable to a disease of the circulatory system (table 8). The most frequently listed diagnosis was "other forms of chronic ischemic heart disease"[a] occurring at 20.3 percent of visits, followed by essential hypertension, listed at 13.0 percent of visits (table 9).

The distribution of visits for selected cardiovascular diagnoses by physician specialty is shown in figure 4. Cardiovascular specialists received about 36.9 percent of all visits in which the principal diagnosis was other forms of chronic ischemic heart disease, 35.3 percent of all visits for angina pectoris, and 26.5 percent of all visits for cardiac dysrhythmias. However, following the pattern seen with reasons for visit, cardiovascular disease specialists received only 5.2 percent of all visits with a principal diagnosis of essential hypertension. More than half of visits with a principal diagnosis of essential hypertension were made to general and family practitioners (51.2 percent), and nearly one-third were to internists (32.0 percent).

Therapeutic services

Data on therapeutic services ordered or provided at visits to cardiovascular disease specialists are presented in table 10. Medication therapy was mentioned most frequently, at 80.2 percent of visits, compared with 59.9 percent of visits to all other specialists. More than

[a]The *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) defines "other forms of chronic ischemic heart disease" (ICD–9–CM code 414) to include coronary atherosclerosis, aneurysm of heart, other specified forms of chronic ischemic heart disease, and chronic ischemic heart disease, unspecified.

Table 5. Annual number and percent distribution of office visits to cardiovascular disease specialists 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		11,040	100.0
Symptom module	.S001–S999	5,263	47.7
General symptoms	.S001–S099	1,954	17.7
Symptoms referable to psychological and mental disorders	.S100–S199	70	0.6
Symptoms referable to the nervous system (exluding sense organs)	.S200–S259	428	3.9
Symptoms referable to the cardiovascular and lymphatic system	.S260–S299	798	7.2
Symptoms referable to eyes and ears	.S300–S399	55	0.5
Symptoms referable to the respiratory system	.S400–S499	1,094	9.9
Symptoms referable to the digestive system	.S500–S639	209	1.9
Symptoms referable to the genitourinary system	.S640–S829	69	0.6
Symptoms referable to the skin, hair, and nails	.S830–S899	100	0.9
Symptoms referable to the musculoskeletal system	.S900–S999	489	4.4
Disease module	.D001–D999	1,859	16.8
Diagnostic, screening, and preventive module	.X100–X599	1,353	12.3
Treatment module	.T100–T899	1,785	16.2
Injury and adverse effects module	.J001–J999	67	0.6
Test results module	.R100–R700	361	3.3
Administrative module	.A100–A140	*36	*0.3
Other[2]	.U990–U999	319	2.9

[1]Based on *A Reason for Visit Classification for Ambulatory Care* (RVC), Vital Health Stat 2(78), Feb. 1979.
[2]Includes blanks, problems, and complaints not elsewhere classified, entries of "none," and illegible entries.

Table 6. Annual number and percent distribution of office visits to cardiovascular disease specialists 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		11,040	100.0
Chest pain and related symptoms (not referable to body system)	.S050	1,447	13.1
Ischemic heart disease	.D515	623	5.6
Hypertension	.D510	550	5.0
Abnormal pulsations and palpitations	.S260	540	4.9
General medical examination	.X100	533	4.8
Shortness of breath	.S415	432	3.9
Postoperative visit	.T205	340	3.1
Blood pressure test	.X320	314	2.8
Other heart disease	.D520	280	2.5
For other and unspecified test results	.R700	275	2.5
Vertigo-dizziness	.S225	274	2.5
Other heart symptoms	.S270	256	2.3
Labored or difficult breathing	.S420	223	2.0
Cough	.S440	195	1.8
Tiredness, exhaustion	.S015	159	1.4
Leg symptoms	.S920	135	1.2
Other blood test	.X315	125	1.1
Other special examination	.X240	105	0.9
EKG, ECG, electrocardiogram, tread mill, stress testing	.X350	96	0.9
Preoperative visit for specified and unspecified types of surgery	.T200	93	0.8
All other reasons		4,051	36.7

[1]Based on *A Reason for Visit Classification for Ambulatory Care* (RVC), Vital Health Stat 2(78), Feb. 1979.

half (53.9 percent) of the cardiovascular visits included some form of counseling or advice, with weight and cholesterol reduction being cited at 18.8 percent and 19.7 percent of visits, respectively. In comparison, only 6.1 percent of all other visits included counseling for weight reduction, and 2.9 percent mentioned counseling for cholesterol reduction.

Data in tables 11, 12, and 13 present additional information pertaining to the utilization of medication therapy at visits to cardiovascular disease specialists. 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 both prescription and nonprescription preparations, immunizing agents, and desensitizing agents. "Drug mentions" refer to the total number of medications listed in item 15 of the Patient Record. Because physicians may record more than one medication per visit, the total number of drug mentions may exceed the total number of visits. "Drug visits" refer to visits with at least one mention of medication ordered or provided by the physician. An earlier report (13) describes in detail the method and instruments used in the collection and processing of NAMCS drug data.

Among visits to cardiovascular specialists, there were an average of 25.4 million drug mentions per year for 1989 and 1990, yielding about 2.9 mentions per drug visit and about 2.3 mentions per visit overall. The number of drug mentions by therapeutic classification, adapted from therapeutic categories used in the *National Drug Code Directory*, 1985 edition (14), is shown in table 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, cardiovascular-renal drugs were prescribed most frequently (55.8 percent of drug mentions). Within this broad category, antianginal agents and antihypertensive drugs represented 31.2 percent of all of the drug mentions.

The generic substances used most frequently in medications ordered or provided at cardiovascular visits are shown in table 12. The first six of these—digoxin, aspirin, nitroglycerin,

Table 7. Annual number and percent distribution of office visits to cardiovascular disease specialists and to all other specialists by diagnostic service, averaged over a 2-year period: United States, 1989–90

Visit characteristic	Visits to cardiovascular disease specialists		Visits to all other specialists	
	Number of visits in thousands	Percent distribution	Number of visits in thousands	Percent distribution
All visits	11,040	100.0	687,613	100.0
Number of diagnostic services ordered or performed at visit				
0	1,161	10.5	258,909	37.7
1	3,895	35.3	219,563	31.9
2	3,291	29.8	43,750	6.4
3	1,522	13.8	43,750	6.4
4	659	6.0	19,360	2.8
5 or more	513	4.6	33,381	4.9
Diagnostic services ordered or performed at visit[1]				
Blood pressure check	8,173	74.0	248,472	36.1
Other blood test	2,970	26.9	88,140	12.8
Cholesterol measure	2,037	18.5	23,455	3.4
Chest x ray	986	8.9	18,371	2.7
Urinalysis	817	7.4	87,993	12.8
Stool blood exam	261	2.4	16,268	2.4
Digital-rectal exam	205	1.9	25,242	3.7
Breast palpation	183	1.7	38,536	5.6
Oral glucose tolerance	137	1.2	3,102	0.5
HIV serology[2]	124	1.1	1,023	0.1
Visual acuity	79	0.7	45,163	6.6
Mammogram	55	0.5	11,159	1.6
Pelvic exam	*36	*0.3	51,658	7.5
Pap test	*31	*0.3	33,302	4.8
Proctoscopy/sigmoidoscopy	*25	*0.2	3,066	0.4
Other diagnostic service	4,667	42.3	171,650	25.0

[1]Numbers may not add to totals because more than one diagnostic service may be performed at each visit.
[2]HIV is human immunodeficiency virus.

Table 8. Annual number and percent distribution of office visits to cardiovascular disease specialists by principal diagnosis, 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		11,040	100.0
Infectious and parasitic diseases	001–139	*20	*0.2
Neoplasm	140–239	*50	0.5
Endocrine, nutritional and metabolic diseases and immunity disorders	240–279	400	3.6
Mental disorders	290–319	108	1.0
Diseases of the nervous system and sense organs	320–389	138	1.3
Diseases of the circulatory system	390–459	7,225	65.4
Diseases of the respiratory system	460–519	563	5.1
Diseases of the digestive system	520–579	136	1.2
Diseases of the genitourinary system	580–629	94	0.9
Diseases of the skin and subcutaneous tissue	680–709	59	0.5
Diseases of the musculoskeletal system and connective tissue	710–739	300	2.7
Symptoms, signs, and ill-defined conditions	780–799	654	5.9
Injury and poisoning	800–999	119	1.1
Supplementary classification	V01–V82	948	8.6
All other diagnoses[2]		62	0.6
Unknown[3]		168	1.5

[1]Based on the *International Classification of Diseases, 9th Revision, Clinical Modification (ICD–9–CM).*
[2]Includes diseases of the blood and blood-forming organs (280–289); complications of pregnancy, childbirth, and the puerperium (630–676); congenital anomalies (740–759); and certain conditions originating in the perinatal period (760–799).
[3]Includes blank diagnoses, uncodable diagnoses, and illegible diagnoses.

diltiazem, furosemide, and hydrochlorothiazide—were found in 32.5 percent of all of the drugs mentioned at cardiovascular visits. It should be noted that drugs containing more than one ingredient are listed in the data for each ingredient. For example, acetaminophen with codeine would be listed both under the count for acetaminophen as well as the count for codeine.

Drug mentions according to entry name, that is, the name recorded by the physician in item 15 of the Patient Record, are shown in table 13. This could be a trade name, generic name, or simply a desired therapeutic effect. Cardizem was the specific entry listed most frequently (4.9 percent of mentions), followed by Lanoxin (4.7 percent), and Lasix (4.2 percent).

Disposition of visit

Visits to cardiovascular specialists were more likely to include instructions to return at a specific time (80.2 percent) than were visits to all other specialties (61.4 percent). Data on disposition of visit are shown in table 14.

Duration of visit

About half (49.2 percent) of the visits to cardiovascular disease specialists lasted more than 15 minutes, compared with less than one-third (29.9 percent) of the visits to all other specialists (table 15). Average duration of cardiovascular visits was relatively long—21.8 minutes compared with 16.4 minutes for visits to all other specialists. 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 "zero" minutes duration, that is, visits in which the patient did not meet with the physician directly.

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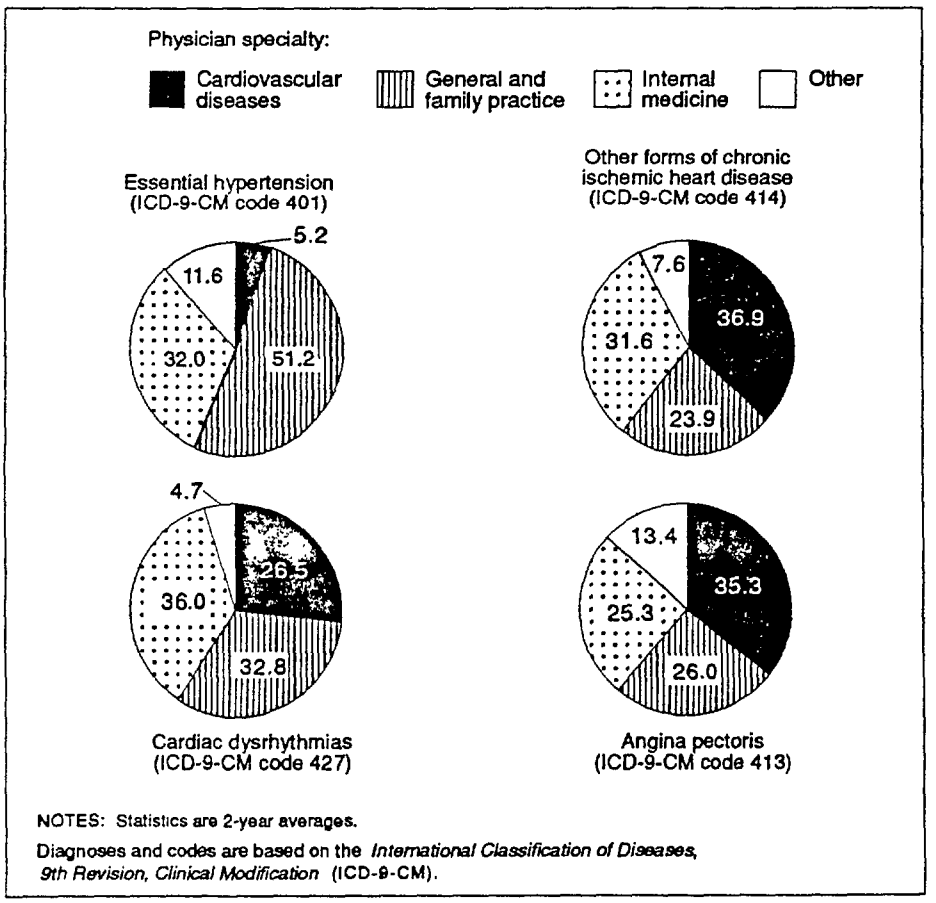
Table 9. Annual number and percent distribution of office visits to cardiovascular disease specialists by the 20 most frequently mentioned principal diagnoses, averaged over a 2-year period: United States, 1989–90

Principal diagnosis and ICD-9-CM code[1]	Number of visits in thousands	Percent distribution
All visits	11,040	100.0
Other forms of chronic ischemic heart disease .414	2,242	20.3
Essential hypertension .401	1,433	13.0
Cardiac dysrhythmias .427	848	7.7
Angina pectoris .413	765	6.9
Other diseases of endocardium .424	423	3.8
Symptoms involving respiratory system and other chest symptoms .786	349	3.2
Observation and evaluation for suspected conditions .V71	344	3.1
Heart failure .428	292	2.6
Other postsurgical states .V45	218	2.0
Diabetes mellitus .250	181	1.6
Cardiomyopathy .425	154	1.4
Hypertensive heart disease .402	153	1.4
Old myocardial infarction .412	124	1.1
Bronchitis, not specified as acute or chronic .490	121	1.1
Symptoms involving cardiovascular system .785	112	1.0
Disorders of lipoid metabolism .272	108	1.0
General medical examination .V70	104	0.9
Other acute and subacute forms of ischemic heart disease .411	103	0.9
Chronic airway obstruction, not elsewhere classified .496	91	0.8
Osteoarthrosis and allied disorders .715	91	0.8
All other diagnoses	2,786	25.2

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



NOTES: Statistics are 2-year averages.

Diagnoses and codes are based on the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM).

Figure 4. Percent distribution of office visits for selected diagnoses, by physician specialty: United States, 1989–90

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Table 10. Annual number and percent distribution of office visits to cardiovascular disease specialists and to all other specialists by therapeutic service, based on a 2-year average: United States, 1989–90

Therapeutic service ordered or provided at visit[1]	Visits to cardiovascular disease specialists		Visits to all other specialists	
	Number of visits in thousands	Percent distribution	Number of visits in thousands	Percent distribution
All visits	11,040	100.0	687,613	100.0
New or continuing medication	8,859	80.2	411,828	59.9
Counseling/advice				
None	5,086	46.1	434,227	63.1
Weight reduction	2,079	18.8	42,037	6.1
Cholesterol reduction	2,180	19.7	19,870	2.9
Smoking cessation	560	5.1	14,463	2.1
HIV transmission	*9	*0.1	1,383	0.2
Breast self-exam	68	0.6	15,909	2.3
Other	3,781	34.2	192,159	27.9
Other nonmedication therapy				
None	9,630	87.2	552,841	80.4
Psychotherapy	108	1.0	24,445	3.6
Corrective lenses	*11	*0.1	9,066	1.3
Ambulatory surgery	*23	*0.2	13,631	2.0
Physiotherapy	110	1.0	16,279	2.4
Other	1,194	10.8	75,874	11.0

[1]Numbers may not add to totals because more than one type of therapy may be ordered or provided at each visit.

Table 11. Annual number and percent distribution of drug mentions at office visits to cardiovascular disease specialists 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	25,369	100.0
Cardiovascular-renal	14,158	55.8
Antianginal agents	3,995	15.7
Antihypertensive agents	3,931	15.5
Diuretics	2,466	9.7
Cardiac glycosides	1,739	6.9
Antiarrhythmic agents	1,176	4.6
Agents used in peripheral or cerebral vascular disorders	751	3.0
Other	102	0.4
Pain relief	2,543	10.0
Metabolic and nutrient agents	1,797	7.1
Hormones and agents affecting hormonal mechanisms	1,609	6.3
Respiratory tract	846	3.3
Psychopharmacologic	844	3.3
Gastrointestinal	737	2.9
Antimicrobial	690	2.7
Hematologic	560	2.2
Other[2]	529	2.1
Unclassified, miscellaneous	1,060	4.2

[1]Therapeutic classification is based on the standard drug classification used in the *National Drug Code Directory*, 1985 Edition.
[2]Includes anesthetics, radiopharmaceuticals/contrast media, oncolytics, otological drugs, and antiparasitic agents.

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Table 12. Number, percent distribution, and therapeutic classification of drug mentions at office visits to cardiovascular disease specialists 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	25,369	100.0	...
Digoxin	1,697	6.7	Cardiac glycoside
Aspirin	1,644	6.5	General analgesic
Nitroglycerin	1,459	5.7	Antianginal agent
Diltiazem	1,254	4.9	Antianginal agent
Furosemide	1,144	4.5	Diuretic
Hydrochlorothiazide	1,073	4.2	Diuretic
Captopril	784	3.1	Antihypertensive agent
Triamterene	713	2.8	Diuretic
Dipyridamole	694	2.7	Agent used in peripheral or cerebral vascular disorders
Nifedipine	664	2.6	Antianginal agent
Potassium replacement solutions	633	2.5	Replenisher and regulator of water and electrolytes
Verapamil	631	2.5	Antiarrhythmic agent
Isosorbide	607	2.4	Antianginal agent
Atenolol	566	2.2	Antihypertensive agent
Propanolol	538	2.1	Antihypertensive agent
Lovastatin	520	2.0	Agent used to treat hyperlipidemia
Enalapril	509	2.0	Antihypertensive agent
Warfarin	434	1.7	Anticoagulant or thrombolytic
Glyburide	342	1.3	Blood glucose regulator
Quinidine	299	1.2	Antiarrhythmic agent

[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. 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 13. Annual number, percent distribution, and therapeutic classification of the 10 drugs most frequently prescribed at office visits to cardiovascular disease specialists, by entry name of drug, averaged over a 2-year period: United States, 1989–90

Entry name of drug[1]	*Number of drug mentions in thousands*	*Percent distribution*	*Therapeutic classification*[2]
All mentions	25,369	100.0	...
Cardizem	1,254	4.9	Antianginal agent
Lanoxin	1,204	4.7	Cardiac glycoside
Lasix	1,075	4.2	Diuretic
Capoten	672	2.6	Antihypertensive agent
Acetylsalicylic acid (A.S.A.)	656	2.6	General analgesic
Persantine	598	2.4	Agent used in peripheral or cerebral vascular disorders
Aspirin	570	2.2	General analgesic
Procardia	540	2.1	Antianginal agent
Tenormin	524	2.1	Antihypertensive agent
Mevacor	520	2.0	Agent used to treat hyperlipidemia

[1]The trade or generic name used by the physician on the prescription or other medical records.
[2]Therapeutic classification is based on the standard drug classification used in the *National Drug Code Directory*, 1985 Edition. In cases where a drug had more than one therapeutic classification, it was listed in the category for which it was most frequently prescribed.

Table 14. Number and percent distribution of office visits to cardiovascular disease specialists and to all other specialists by disposition of visit, averaged over a 2-year period: United States, 1989–90

Disposition of visit[1]	Visits to cardiovascular specialists		Visits to all other specialists	
	Number of visits in thousands	Percent distribution	Number of visits in thousands	Percent distribution
All visits	11,040	100.0	687,613	100.0
No followup planned	391	3.5	66,953	9.7
Return at specified time	8,851	80.2	422,206	61.4
Return if needed	1,327	12.0	158,365	23.0
Telephone followup planned	347	3.1	25,737	3.7
Refer to other physician	357	3.2	21,149	3.1
Return to referring physician	560	5.1	6,115	0.9
Admit to hospital	215	1.9	6,767	1.0
Other disposition	233	2.1	13,292	1.9

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

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

Duration of visit	Visits to cardiovascular disease specialists		Visits to all other specialists	
	Number of visits in thousands	Percent distribution	Number of visits in thousands	Percent distribution
All visits	11,040	100.0	687,613	100.0
0 minutes[1]	278	2.5	11,595	1.7
1–5 minutes	207	1.9	64,061	9.3
6–10 minutes	1,637	14.8	193,458	28.1
11–15 minutes	3,487	31.6	212,826	31.0
16–30 minutes	4,160	37.7	162,107	23.6
31–60 minutes	1,064	9.6	40,582	5.9
More than 60 minutes	208	1.9	2,985	0.4

[1]Visits of zero 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

This report is based on data collected through 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 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). Physicians were stratified into 15 specialty groups during the second stage of the survey design. Detailed descriptions of the 1989 and 1990 NAMCS design have been published (4,15,16), 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 and the American Osteopathic Association; 118 of these were specialists in cardiovascular diseases. Physicians were screened at the time of the survey to ensure that they were eligible for survey participation, based upon a set of design criteria. Of those screened, 608 physicians (including 24 cardiovascular disease specialists) were ruled ineligible (out-of-scope) due to reasons such as being retired or employed primarily in teaching, administration, or research. Of the remaining 1,927 physicians, 74 percent responded to the survey, including 61 cardiovascular disease specialists, or 65 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 1,087 forms completed by cardiovascular specialists.

For 1990, a sample of 3,063 non-Federal, office-based physicians was selected from master files maintained by the American Medical Association and American Osteopathic Association. Of this number, 149 were specialists in cardiovascular diseases. The overall response rate for the 2,269 in-scope physicians was 74 percent; the rate was 67 percent for the 114 in-scope cardiovascular disease specialists. Responding physicians completed 43,469 patient records, including 1,243 forms from cardiovascular disease specialists.

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.

The 1989 and 1990 NAMCS 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 presented in this report, 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. Relative standard errors for estimated numbers of office visits in

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

Estimated number of office visits in thousands	*Visits to all specialists*[1]	*Visits to cardiovascular disease specialists*[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 to aggregated specialists, 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 cardiovascular disease specialists, the smallest reliable estimate is 110,000 visits.

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

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

Estimated number of drug mentions in thousands[1]	*Relative standard error in percent*
100	36.1
200	27.0
500	19.7
1,000	16.6
2,000	14.7
5,000	13.5
10,000	13.1
20,000	12.9
50,000	12.8
100,000	12.7
1,000,000	12.7

[1] The smallest reliable estimate of drug mentions at visits to cardiovascular disease specialists is 155,000. 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 13.1 percent or a standard error of 1,310,000 mentions (13.1 percent of 10 million).

Table III. Standard errors for percents of estimated numbers of office visits to cardiovascular disease specialists: 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	0.2	0.2

Example of use of table: An estimate of 30 percent based on an aggregate estimate of 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 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	
	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

1990 are shown in table I, relative standard errors for estimated numbers of drug mentions are shown in table II, and standard errors for estimated percents of visits are shown in table III. Readers using these tables should keep in mind that they refer to combined years of data rather than average annual estimates.

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.

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

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:

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

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 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. Lack of comment about 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.

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.

Cardiovascular disease specialist—A cardiovascular disease specialist is a physician who has self-designated the practice specialty of cardiovascular diseases on the American Medical Association's Physicians' Professional Activities Questionnaire. The physician's specialty is also verified during the NAMCS interview. The practice specialty of cardiovascular diseases is defined as a medical specialty by the AMA (other categories include general practice, surgical specialties, and other specialties), and the American Board of Internal Medicine certifies physicians in that specialty. In the 1989 and 1990 NAMCS, 83.8 percent of all visits to cardiovascular disease specialists were made to physicians who were board certified in internal medicine, while 15.8 percent of visits were made to physicians who did not report board certification.

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.

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

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Trade name disclaimer

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Advance Data

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

1991 Summary: National Hospital Discharge Survey

by Edmund J. Graves, Division of Health Care Statistics

Introduction

During 1991, an estimated 31.1 million inpatients, excluding newborn infants, were discharged from short-stay non-Federal hospitals in the United States. These patients used 199.1 million days of inpatient hospital care. The discharge rate was 124.1 discharges per 1,000 civilian population and the average length of stay was 6.4 days.

These and other statistics presented in this report are based on data collected by means of the National Hospital Discharge Survey (NHDS), a continuous survey that has been conducted by the National Center for Health Statistics (NCHS) since 1965. In 1991, data were abstracted from the medical records of approximately 274,000 patients discharged from 484 short-stay non-Federal hospitals. Beginning in 1988, a new three-stage stratified sample design was put in operation. A brief description of the new design, data collection procedures, and estimation process and definitions of terms used in this report can be found in the section entitled "Technical notes." A description of the development and design of the original NHDS, which was in operation from 1965 to 1987, has been published (1). Differences may exist between data for 1988–91 and earlier years because of the redesign of the survey.

Medical data for hospitalized patients are coded according to the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (2). Up to seven diagnoses and four procedures are coded for each discharge. Although diagnoses included in the ICD–9–CM section entitled "Supplementary classification of external causes of injury and poisoning" (codes E800–E999) are used in the NHDS, these diagnoses are excluded from this report. The conditions diagnosed and procedures performed are presented here by chapter of ICD–9–CM. Within these chapters, a few diagnoses and procedures or groups thereof also are shown. These specific categories were selected primarily because of their large estimates or because they are of special interest. More detailed analyses of NHDS data are published in Series 13 of the NCHS *Vital and Health Statistics* reports.

Starting in 1985, some hospitals participating in the NHDS have submitted machine-readable data tapes. In 1991, approximately 33 percent of the hospitals used this method to submit data. Analysis indicates that a greater number of nonsurgical procedures per patient are recorded from these hospitals

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

CENTERS FOR DISEASE CONTROL AND PREVENTION

Table 1. Number of inpatients discharged from short-stay hospitals by selected characteristics: United States, 1991

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

Selected characteristic	Both sexes	Male	Female
	Number of patients discharged in thousands		
Total	31,098	12,478	18,620
Age			
Under 15 years	2,498	1,435	1,064
15–44 years	11,620	3,248	8,372
45–64 years	6,173	3,088	3,085
65 years and over	10,806	4,708	6,098
Region			
Northeast	7,153	3,047	4,106
Midwest	7,315	2,995	4,321
South	11,290	4,418	6,871
West	5,340	2,018	3,322

Table 2. Rate of inpatients discharged from short-stay hospitals, by age, geographic region, and sex: United States, 1991

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

Age and region	Both sexes	Male	Female
	Rate of patients discharged per 1,000 population		
Total	124.1	102.7	144.3
Age			
Under 15 years	45.3	50.8	39.5
15–44 years	99.3	55.9	142.1
45–64 years	132.2	137.5	127.2
65 years and over	340.3	368.1	321.6
Region			
Northeast	140.6	124.7	155.3
Midwest	121.7	102.8	139.6
South	131.2	106.6	154.0
West	99.7	76.1	122.9

Table 3. Average length of stay for inpatients discharged from short-stay hospitals by selected characteristics: United States, 1991

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

Selected characteristic	Both sexes	Male	Female
	Average length of stay in days		
Total	6.4	7.0	6.0
Age			
Under 15 years	4.8	4.9	4.8
15–44 years	4.6	6.4	4.0
45–64 years	6.5	6.5	6.5
65 years and over	8.6	8.3	8.8
Region			
Northeast	7.3	7.6	7.1
Midwest	6.5	6.9	6.2
South	6.2	6.8	5.8
West	5.4	6.3	4.8

than from hospitals submitting data in the traditional manual mode (see "Technical notes"). A portion of the increases from 1984 to 1991 in the estimates for miscellaneous diagnostic and therapeutic procedures and, therefore, for total procedures may be due to this change in data collection methods.

In addition, the 1991 data were the first for which all ICD–9–CM procedure codes were used in the NHDS. In previous years, selected codes were excluded. These were primarily codes for certain miscellaneous diagnostic and therapeutic procedures.

Data highlights

Utilization by patient and hospital characteristics

The number, rate, and average length of stay of patients discharged from short-stay non-Federal hospitals are shown by age, geographic region, and sex in tables 1–3. The 31.1 million patients discharged from short-stay hospitals during 1991 comprised an estimated 12.5 million males and 18.6 million females. The rate per 1,000 population for females was 144, which was 41 percent higher than the rate of 103 for males. The number and rate of discharges are higher for females than for males largely because of women 15–44 years of age who are hospitalized for deliveries and pregnancy-related conditions.

The average length of stay was 7.0 days for males and 6.0 days for females during 1991. The average length of stay of the 4.0 million women who were hospitalized for deliveries was 2.8 days. The average length of stay was 4.8 days for patients under 15 years of age, 4.6 days for patients 15–44 years of age, 6.5 days for patients 45–64 years of age, and 8.6 days for patients 65 years of age and over.

The number of discharges from short-stay hospitals by geographic region during 1991 ranged from 11.3 million in the South to 5.3 million in the West. Regional differences in the number of discharges are accounted

for in part by variations in the population sizes. The rates per 1,000 population ranged from 141 in the Northeast Region to 100 in the West. Average lengths of stay by geographic region were 5.4 days in the West, 6.2 days in the South, 6.5 days in the Midwest, and 7.3 days in the Northeast.

Utilization by diagnosis

Diseases of the circulatory system ranked first in 1991 of the ICD–9–CM diagnostic chapters as a principal or first-listed diagnosis for patients discharged from non-Federal short-stay hospitals. These conditions accounted for an estimated 5.3 million discharges. Other leading ICD–9–CM diagnostic chapters were supplementary classifications (including females with deliveries) (4.4 million discharges), diseases of the digestive system (3.3 million discharges), and diseases of the respiratory system (3.1 million discharges). Approximately 52 percent of the patients discharged from non-Federal short-stay hospitals were included in these four ICD–9–CM diagnostic chapters.

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

The number and rate of discharges and average length of stay for each ICD–9–CM diagnostic chapter and selected categories are shown by sex and age in tables 4–6. The most common diagnostic categories for all patients were deliveries and heart disease. Other leading diagnostic categories were malignant neoplasms, pneumonia, and fractures. Excluding deliveries, these last four diagnostic categories were the leading first-listed diagnoses for both males and females. Some of the more common diagnoses for patients under 15 years of age were acute respiratory infections, pneumonia, and asthma. For patients 15–44 years of age, frequent diagnoses were deliveries, psychoses, and fractures. For patients 45–64 years of age and 65 years of age and over, heart disease and malignant neoplasms were major causes of hospitalization. The average length of stay for all patients ranged from 1.2 days for chronic disease of tonsils and adenoids to 14.6 days for malignant neoplasm of large intestine and rectum.

Utilization by procedure

One or more surgical or nonsurgical procedures were performed for an estimated 21.0 million of the 31.1 million inpatients discharged from short-stay hospitals during 1991. A total of 43.9 million procedures, or an average of 2.1 per patient who underwent at least one procedure, were recorded in 1991.

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

More than three-fourths of all the surgical and nonsurgical procedures performed during 1991 are listed in just 5 of the 16 procedure chapters. These were miscellaneous diagnostic and therapeutic procedures (14.8 million), obstetrical procedures (6.9 million), operations on the digestive system (5.6 million), operations on the cardiovascular system (4.1 million), and operations on the musculoskeletal system (3.3 million).

The number and rate of all-listed procedures in 1991 for each ICD–9–CM procedure chapter and selected procedure categories are shown by sex and age in tables 7 and 8. Of the 43.9 million procedures performed during 1991, 17.3 million were for males and 26.7 million were for females. The corresponding rates per 100,000 population were 17,529.3 for both sexes, 14,204.6 for males, and 20,661.0 for females. Frequent procedures for males were arteriography and angiocardiography, computerized axial tomography, and diagnostic ultrasound. Procedures commonly performed on females were episiotomy, fetal EKG and fetal monitoring, and diagnostic ultrasound.

The rate of procedures by age per 100,000 population ranged from 4,054.9 for patients under 15 years of age to 47,468.0 for patients 65 years of age and over. Commonly performed procedures for patients under 15 years of age were respiratory therapy, spinal tap, computerized axial tomography, and diagnostic ultrasound; for patients 15–44 years of age, episiotomy, fetal EKG and fetal monitoring, and cesarean section; for patients 45–64 years of age, arteriography and angiocardiography, cardiac catheterization, diagnostic ultrasound, and computerized axial tomography; for patients 65 years of age and over, arteriography and angiocardiography, computerized axial tomography, and diagnostic ultrasound.

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Table 4. Number of inpatients discharged from short-stay hospitals, by category of first-listed diagnosis, sex, and age: United States, 1991

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

Category of first-listed diagnosis and ICD–9–CM Code	Total	Sex		Age			
		Male	Female	Under 15 years	15–44 years	45–64 years	65 years and over
	Number of patients discharged in thousands						
All conditions	31,098	12,478	18,620	2,498	11,620	6,173	10,806
Infectious and parasitic diseases .001–139	759	363	396	207	218	101	232
Septicemia .038	240	103	137	20	22	39	159
Neoplasms .140–239	2,001	860	1,141	52	363	626	960
Malignant neoplasms .140–208,230–234	1,594	781	812	40	172	499	883
Malignant neoplasm of large intestine and rectum .153–154,197.5	168	86	82	*	*5	39	124
Malignant neoplasm of trachea, bronchus, and lung .162,197.0,197.3	236	147	89	*	10	101	125
Malignant neoplasm of breast .174–175,198.81	158	*	156	*	25	59	73
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature .210–229,235–239	407	78	329	13	191	126	77
Endocrine, nutritional and metabolic diseases, and immunity disorders .240–279	1,143	437	706	95	251	269	528
Diabetes mellitus .250	429	185	245	21	121	128	160
Volume depletion .276.5	329	121	208	50	46	44	189
Diseases of the blood and blood-forming organs .280–289	348	167	181	59	110	58	121
Mental disorders .290–319	1,657	840	817	61	1,009	328	260
Psychoses .290–299	902	416	486	24	488	189	201
Alcohol dependence syndrome .303	228	172	56	*	152	60	16
Diseases of the nervous system and sense organs .320–389	755	352	404	147	195	153	261
Diseases of the central nervous system .320–336,340–349	331	160	171	52	117	64	98
Diseases of the ear and mastoid process .380–389	144	72	72	71	26	22	26
Diseases of the circulatory system .390–459	5,338	2,728	2,611	28	396	1,509	3,405
Heart disease .391–392.0,393–398,402,404,410–416,420–429	3,704	1,977	1,727	17	232	1,095	2,361
Acute myocardial infarction .410	697	422	275	*	45	228	424
Coronary atherosclerosis .414.0	384	263	121	–	22	172	190
Other ischemic heart disease .411–413,414.1–414.9	876	461	415	*	48	313	514
Cardiac dysrhythmias .427	536	249	287	*5	41	129	361
Congestive heart failure .428.0	764	360	405	*	19	126	615
Cerebrovascular disease .430–438	835	370	466	*	35	156	640
Diseases of the respiratory system .460–519	3,052	1,508	1,544	736	500	530	1,286
Acute respiratory infections .460–466	518	258	261	220	68	75	156
Chronic disease of tonsils and adenoids .474	76	32	44	52	22	*	*
Pneumonia .480–486	1,088	545	543	214	133	152	589
Asthma .493	490	221	269	187	128	85	90
Diseases of the digestive system .520–579	3,256	1,455	1,801	244	950	851	1,211
Ulcers of the stomach and small intestine .531–534	237	125	112	*	43	69	124
Appendicitis .540–543	232	129	103	55	138	26	12
Inguinal hernia .550	135	120	14	22	26	41	46
Noninfectious enteritis and colitis .555–558	351	142	209	91	108	62	90
Cholelithiasis .574	552	159	393	*	195	187	168
Diseases of the genitourinary system .580–629	2,071	781	1,291	72	847	457	695
Calculus of kidney and ureter .592	241	160	81	*	117	84	40
Hyperplasia of prostate .600	229	229	...	–	*	49	180
Complications of pregnancy, childbirth, and the puerperium[1] .630–676	723	...	723	*	718	*	...
Abortions and ectopic and molar pregnancies .630–639	180	...	180	*	178	*	...
Diseases of the skin and subcutaneous tissue .680–709	462	245	217	49	142	108	162
Cellulitis and abscess .681–682	297	165	132	31	94	77	95
Diseases of the musculoskeletal system and connective tissue .710–739	1,600	738	862	50	548	450	553
Arthropathies and related disorders .710–719	526	228	298	14	125	125	261
Intervertebral disc disorders .722	391	225	166	*	209	132	51
Congenital anomalies .740–759	192	101	91	125	37	21	10
Certain conditions originating in the perinatal period .760–779	147	79	68	146	*	–	*
Symptoms, signs, and ill-defined conditions .780–799	386	202	184	63	146	115	62
Injury and poisoning .800–999	2,768	1,437	1,331	286	1,102	492	888
Fractures, all sites .800–829	1,034	481	553	104	320	158	452
Fracture of neck of femur .820	300	80	219	*	10	27	259
Intracranial injuries (excluding those with skull fracture) .850–854	180	106	74	30	96	20	34
Lacerations and open wounds .870–904	193	137	56	25	128	24	16
Supplementary classifications .V01–V82	4,438	188	4,250	76	4,089	105	169
Females with deliveries .V27	3,973	...	3,973	14	3,956	*	...

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

Table 5. Rate of inpatients discharged from short-stay hospitals, by category of first-listed diagnosis, sex, and age: United States, 1991

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

Category of first-listed diagnosis and ICD–9–CM Code	Total	Sex		Age			
		Male	Female	Under 15 years	15–44 years	45–64 years	65 years and over
	Rate of inpatients discharged per 10,000 population						
All conditions	1,241.1	1,026.7	1,443.1	453.2	993.4	1,321.6	3,403.1
Infectious and parasitic diseases .001–139	30.3	29.8	30.7	37.5	18.7	21.7	73.2
Septicemia .038	9.6	8.5	10.6	3.7	1.9	8.3	50.2
Neoplasms .140–239	79.9	70.7	88.4	9.5	31.0	133.9	302.3
Malignant neoplasms .140–208,230–234	63.6	64.3	63.0	7.2	14.7	106.9	278.1
Malignant neoplasm of large intestine and rectum .153–154,197.5	6.7	7.0	6.4	*	*0.4	8.3	39.0
Malignant neoplasm of trachea, bronchus, and lung .162,197.0,197.3	9.4	12.1	6.9	*	0.8	21.6	39.3
Malignant neoplasm of breast .174–175,198.81	6.3	*	12.1	*	2.2	12.5	23.1
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature .210–229,235–239	16.2	6.4	25.5	2.3	16.3	27.0	24.3
Endocrine, nutritional and metabolic diseases, and immunity disorders .240–279	45.6	35.9	54.7	17.2	21.5	57.6	166.4
Diabetes mellitus .250	17.1	15.2	19.0	3.7	10.4	27.4	50.3
Volume depletion .276.5	13.1	10.0	16.1	9.1	3.9	9.4	59.6
Diseases of the blood and blood-forming organs .280–289	13.9	13.7	14.1	10.7	9.4	12.4	38.2
Mental disorders .290–319	66.1	69.1	63.4	11.0	86.2	70.3	81.9
Psychoses .290–299	36.0	34.2	37.7	4.3	41.7	40.5	63.3
Alcohol dependence syndrome .303	9.1	14.2	4.3	*	13.0	12.9	5.0
Diseases of the nervous system and sense organs .320–389	30.1	28.9	31.3	26.6	16.6	32.8	82.2
Diseases of the central nervous system .320–336,340–349	13.2	13.1	13.3	9.5	10.0	13.7	30.8
Diseases of the ear and mastoid process .380–389	5.8	6.0	5.6	12.8	2.2	4.7	8.2
Diseases of the circulatory system .390–459	213.1	224.4	202.3	5.1	33.9	323.1	1,072.4
Heart disease .391–392.0,393–398,402,404,410–416,420–429	147.8	162.6	133.9	3.0	19.8	234.3	743.5
Acute myocardial infarction .410	27.8	34.7	21.3	*	3.8	48.8	133.5
Coronary atherosclerosis .414.0	15.3	21.7	9.3	–	1.9	36.8	60.0
Other ischemic heart disease .411–413,414.1–414.9	35.0	37.9	32.1	*	4.1	67.0	161.7
Cardiac dysrhythmias .427	21.4	20.5	22.3	*1.0	3.5	27.5	113.8
Congestive heart failure .428.0	30.5	29.6	31.4	*	1.6	27.0	193.6
Cerebrovascular disease .430–438	33.3	30.4	36.1	*	3.0	33.5	201.5
Diseases of the respiratory system .460–519	121.8	124.1	119.7	133.6	42.7	113.4	405.2
Acute respiratory infections .460–466	20.7	21.2	20.2	39.8	5.8	16.0	49.2
Chronic disease of tonsils and adenoids .474	3.0	2.6	3.4	9.5	1.9	*	*
Pneumonia .480–486	43.4	44.8	42.1	38.9	11.4	32.5	185.5
Asthma .493	19.6	18.2	20.9	33.9	10.9	18.2	28.5
Diseases of the digestive system .520–579	129.9	119.7	139.6	44.3	81.2	182.1	381.5
Ulcers of the stomach and small intestine .531–534	9.5	10.3	8.7	*	3.6	14.8	39.1
Appendicitis .540–543	9.2	10.6	8.0	10.1	11.8	5.6	3.8
Inguinal hernia .550	5.4	9.9	1.1	4.0	2.2	8.8	14.5
Noninfectious enteritis and colitis .555–558	14.0	11.7	16.2	16.5	9.2	13.4	28.4
Cholelithiasis .574	22.0	13.1	30.4	*	16.7	39.9	53.0
Diseases of the genitourinary system .580–629	82.7	64.2	100.0	13.0	72.4	97.9	218.9
Calculus of kidney and ureter .592	9.6	13.2	6.3	*	10.0	18.0	12.6
Hyperplasia of prostate .600	9.2	18.9	...	–	*	10.4	56.7
Complications of pregnancy, childbirth, and the puerperium[1] .630–676	28.8	...	56.0	*	61.4	*	...
Abortions and ectopic and molar pregnancies .630–639	7.2	...	13.9	*	15.3	*	...
Diseases of the skin and subcutaneous tissue .680–709	18.4	20.1	16.8	8.9	12.1	23.2	51.1
Cellulitis and abscess .681–682	11.9	13.6	10.2	5.6	8.0	16.5	30.0
Diseases of the musculoskeletal system and connective tissue .710–739	63.9	60.7	66.8	9.0	46.8	96.3	174.1
Arthropathies and related disorders .710–719	21.0	18.7	23.1	2.6	10.7	26.7	82.3
Intervertebral disc disorders .722	15.6	18.5	12.9	*	17.8	28.3	15.9
Congenital anomalies .740–759	7.7	8.3	7.1	22.6	3.1	4.4	3.2
Certain conditions originating in the perinatal period .760–779	5.9	6.5	5.3	26.4	*	–	*
Symptoms, signs, and ill-defined conditions .780–799	15.4	16.6	14.3	11.3	12.5	24.6	19.7
Injury and poisoning .800–999	110.5	118.2	103.2	51.9	94.2	105.4	279.5
Fractures, all sites .800–829	41.3	39.6	42.9	18.9	27.4	33.8	142.4
Fracture of neck of femur .820	12.0	6.6	17.0	*	0.9	5.8	81.4
Intracranial injuries (excluding those with skull fracture) .850–854	7.2	8.7	5.7	5.5	8.2	4.3	10.8
Lacerations and open wounds .870–904	7.7	11.3	4.4	4.5	11.0	5.2	5.0
Supplementary classifications .V01–V82	177.1	15.5	329.4	13.8	349.5	22.4	53.2
Females with deliveries .V27	158.6	...	307.9	2.5	338.2	*	...

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

Table 6. Average length of stay for inpatients discharged from short-stay hospitals, by category of first-listed diagnosis, sex, and age: United States, 1991

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

Category of first-listed diagnosis and ICD–9–CM Code	Total	Sex		Age			
		Male	Female	Under 15 years	15–44 years	45–64 years	65 years and over
	Average length of stay in days						
All conditions	6.4	7.0	6.0	4.8	4.6	6.5	8.6
Infectious and parasitic diseases .001–139	8.5	8.9	8.1	3.8	8.6	11.3	11.3
Septicemia .038	11.6	11.7	11.5	6.1	11.1	11.7	12.3
Neoplasms .140–239	8.2	9.2	7.5	6.3	5.5	7.5	9.8
Malignant neoplasms .140–208,230–234	9.2	9.7	8.7	7.0	7.4	8.2	10.1
Malignant neoplasm of large intestine and rectum .153–154,197.5	14.6	16.7	12.4	*	*8.1	10.7	16.1
Malignant neoplasm of trachea, bronchus, and lung .162,197.0,197.3	8.6	8.5	8.7	*	5.9	7.8	9.5
Malignant neoplasm of breast .174–175,198.81	4.4	*	4.4	*	3.8	4.6	4.5
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature .210–229,235–239	4.5	4.6	4.4	4.1	3.8	4.4	6.1
Endocrine, nutritional and metabolic diseases, and immunity disorders .240–279	7.1	7.1	7.1	4.3	4.6	6.9	8.9
Diabetes mellitus .250	7.1	6.8	7.3	4.8	4.7	7.5	8.9
Volume depletion .276.5	7.5	8.5	6.9	2.9	4.0	6.8	9.8
Diseases of the blood and blood-forming organs .280–289	6.2	6.1	6.3	4.3	5.6	6.6	7.5
Mental disorders .290–319	11.4	11.0	11.9	15.9	11.0	10.8	12.8
Psychoses .290–299	13.5	13.0	13.8	17.3	13.1	13.3	14.1
Alcohol dependence syndrome .303	9.5	9.1	10.6	*	9.9	8.3	9.5
Diseases of the nervous system and sense organs .320–389	5.7	5.8	5.6	4.3	4.8	5.5	7.2
Diseases of the central nervous system .320–336,340–349	8.8	8.7	9.0	6.7	5.6	9.1	13.7
Diseases of the ear and mastoid process .380–389	2.8	2.7	3.0	2.6	3.2	2.5	3.3
Diseases of the circulatory system .390–459	7.3	7.0	7.6	10.1	5.6	6.4	7.9
Heart disease .391–392.0,393–398,402,404,410–416,420–429	6.8	6.7	7.0	13.4	5.5	6.3	7.2
Acute myocardial infarction .410	8.1	7.5	9.1	*	5.9	7.2	8.8
Coronary atherosclerosis .414.0	7.1	7.4	6.5	–	5.4	8.0	6.5
Other ischemic heart disease .411–413,414.1–414.9	5.0	5.0	5.1	*	3.9	4.3	5.6
Cardiac dysrhythmias .427	5.3	5.0	5.5	*4.0	3.6	4.8	5.6
Congestive heart failure .428.0	7.9	7.5	8.4	*	7.4	7.6	7.9
Cerebrovascular disease .430–438	9.3	9.1	9.6	*	9.4	7.9	9.7
Diseases of the respiratory system .460–519	6.8	6.4	7.1	3.5	5.0	7.0	9.2
Acute respiratory infections .460–466	4.8	4.1	5.4	3.1	4.2	5.5	7.0
Chronic disease of tonsils and adenoids .474	1.2	1.3	1.1	1.2	1.2	*	*
Pneumonia .480–486	8.2	7.9	8.5	4.1	6.5	7.9	10.2
Asthma .493	4.5	4.1	4.9	3.0	4.5	5.2	7.2
Diseases of the digestive system .520–579	5.9	5.9	5.9	3.7	4.8	5.5	7.6
Ulcers of the stomach and small intestine .531–534	6.9	6.6	7.3	*	4.6	5.6	8.5
Appendicitis .540–543	4.2	4.2	4.3	3.9	3.7	5.7	8.6
Inguinal hernia .550	2.4	2.4	2.5	1.5	1.5	1.8	3.8
Noninfectious enteritis and colitis .555–558	5.6	5.8	5.4	3.3	5.1	6.5	7.7
Cholelithiasis .574	5.0	5.3	4.8	*	4.6	4.0	6.4
Diseases of the genitourinary system .580–629	4.8	5.3	4.5	4.0	3.7	4.7	6.5
Calculus of kidney and ureter .592	2.7	2.5	3.2	*	2.4	2.8	3.6
Hyperplasia of prostate .600	5.3	5.3	...	–	*	7.3	4.8
Complications of pregnancy, childbirth, and the puerperium[1] .630–676	2.9	...	2.9	*	2.9	*	...
Abortions and ectopic and molar pregnancies .630–639	2.4	...	2.4	*	2.4	*	...
Diseases of the skin and subcutaneous tissue .680–709	8.4	8.0	8.9	3.8	7.3	7.8	11.2
Cellulitis and abscess .681–682	7.1	7.0	7.3	3.7	6.0	7.2	9.3
Diseases of the musculoskeletal system and connective tissue .710–739	6.4	5.7	7.0	5.4	4.7	5.5	8.9
Arthropathies and related disorders .710–719	7.4	6.6	8.0	5.3	4.1	6.7	9.4
Intervertebral disc disorders .722	5.0	4.5	5.6	*	4.5	4.7	7.5
Congenital anomalies .740–759	6.2	6.2	6.2	6.8	4.5	5.9	5.5
Certain conditions originating in the perinatal period .760–779	10.7	11.3	10.1	10.7	*	–	*
Symptoms, signs, and ill-defined conditions .780–799	3.0	3.0	3.0	2.5	2.6	2.7	5.2
Injury and poisoning .800–999	6.9	6.3	7.6	4.5	5.5	6.5	9.6
Fractures, all sites .800–829	8.4	7.3	9.4	5.4	6.1	7.2	11.3
Fracture of neck of femur .820	12.3	10.9	12.8	*	7.4	10.4	12.8
Intracranial injuries (excluding those with skull fracture) .850–854	5.8	6.2	5.2	2.5	5.9	8.0	7.1
Lacerations and open wounds .870–904	4.9	3.7	7.8	3.4	5.2	4.3	5.2
Supplementary classifications .V01–V82	3.3	7.5	3.1	4.7	2.8	5.8	12.1
Females with deliveries .V27	2.8	...	2.8	2.4	2.8	*	...

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

Table 7. Number of all-listed procedures for inpatients discharged from short-stay hospitals, by procedure category, sex, and age: United States, 1991

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

Procedure category and ICD–9–CM Code	Total	Sex		Age			
		Male	Female	Under 15 years	15–44 years	45–64 years	65 years and over
	Number of all-listed procedures in thousands						
All procedures	43,922	17,264	26,658	2,235	17,090	9,524	15,073
Operations on the nervous system .01–05	970	500	470	236	328	196	210
Spinal tap .03.31	380	208	172	183	94	46	57
Operations on the endocrine system .06–07	103	28	75	*	41	33	25
Operations on the eye .08–16	399	189	210	25	65	85	224
Operations on the ear .18–20	129	75	54	66	36	15	13
Operations on the nose, mouth, and pharynx .21–29	541	288	254	118	237	96	90
Tonsillectomy with or without adenoidectomy .28.2–28.3	86	40	46	54	28	*	*
Operations on the respiratory system .30–34	956	561	396	60	173	290	433
Bronchoscopy with or without biopsy .33.21–33.24,33.27	309	186	123	18	45	95	152
Operations on the cardiovascular system .35–39	4,123	2,383	1,740	148	477	1,476	2,022
Removal of coronary artery obstruction .36.0	331	223	107	*	24	163	143
Coronary artery bypass graft[1] .36.1	407	296	111	*	23	178	206
Cardiac catheterization .37.21–37.23	1,000	603	397	19	89	447	446
Insertion, replacement, removal, and revision of pacemaker leads or device .37.7–37.8	300	145	155	*	9	44	244
Shunt or vascular bypass .39.0–39.2	168	92	76	*	14	57	93
Hemodialysis .39.95	261	129	132	*	61	79	118
Operations on the hemic and lymphatic system .40–41	392	212	180	20	77	110	185
Operations on the digestive system .42–54	5,559	2,319	3,241	221	1,571	1,400	2,367
Endoscopy of small intestine with or without biopsy .45.11–45.14,45.16	804	391	413	11	145	202	446
Endoscopy of large intestine with or without biopsy .45.21–45.25	574	234	340	*	90	127	353
Partial excision of large intestine .45.7	220	94	125	*	23	57	139
Appendectomy, excluding incidental .47.0	255	135	120	57	156	29	14
Cholecystectomy .51.2	571	166	404	*	194	189	185
Repair of inguinal hernia .53.0–53.1	172	155	17	25	31	51	65
Lysis of peritoneal adhesions .54.5	339	60	279	*5	167	75	92
Operations on the urinary system .55–59	1,558	884	674	47	376	386	750
Cystoscopy with or without biopsy .57.31–57.33	458	333	125	9	64	103	281
Operations on the male genital organs .60–64	584	584	...	46	40	116	382
Prostatectomy .60.2–60.6	363	363	...	...	*	68	295
Operations on the female genital organs .65–71	2,308	...	2,308	*8	1,624	445	231
Oophorectomy and salpingo-oophorectomy .65.3–65.6	458	...	458	*	248	150	59
Bilateral destruction or occlusion of Fallopian tubes .66.2–66.3	401	...	401	*	400	*	...
Hysterectomy .68.3–68.7	546	...	546	–	322	161	63
Dilation and curettage of uterus .69.0	196	...	196	*	159	22	14
Repair of cystocele and rectocele .70.5	139	...	139	*	40	48	50
Obstetrical procedures .72–75	6,867	...	6,867	24	6,839	*	...
Episiotomy with or without forceps or vacuum extraction .72.1,72.21,72.31,72.71,73.6	1,684	...	1,684	*8	1,675	*	...
Artificial rupture of membranes .73.0	775	...	775	*	771	*	...
Cesarean section .74.0–74.2,74.4,74.99	933	...	933	*	931	*	...
Fetal EKG (scalp) and fetal monitoring, not otherwise specified .75.32,75.34	1,327	...	1,327	*	1,321	*	...
Repair of current obstetric laceration .75.5–75.6	795	...	795	*	792	*	...
Operations on the musculoskeletal system .76–84	3,323	1,710	1,614	208	1,323	798	994
Partial excision of bone .76.2–76.3,77.6–77.8	216	119	97	10	96	67	43
Open reduction of fracture with internal fixation .79.3	418	193	225	27	145	76	170
Excision or destruction of intervertebral disc .80.5	306	181	125	*	162	102	42
Total hip replacement .81.51	117	50	67	*	*8	31	78
Total knee replacement .81.54	160	60	100	–	*	36	121
Operations on the integumentary system .85–86	1,324	552	773	75	488	330	431
Mastectomy .85.4	118	*	117	*	17	42	58
Debridement of wound, infection, or burn .86.22,86.28	326	181	145	19	107	62	138
Skin graft .86.6–86.7	99	60	39	9	40	22	27
Miscellaneous diagnostic and therapeutic procedures .87–99	14,785	6,981	7,804	929	3,397	3,743	6,715
Computerized axial tomography .87.03,87.41,87.71,88.01,88.38	1,459	701	757	69	360	328	702
Pyelogram .87.73–87.75	245	133	112	*	93	61	86
Arteriography and angiocardiography using contrast material .88.4–88.5	1,718	989	729	22	182	723	791
Diagnostic ultrasound .88.7	1,592	652	940	74	424	354	739
Circulatory monitoring .89.6	703	339	364	29	118	167	390
Radioisotope scan .92.0–92.1	539	228	311	16	105	148	270
Respiratory therapy .93.9	1,214	596	618	196	193	236	588

[1]The number of discharged patients with a coronary artery bypass graft was 265,000.

Table 8. Rate of all-listed procedures for inpatients discharged from short-stay hospitals, by procedure category, sex, and age: United States, 1991

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

Procedure category and ICD–9–CM Code	Total	Sex		Age			
		Male	Female	Under 15 years	15–44 years	45–64 years	65 years and over
	Rate of all-listed procedures per 100,000 population						
All procedures	17,529.3	14,204.6	20,661.0	4,054.9	14,610.5	20,389.8	47,468.0
Operations on the nervous system .01–05	387.3	411.5	364.5	428.9	280.6	419.7	660.4
Spinal tap .03.31	151.6	171.1	133.2	332.2	80.6	97.5	178.8
Operations on the endocrine system .06–07	41.0	22.9	58.1	*	35.3	71.7	77.2
Operations on the eye .08–16	159.2	155.7	162.4	44.5	55.8	182.8	704.3
Operations on the ear .18–20	51.6	61.7	42.0	119.3	30.6	31.7	40.3
Operations on the nose, mouth, and pharynx .21–29	216.1	236.7	196.7	214.4	202.6	205.4	284.2
Tonsillectomy with or without adenoidectomy .28.2–28.3	34.1	32.5	35.7	98.2	23.8	*	*
Operations on the respiratory system .30–34	381.6	461.2	306.6	109.7	147.5	620.5	1,364.8
Bronchoscopy with or without biopsy .33.21–33.24,33.27	123.4	153.4	95.2	32.2	38.4	202.3	479.0
Operations on the cardiovascular system .35–39	1,645.5	1,960.3	1,348.9	269.0	407.5	3,161.0	6,366.7
Removal of coronary artery obstruction .36.0	131.9	183.5	83.3	*	20.8	350.0	449.1
Coronary artery bypass graft[1] .36.1	162.6	243.5	86.4	*	19.4	381.3	650.2
Cardiac catheterization .37.21–37.23	399.1	496.0	307.9	33.7	75.9	956.3	1,404.8
Insertion, replacement, removal, and revision of pacemaker leads or device .37.7–37.8	119.6	119.3	119.9	*	7.8	94.3	769.9
Shunt or vascular bypass .39.0–39.2	67.2	75.7	59.1	*	11.9	121.7	293.5
Hemodialysis .39.95	104.0	106.0	102.2	*	52.5	168.1	372.6
Operations on the hemic and lymphatic system .40–41	156.3	174.3	139.4	35.5	66.2	234.5	583.3
Operations on the digestive system .42–54	2,218.8	1,908.0	2,511.6	401.3	1,342.6	2,997.9	7,455.8
Endoscopy of small intestine with or without biopsy .45.11–45.14,45.16	320.9	321.9	320.0	20.1	123.9	431.9	1,405.6
Endoscopy of large intestine with or without biopsy .45.21–45.25	229.0	192.6	263.4	*	77.3	272.1	1,111.1
Partial excision of large intestine .45.7	87.7	77.7	97.1	*	19.6	121.6	436.3
Appendectomy, excluding incidental .47.0	101.8	111.4	92.7	102.5	133.4	61.8	42.6
Cholecystectomy .51.2	227.8	136.9	313.4	*	165.8	405.0	581.9
Repair of inguinal hernia .53.0–53.1	68.8	127.4	13.6	45.8	26.8	109.0	204.1
Lysis of peritoneal adhesions .54.5	135.4	49.4	216.5	*9.3	142.8	161.3	289.5
Operations on the urinary system .55–59	621.8	727.4	522.3	85.0	321.2	825.3	2,361.6
Cystoscopy with or without biopsy .57.31–57.33	182.6	273.9	96.7	17.2	54.7	221.1	884.7
Operations on the male genital organs .60–64	233.2	480.8	...	84.3	33.9	248.5	1,203.3
Prostatectomy .60.2–60.6	145.1	299.1	...	...	*	145.6	930.0
Operations on the female genital organs .65–71	921.3	...	1,789.0	*14.9	1,388.0	953.3	728.4
Oophorectomy and salpingo-oophorectomy .65.3–65.6	182.7	...	354.8	*	211.8	321.7	184.2
Bilateral destruction or occlusion of fallopian tubes .66.2–66.3	160.1	...	310.9	*	341.7	*	...
Hysterectomy .68.3–68.7	218.0	...	423.4	–	275.6	344.7	198.2
Dilation and curettage of uterus .69.0	78.0	...	151.6	*	136.0	46.1	43.9
Repair of cystocele and rectocele .70.5	55.3	...	107.4	*	34.0	103.6	158.5
Obstetrical procedures .72–75	2,740.4	...	5,321.8	43.4	5,846.4	*	...
Episiotomy with or without forceps or vacuum extraction .72.1,72.21,72.31,72.71,73.6	672.2	...	1,305.3	*14.0	1,431.9	*	...
Artificial rupture of membranes .73.0	309.2	...	600.4	*	659.5	*	...
Cesarean section .74.0–74.2,74.4,74.99	372.5	...	723.4	*	795.9	*	...
Fetal EKG (scalp) and fetal monitoring, not otherwise specified .75.32,75.34	529.4	...	1,028.1	*	1,129.6	*	...
Repair of current obstetric laceration .75.5–75.6	317.3	...	616.1	*	677.3	*	...
Operations on the musculoskeletal system .76–84	1,326.3	1,406.7	1,250.6	376.9	1,131.2	1,708.4	3,131.8
Partial excision of bone .76.2–76.3,77.6–77.8	86.2	97.6	75.5	17.9	82.3	142.8	136.0
Open reduction of fracture with internal fixation .79.3	166.7	158.4	174.6	48.4	124.2	162.3	535.6
Excision or destruction of intervertebral disc .80.5	122.2	149.3	96.6	*	138.1	218.3	131.4
Total hip replacement .81.51	46.6	41.1	51.8	*	*7.2	65.5	244.5
Total knee replacement .81.54	64.0	49.4	77.8	–	*	77.6	382.3
Operations on the integumentary system .85–86	528.5	453.8	598.8	135.9	417.3	706.7	1,357.2
Mastectomy .85.4	47.2	*	90.9	*	14.8	90.3	184.0
Debridement of wound, infection, or burn .86.22,86.28	130.0	149.0	112.1	35.2	91.1	133.0	433.6
Skin graft .86.6–86.7	39.5	49.0	30.6	17.2	34.5	48.2	84.0
Miscellaneous diagnostic and therapeutic procedures .87–99	5,900.5	5,743.6	6,048.2	1,685.4	2,903.8	8,013.9	21,148.8
Computerized axial tomography .87.03,87.41,87.71,88.01,88.38	582.4	577.4	587.0	125.5	308.0	701.7	2,210.6
Pyelogram .87.73–87.75	97.8	109.3	86.9	*	79.9	129.9	272.0
Arteriography and angiocardiography using contrast material .88.4–88.5	685.8	813.8	565.3	40.3	155.5	1,548.0	2,492.2
Diagnostic ultrasound .88.7	635.2	536.2	728.5	133.3	362.7	758.9	2,328.6
Circulatory monitoring .89.6	280.5	278.9	282.0	52.0	100.9	356.6	1,226.9
Radioisotope scan .92.0–92.1	215.0	187.5	241.0	28.5	89.7	316.3	851.8
Respiratory therapy .93.9	484.5	490.1	479.1	356.1	165.2	505.2	1,853.0

[1]The rate per 1,000,000 population of discharged patients with a coronary bypass graft was 105.8.

Technical notes

Survey methodology

Source of data

The National Hospital Discharge Survey covers discharges from noninstitutional hospitals, exclusive of Federal, military, and Veterans Administration hospitals, located in the 50 States and the District of Columbia. Only short-stay hospitals (hospitals with an average length of stay for all patients of less than 30 days) or those whose specialty is general (medical or surgical) or children's general are included in the survey. These hospitals must also have six beds or more staffed for patient use.

From 1988 through 1990, the NHDS sampling frame consisted of hospitals that were listed in the April 1987 SMG Hospital Market Tape (3), met the above criteria, and began accepting patients by August 1987. In 1991 the sampling frame was updated to include hospitals from the 1991 SMG Hospital Database Tape (4). For 1991, the sample consisted of 528 hospitals. Of the 528 hospitals, 7 were found to be out of scope (ineligible) because they went out of business or otherwise failed to meet the criteria for the NHDS universe. Of the 521 in-scope (eligible) hospitals, 484 responded to the survey.

Sample design and data collection

The NCHS has conducted the NHDS continuously since 1965. The original sample was selected in 1964 from a frame of short-stay hospitals listed in the National Master Facility Inventory. That sample was updated periodically with samples of hospitals that opened later. Sample hospitals were selected with probabilities ranging from certainty for the largest hospitals to 1 in 40 for the smallest hospitals. Within each sample hospital, a systematic random sample of discharges was selected. A report on the design and development of the original NHDS was published (1).

Beginning in 1988, the NHDS sample includes with certainty all hospitals with 1,000 beds or more or 40,000 discharges or more annually. The remaining sample of hospitals is based on a stratified three-stage design. The first stage consists of a selection of 112 primary sampling units (PSU's) that comprise a probability subsample of PSU's to be used in the 1985–94 National Health Interview Survey. The second stage consists of a selection of noncertainty hospitals from the sample PSU's. At the third stage, a sample of discharges was selected by a systematic random sampling technique.

Two data collection procedures were used for the survey. The first was a manual system of sample selection and data abstraction. The second was an automated method, used for approximately 33 percent of the respondent hospitals in 1991, that involved the purchase of data tapes from abstracting service organizations, state data systems, or hospitals.

In the manual system, the sample selection and the transcription of information from the hospital records to abstract forms were performed at the hospitals. The completed forms, along with sample selection control sheets, were forwarded to NCHS for coding, editing, and weighting. Of the hospitals using the manual system in 1991, about two-thirds had the work performed by their own medical records staff. In the remaining hospitals using the manual system, personnel of the U.S. Bureau of the Census did the work on behalf of NCHS.

For the automated system, NCHS purchased tapes containing machine-readable medical record data that were systematically sampled by NCHS.

The medical abstract form and the automated data tapes contain items relating to the personal characteristics of the patient, including birth date, sex, race, and marital status but not name and address; administrative information, including admission and discharge dates, discharge status, and medical record number; and medical information, including diagnoses and surgical and nonsurgical operations or procedures. Since 1977, patient ZIP Code, expected source of payment, and dates of surgery have also been collected. (The medical record number and patient ZIP Code are confidential information and are not available to the public.)

Presentation of estimates

The relative standard error of the estimate and the number of sample records on which the estimate is based (referred to as the sample size) are used to identify estimates with relatively low reliability.

Because of the complex sample design of the NHDS, estimates of less than 5,000 are not presented; only an asterisk (*) appears in the tables. These estimates generally have a relative standard error of more than 30 percent or are based on a sample of less than 30 cases. Estimates of 5,000 to 9,000 are preceded by an asterisk (*) to indicate that they should not be assumed to be reliable. These estimates are generally based on less than 60 cases.

Sampling errors and rounding of numbers

The standard error is primarily a measure of sampling variability that occurs by chance because only a sample rather than the entire universe is surveyed. The relative standard error of the estimate is obtained by dividing the standard error by the estimate itself and is expressed as a percent of the estimate. The resulting value is multiplied by 100, so the relative standard error is expressed as a percent of the estimate.

Estimates of sampling variability were calculated with SESUDAAN software, which computes standard errors by using a first-order Taylor approximation of the deviation of estimates from their expected values. A description of the software and the approach it uses has been published (5).

The constants for relative standard error curves for the National

Hospital Discharge Survey are presented in table I. The constants for 1990 are shown because 1991 constants were not available at the time of publication and little difference is expected in the constants for the 2 years. The relative standard error [RSE(X)] of an estimate X may be estimated from the formula:

$$\mathrm{RSE}(X) = 100\left(\sqrt{a + b/X}\right)$$

where X, a, and b are as defined in table I.

Estimates have been rounded to the nearest thousand. For this reason, figures within tables do not always add to the totals. Rates and average lengths of stay were calculated from original, unrounded figures and will not necessarily agree precisely with rates or average lengths of stay calculated from rounded data.

Tests of significance

In this report, statistical inference is based on the two-sided test with a critical value of 1.96 (0.05 level of significance). Terms such as "higher" and "less" indicate that differences are statistically significant. Terms such as "similar" or "no difference" mean that no statistically significant difference exists between the estimates being compared. A lack of comment on the difference between any two estimates does not mean that the difference was tested and found not to be significant.

Terms relating to hospitalization

Hospitals—All hospitals with an average length of stay for all patients of less than 30 days or hospitals whose specialty is general (medical or surgical) or children's general are eligible for inclusion in the National Hospital Discharge Survey, except Federal hospitals, hospital units of institutions, and hospitals with less than six beds staffed for patients' use.

Patient—A person who is formally admitted to the inpatient service of a short-stay hospital for observation, care, diagnosis, or treatment. The terms "patient" and "inpatient" are used synonymously.

Newborn infant—A patient admitted by birth to a hospital.

Discharge—The formal release of a patient by a hospital; that is, the termination of a period of hospitalization by death or by disposition to place of residence, nursing home, or another hospital. The terms "discharges" and "patients discharged" are used synonymously.

Discharge rate—The ratio of the number of hospital discharges during a year to the number of persons in the civilian population on July 1 of that year.

Days of care—The number of patient days accumulated at time of discharge by a patient. A stay of less than 1 day (patient admission and discharge on the same day) is counted as 1 day in the summation of total days of care. For patients admitted and discharged on different days, the number of days of care is computed by counting all days from (and including) the date of admission to (but not including) the date of discharge.

Average length of stay—The number of days of care accumulated by patients discharged during the year divided by the number of these patients.

Terms relating to diagnoses

Diagnosis—A disease or injury (or factor that influences health status and contact with health services that is not itself a current illness or injury) on the medical record of a patient.

Principal diagnosis—The condition established after study to be chiefly responsible for occasioning the admission of the patient to the hospital for care.

First-listed diagnosis—The coded diagnosis identified as the principal diagnosis or listed first on the face sheet or discharge summary of the medical record if the principal diagnosis cannot be identified. The number of first-listed diagnoses is equivalent to the number of discharges.

Terms relating to procedures

Procedure—A surgical or nonsurgical operation, diagnostic procedure, or special treatment reported on the medical record of a patient. Beginning with the 1991 data, all ICD–9–CM procedure codes are used in the NHDS. Previously selected codes, primarily codes for miscellaneous diagnostic and therapeutic procedures, were not used.

All-listed procedures—The number of procedures on the face sheet of the medical record. In the NHDS a maximum of four procedures are coded.

Rate of procedures—The ratio of the number of procedures during a year to the number of persons in the civilian population on July 1 of that year determines the rate of procedures.

Table I. Estimated parameters for relative standard error equations for National Hospital Discharge Survey statistics, by sex, age, and geographic region: United States, 1990

Characteristic	Number of discharges or first-listed diagnoses		Number of procedures	
	a	b	a	b
Total	0.00213	228.834	0.00547	92.597
Sex				
Male	0.00152	313.079	0.00410	89.724
Female	0.00125	311.632	0.00337	83.021
Age				
Under 15 years	0.01597	47.116	0.03171	44.124
15–44 years	0.00142	299.762	0.00302	139.070
45–64 years	0.00157	234.543	0.00491	68.024
65 years and over	0.00161	263.223	0.00436	47.886
Region				
Northeast	0.00274	56.268	0.00588	108.765
Midwest	0.00487	183.531	0.00886	107.681
South	0.00375	343.892	0.00781	50.919
West	0.00564	318.914	0.01235	144.582

Demographic terms

Population—The U.S. resident population excluding members of the Armed Forces.

Age—Patient's age at birthday prior to admission to the hospital.

Geographic region—Hospitals are classified by location in one of the four geographic regions of the United States that correspond to those used by the U.S. Bureau of the Census.

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

Symbols

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

Suggested citation

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National Center for Health Statistics

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

Acting Deputy Director
Jack R. Anderson

Number 228 • March 2, 1993

Advance Data

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

Office Visits to General Surgeons 1989–90, National Ambulatory Medical Care Survey

by David A. Woodwell, Division of Health Care Statistics

This report describes visits made to general surgeons from March 1989 through December 1990. The information was collected by means of the National Ambulatory Medical Care Survey (NAMCS), a continuing probability sample survey of the private office-based, non-Federal physicians practicing in the United States. NAMCS excludes physicians who specialize in anesthesiology, pathology, or radiology and physicians who are principally engaged in teaching, research, or administration. The survey also excludes those visits made to hospital emergency or outpatient departments. NAMCS 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 NAMCS is voluntary.

Data in this report are from the 1989 and 1990 NAMCS, which were conducted in identical fashion using the same survey instruments, definitions, and procedures. The data were combined in order to obtain more reliable estimates. The figures in this report are estimated from a sample, not the entire universe, of visits to general surgeons, and are therefore subject to sampling variability. All estimates in this report, including the number of visits, the number of drug mentions, and the visit rates, have been adjusted to represent average annual statistics and do not represent 2-year totals. 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 for data collection in both 1989 and 1990 is shown in figure 1.

Data highlights

During 1989–90, there was an estimated annual average of 23.9 million visits to general surgeons accounting for 3.4 percent of all office visits to ambulatory care physicians in the United States (table 1). This estimated annual average of 23.9 million visits is a significant decrease from the estimated annual average of 30.5 million visits in 1980–81 (1) and a further decrease from the estimated 41.2 million visits in 1975 (2). As a percent of total visits to all physicians, visits to general surgeons also decreased during this period from 7.3 percent in 1975 to 5.3 percent in 1980–81 to 3.4 percent in 1989–90. Whereas general surgeons had an average annual visit rate of 20 visits per 100 persons in 1975, their average annual visit rate in 1989–90 was only 10 visits per 100 persons, or half the 1975 rate. The declining trend in the visit rate to general surgeons could be attributed in part to the fact that since 1980 the number of general surgeons, as a percentage of all surgeons, has decreased 14.3 percent. As a percent of all physicians, general surgeons have decreased from 8.3 percent in 1980 to 6.8 percent in 1990—a decrease of 18.1 percent (3,4).

Patient characteristics

As shown in table 2, seven of every eight patients (88 percent) who visited general surgeons were 25 years of age or older. Visits made by patients ages 25–64 years represented over half of all visits to the general surgeon, with those ages 65–74 and 75 years and over accounting for another 30 percent of the visits. The visit rate increased with age from 2 visits per 100 persons for patients under 15 years of age to 27 visits per

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

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	NO	b. FOR DX IN ITEM 10a? YES	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

100 persons for patients 75 years of age and over.

General surgeons had significantly more visits by females than visits by males in 1989–90. About 62 percent of the visits were made by females, which was similar to the distribution in 1975 (2). For both males and females, the percent of visits for patients 25–44 years old increased significantly from the percent of visits for patients 15–24 years old. In addition, females represented a significantly higher percent of visits in the two age groups 25–44 and 45–64, about 37 percent for females compared with about 21 percent for males. The visit rates were not significantly different by consecutive age groups, within or between male and female groups, but was significant from the under 15 age group to the 75 years and older age group.

Most of the visits to the general surgeon were made by white persons, nearly 82 percent, as compared with black persons, 15 percent (table 3). For both white and black persons, females visited more often than males. There was no significant difference in the visit rate between white and black persons. White persons had an average annual visit rate of 10 visits per 100 persons as compared with black persons who had a visit rate of 12 visits per 100 persons. This similarity in the visit rate indicates that general surgeons had approximately the same

Table 1. Average annual number, percent distribution, and average annual 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
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 diseases	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 general surgeons, 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	23,891	100.0	10
Under 15 years	1,028	4.3	2
15–24 years	1,815	7.6	5
25–44 years	6,580	27.5	8
45–64 years	7,201	30.1	16
65–74 years	4,207	17.6	23
75 years and over	3,059	12.8	27
Male	9,168	38.4	8
Under 15 years	546	2.3	2
15–24 years	843	3.5	5
25–44 years	2,541	10.6	7
45–64 years	2,530	10.6	11
65–74 years	1,532	6.4	19
75 years and over	1,177	4.9	28
Female	14,722	61.6	12
Under 15 years	482	2.0	2
15–24 years	972	4.1	5
25–44 years	4,039	16.9	10
45–64 years	4,672	19.6	19
65–74 years	2,674	11.2	27
75 years and over	1,882	7.9	26

proportion of visits by race as the proportion in the general population.

Expected sources of payment

As shown in table 4, Medicare (almost 26 percent) and "other commercial" insurance (almost 25 percent) were the most frequent sources of payment for visits made to general surgeons. For all physicians, Medicare was used as a source of payment in 19 percent of the visits, a significant difference of approximately 7 percent reflecting the high rate of older patients that visit general surgeons. Patients paid all or part of the visit cost in an estimated 16 percent of the visits to general surgeons, which is significantly lower than the estimated 31 percent for all physicians. The visits in which the patient was not charged (almost 8 percent) was higher for general surgeons as compared with all physicians (about 2 percent). Medicaid, Blue Cross/Blue Shield, and pre-paid plans (HMO's, IPA's, and PPO's) were a payment source for about 9 percent, 15 percent, and 13 percent of the visits respectively. If a patient used more than one source of payment, all sources were recorded in item 17 of the patient record form.

Patient status

As illustrated in table 5, of the visits made to general surgeons in 1989–90, about 14 percent were referred, as compared with about 6 percent of the visits for all physicians. Unpublished data from the 1977 and 1980 NAMCS (1977 was the first year referral data were collected) showed that approximately 11 percent of the visits to general surgeons were referred. In 1985, the percent of visits referred was about 14 percent, which is not significantly different than the estimates from 1977, 1980, or 1989–90.

The visit status of the patient (item 11 on the patient record form) shows that most of the visits were made by patients the physician had previously seen for the same condition (about 65 percent). About 15 percent of the visits were made by patients seen before who were presenting a new problem, and about 20 percent of the visits were made by new patients.

Patient's reason for visit

The principal reason for visit to the general surgeon, as expressed by the patient, is shown in tables 6 and 7. The principal reason for visit is the problem, complaint, or cause listed first on item 9 of the patient record form. These data have been classified and coded according to the *Reason for Visit Classification for Ambulatory Care* (RVC) (5).

The RVC is divided into eight modules (or groups of reasons) as detailed in table 6. For visits to general surgeons, the symptom module was most often cited,

Table 3. Average annual number, percent distribution, and average annual rate of office visits to general surgeons, 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	23,891	100.0	10
Black	3,572	15.0	12
Male	1,265	5.3	9
Female	2,306	9.7	14
White	19,570	81.9	10
Male	7,571	31.7	8
Female	11,999	50.2	13
Other[1]	510	2.1	6
Male	215	0.9	5
Female	296	1.2	7
Unspecified	239	1.0	...

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

Table 4. Average annual number and percent distribution of office visits to general surgeons and percent distribution of office visits for all physicians by the expected source of payment: United States, 1989–90

Source of payment	Visits to general surgeons		Visits to all physicians
	Average annual number of visits in thousands	Percent distribution	Percent distribution
Total visits	23,891	100.0	100.0
Self pay	3,766	15.8	31.2
Medicare	6,145	25.7	19.0
Medicaid	2,237	9.4	8.1
Blue Cross/Blue Shield	3,567	14.9	11.7
Other commercial	5,848	24.5	22.8
Pre-paid plan, HMO/IPA/PPO[1]	3,046	12.7	14.8
No charge	1,814	7.6	1.8
Other	1,620	6.8	5.5
Unknown	409	1.7	2.0

[1]HMO is health maintenance organization, IPA is individual practice association, and PPO is preferred provider organization.

NOTE: Numbers may not add to totals because more than one source was possible.

Table 5. Average annual number and percent distribution of office visits to general surgeons, by patient's referral status and visit status: United States, 1989–90

Referral and visit status	Average annual number of visits in thousands	Percent distribution
All visits	23,891	100.0
Patient referred		
Yes	3,430	14.4
No	20,460	85.6
Visit status		
New patient	4,735	19.8
Old patient, new problem	3,606	15.1
Old patient, old problem	15,549	65.1

containing about 51 percent of all the reasons for visit. Within the symptom module, symptoms of the musculoskeletal system and the genitourinary systems were the reason for visit in approximately 11 percent and 10 percent of the visits respectively. The treatment module accounted for about one-fifth or about 21 percent of the reasons for visit, more than double the corresponding percent for all physicians. This high percentage for the treatment module reflects the type of practice the general surgeon has and the procedures performed as compared with the other specialties. The disease module, the diagnostic, screening, and preventive module, and the injury and adverse effects module, accounted for around 15, 6, and 4 percent of the visits respectively.

The 20 most common principal reasons for visit to general surgeons, as expressed by the patient, are listed in table 7. These reasons account for approximately half of all visits to general surgeons. The first listed principal reason for visit was for lump or mass of breast, which accounted for about 4 percent of the average annual 23.9 million visits to general surgeons. Lump or mass of breast represented 4.3 percent of visits in 1989–90, which is not significantly different than the 1980–81 estimate of 3.1 percent (1). An additional 3.8 percent of the principal reasons for visit were related to the breast, including breast examination, other symptoms referable to breast, and pain or soreness of breast resulting in a total of 8.1 percent. The lump or mass of breast was followed by stomach pain, cramps or spasms and hernia of abdominal cavity with about 4 percent and 3 percent respectively. Overall, of the top 20 principal reasons for visit in 1989–90, few have changed significantly since 1980–81.

Physician's diagnosis

Data on the principal diagnosis rendered by the general surgeon are shown in tables 8 and 9. The principal diagnosis is listed on item

Table 6. Average annual number and percent distribution of office visits to general surgeons 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		23,891	100.0
Symptom module	.S100–S999	12,211	51.1
Symptoms referable to digestive system	.S500–S639	2,130	8.9
Symptoms referable to the genitourinary system	.S640–S829	2,274	9.5
Symptoms referable to skin, hair, and nails	.S830–S899	2,175	9.1
Symptoms referable to the musculoskeletal system	.S900–S999	2,601	10.9
Disease module	.D001–D999	3,474	14.5
Diagnostic, screening, and preventive module	.X100–X599	1,360	5.7
Treatment module	.T100–T899	4,920	20.6
Injury and adverse effects module	.J001–J999	998	4.2
All other modules[2]		927	4.0

[1]Based on *A Reason for Visit Classification for Ambulatory Care* (RVC) (5).
[2]Includes test results and administrative modules, uncodable and blank entries.

Table 7. Average annual number, percent distribution, and cumulative percent of office visits by the 20 principal reasons for visit most frequently mentioned by patients: United States, 1989–90

Rank	Principal reason for visit and RVC code[1]		Average annual number of visits in thousands	Percent distribution	Cummulative percent
All reasons for visit			23,891	100.0	---
1	Lump or mass of breast	.S805	1,034	4.3	4.3
2	Stomach pain, cramps or spasms	.S545	871	3.6	7.9
3	Hernia of abdominal cavity	.D660	766	3.2	11.1
4	Skin lesion	.S865	729	3.1	14.2
5	Suture-insertion, removal	.T555	590	2.5	16.7
6	Neck symptoms	.S900	514	2.2	18.9
7	Symptoms referable to anus-rectum	.S605	480	2.0	20.9
8	Leg symptoms	.S920	430	1.8	22.7
9	Back symptoms	.S905	364	1.5	24.2
10	Breast examination	.X220	355	1.5	25.7
11	Pain, site not specified	.S055	350	1.5	27.2
12	Other symptoms referable to breast	.S810	321	1.3	28.5
13	Other growth of skin	.S855	317	1.3	29.8
14	General medical examination	.X100	317	1.3	31.1
15	For other and unspecified test results	.R700	292	1.2	32.3
16	Foot and toe symptoms	.S935	268	1.1	33.4
17	Pain or soreness of breast	.S800	248	1.0	34.4
18	Other diseases of skin	.D825	247	1.0	35.4
19	Skin rash	.S860	227	1.0	36.4
20	Chest pain & related symptoms	.S050	209	0.9	37.3

[1]Based on *A Reason for Visit Classification for Ambulatory Care* (RVC) (5).

10a of the patient record form and corresponds with the principal reason for visit (item 9a). This information was coded and classified according to the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (6).

The categories in table 8 are divided among the major systems of the body as defined by the ICD–9–CM. Diseases of the digestive system was the largest category with nearly 16 percent of the diagnoses. The supplemental classification, neoplasms, and diseases of the genitourinary system followed with approximately 13, 13, and 11 percent of the visits respectively. The distribution of visits to general surgeons, as compared with all physicians, differ greatly in their diagnoses. For example, diseases of the digestive system accounted for almost 16 percent of the visits to general surgeons compared with around 4 percent of the visits to all physicians. Diseases of the respiratory system accounted for about 4 percent of the principal diagnoses made by general surgeons, which is much smaller than the 14 percent made by all physicians. Neoplasms accounted for almost 13 percent of the primary diagnoses by general surgeons, which was significantly larger than the about 3 percent for all physicians.

The 20 most frequently diagnosed conditions made by general surgeons in 1989–90 is listed in table 9. Benign mammary dysplasias accounted for about 4 percent of the principal diagnoses; when combined with other disorders of the breast and malignant neoplasms of the female breast, diagnoses related to the breast accounted for almost 11 percent of the diagnoses by general surgeons in 1989–90 as compared with about 7 percent in 1980–81 (1). This is an increase equal to about 47 percent. Inguinal hernia accounted for an estimated 3.9 percent of the diagnoses. A few of the other principal diagnoses have noteworthy changes since 1980–81—acute upper respiratory infection of multiple or unspecified sites in 1980–81 were an estimated 2.4 percent of the visits (1), but in 1989–90 fell to 0.8 percent of the visits; sprains and strains of other and unspecified parts of the back increased from 0.7 percent in 1980–81 (1) to 2.2 percent in 1989–90.

Diagnostic services and counseling

Most visits made to general surgeons included at least one diagnostic or screening service. As shown in table 10, patients had their blood pressure taken in about 23 percent of the office visits to general surgeons, which is significantly lower than almost 37 percent for all physicians. In addition, the "other blood test" category accounted for about 8 percent of the visits and "urinalysis" accounted for 6 percent of the visits, which are also lower than the approximately 13 percent for both diagnostic services for all physicians. On the other hand, more office visits to general surgeons included a breast palpation and mammogram as compared with all

Table 8. Average annual number and percent distribution of office visits to general surgeons by principal diagnoses: United States, 1989–90

Principal diagnoses and ICD–9–CM codes[1]		Average annual number of visits in thousands	Percent distribution
Total		23,891	100.0
Infectious & parasitic diseases	.001–139	518	2.2
Neoplasms	.140–239	2,980	12.5
Endocrine, nutritional, and metabolic diseases and immunity disorders	.240–279	691	2.9
Mental disorders	.290–319	121	*0.5
Nervous system and sense organs	.320–389	324	1.4
Diseases of the circulatory system	.390–459	1,991	8.3
Diseases of the respiratory system	.460–519	889	3.7
Diseases of the digestive system	.520–579	3,741	15.5
Diseases of the genitourinary system	.580–629	2,640	11.0
Diseases of the skin and subcutaneous tissue	.680–709	2,271	9.5
Diseases of the musculoskeletal system and connective tissue	.710–739	1,032	4.3
Symptoms, signs and ill-defined systems	.780–799	1,100	4.6
Injury and poisoning	.800–999	2,189	9.2
Supplementary classifications	.V001–V082	3,042	12.7
All other diagnoses[2]		162	0.7
Unknown diagnoses[3]		228	1.0

[1]Based on *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (6).
[2]Includes diseases of the blood-forming organs (280–289); complications of pregnancy, childbirth, and the puerperium (630–676); congenital anomalies (740–759); and certain conditions originating in the perinatal period (760–779).
[3]Includes blank diagnoses, noncodable diagnoses, and illegible diagnoses.

Table 9. Average annual number, percent distribution, and cumulative percent of office visits by the 20 principal diagnoses most frequently rendered by general surgeons: United States, 1989–90

Rank	Principal diagnosis and ICD–9–CM code[1]	Average annual number of visits in thousands	Percent distribution	Cummulative percent
All principal diagnoses		23,891	100.0	...
1	Benign mammary dysplasias .610	982	4.1	4.1
2	Inguinal hernia .550	930	3.9	8.0
3	Other disorders of breast .611	865	3.6	11.6
4	Malignant neoplasm of female breast .174	771	3.2	14.8
5	Diseases of sebaceous gland .706	632	2.6	17.4
6	Other hernia of abdominal cavity without mention of obstruction or gangrene .553	573	2.4	19.8
7	Sprains and strains of other and unspecified parts of back .847	526	2.2	22.0
8	Essential hypertension .401	447	1.9	23.9
9	Cholelithiasis .574	431	1.8	25.7
10	Hemorrhoids .455	383	1.6	27.3
11	Diabetes Mellitus .250	358	1.5	28.8
12	Other disorders of skin and subcutaneous tissue .709	310	1.3	30.1
13	Other malignant neoplasm of skin .173	307	1.3	31.4
14	Benign neoplasm of skin .216	284	1.2	32.6
15	Observation and evaluation for suspected condition .V71	274	1.1	33.7
16	Varicose veins of lower extremities .454	271	1.1	34.8
17	Lipoma .214	257	1.1	35.9
18	Other disorders of gallbladder .575	227	0.9	36.8
19	Other symptoms involving abdomen and pelvis .789	214	0.9	37.7
20	Other cellulitis abscess .682	208	0.9	38.6

[1]Based on *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (6).

physicians. A breast palpation occurred in 9 percent of the office visits to general surgeons with a mammogram occurring in 4 percent of the visits, compared with approximately 6 percent and 2 percent, respectively, for all physicians.

Counseling or advice was provided or ordered by the general surgeon as shown in table 11. Patients were counseled, advised, or educated on breast self examinations in almost 7 percent of the visits, which is three times higher than the 2.3 percent for all physicians. They counseled, advised, or educated patients on weight reduction during almost 4 percent of the visits, on cholesterol reduction in about 1 percent of the visits, and on smoking cessation around 2 percent of the visits.

Medication therapy

As shown in table 12, most of the visits made to general surgeons resulted in no drugs being administered or prescribed. Only about one-third (32 percent) of the visits were "drug" visits, that is, visits in which one or more medications were administered or prescribed. The corresponding percentages for all physicians are much higher, with 60 percent of the visits being "drug" visits. Medication prescribed by general surgeons represent only about 2 percent of all the medications administered or prescribed by office-based ambulatory care physicians in the United States. Of the drug visits, about 58 percent were for visits in which one drug was administered or prescribed, almost 20 percent were for two drugs, and about 22 percent were for three or more drugs administered or prescribed (table 12).

There was an estimated annual average of 13,923,000 medications ordered or prescribed during visits to general surgeons in 1989–90. The "drug mentions" are categorized into therapeutic categories as defined by the 1985 edition of the *National Drug Code Directory* (7) and are shown in table 13. Cardiovascular-renal drugs accounted for almost 21 percent of the drug mentions and included antihypertensive agents (about 6 percent) and diuretics (around 7 percent). Drugs used for the relief of pain accounted for about 15 percent of the drug mentions and included general analgesics (about 8 percent) and antiarthritic agents (almost 7 percent).

Table 10. Average annual number and percent distribution of office visits to general surgeons and percent distribution of office visits for all physicians by diagnostic service ordered or provided: United States, 1989–90

Diagnostic service ordered or provided	Visits to general surgeons		Visits to all physicians
	Average annual number of visits in thousands	Percent distribution	Percent distribution
Total visits	23,891	100.0	100.0
Blood pressure	5,514	23.1	36.7
Breast palpation	2,149	9.0	5.5
Other blood test	1,986	8.3	13.0
Urinalysis	1,441	6.0	12.7
Digital-rectal exam	1,070	4.5	3.6
Mammogram	952	4.0	1.6
Chest X-ray	672	2.8	2.8
Other	4,274	17.9	25.2

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

Table 11. Average annual number and percent distribution of office visits to general surgeons by type of counseling and/or advice given: United States, 1989–90

Type of counseling and/or advice	Average annual number of visits in thousands	Percent distribution
Total visits	23,891	100.0
None	15,538	65.0
Weight reduction	899	3.8
Cholesterol reduction	306	1.3
Smoking cessation	360	1.5
HIV transmission	*8	*0.0
Breast self-exam	1,639	6.9
Other	5,953	24.9

Note: Numbers may not add to totals because more than one type of counseling or advice may have been given.

The 20 medications most frequently ordered or prescribed by general surgeons according to their generic ingredients are shown in table 14. Of the first five generic ingredients listed, three are for the relief of pain. These are acetaminophen (approximately 6 percent), codeine (almost 4 percent), and ibuprofen (3 percent). The other two drugs among the top five are the diuretics hydrochlorothiazide and furosemide, both approximately 4 percent of medications ordered or prescribed.

Duration and disposition of visit

Visits made to general surgeons in 1989–90 had a mean duration of almost 15 minutes, excluding visits of zero minutes. Specifically, 13 percent of the visits lasted 1 to 5 minutes, almost 30 percent of the visits lasted 6 to 10 minutes, about 29 percent of the visits lasted 11 to 15 minutes, and nearly 23 percent of the visits lasted 16 to 30 minutes. Only about 3 percent of the visits lasted longer than 30 minutes. The duration of visit does not include time waiting for the physician or time receiving care from someone else on the physician's staff; it includes only time spent in face-to-face contact with the physician. Of the visits made to general surgeons, about 3 percent were for zero minutes meaning that the patient had no face-to-face contact with the physician, but instead received treatment from another member of the physician's staff (table 15).

Most of the patient visits (64 percent) made to general surgeons ended with a disposition to return at a specific time while about one-fifth were to return if needed. The patient was admitted to the hospital in about 3 percent of the visits, which is higher than the 1 percent for all physicians (table 15).

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Table 12. Average annual number and percent distribution of office visits to general surgeons, by type of visit and number of medications prescribed or ordered: United States, 1989–90

Type of visit and number of medications	*Average annual number of visits in thousands*	*Percent distribution*
All visits	23,891	100.0
Type of visit		
Nondrug visit (0 medications)	16,202	67.8
Drug visit	7,688	32.2
Number of medications		
1	4,473	58.2
2	1,513	19.7
3 or more	1,697	22.1

Table 13. Average annual number and percent distribution of drug mentions to general surgeons by therapeutic category: United States, 1989–90

Therapeutic category[1]	*Average annual number of mentions in thousands*	*Percent distribution*
All drug mentions	13,923	100.0
Antimicrobial agents	1,922	13.8
Penicillins	363	2.6
Cephalosporins	599	4.3
Hematologic agents	259	1.9
Cardiovascular-renal drugs	2,856	20.5
Antihypertensive agents	793	5.7
Diuretics	1,026	7.4
Psychopharmacologic drugs	434	3.1
Gastrointestinal agents	1,052	7.6
Metabolic & nutrient agents	592	4.3
Hormones and agents affecting hormonal mechanisms	1,048	7.5
Immunologic agents	184	1.3
Skin/mucous membrane	646	4.6
Neurologic drugs	211	1.5
Oncolytics	236	1.7
Drugs used for relief of pain	2,151	15.4
General analgesics	1,145	8.2
Antiarthritics	961	6.9
Respiratory tract drugs	1,083	7.8
Unclassified/miscellaneous	842	6.0
All others[2]	409	2.9

[1]Therapeutic class based on the standard drug classification used in the *National Drug Code Directory*, 1985 edition (7).
[2]Includes: Anesthetic drugs, radiopharmaceutical/contrast media, ophthalmic drugs, otologic drugs, antiparasitic agents.

Table 14. Average annual number and percent distribution of the top 20 generic ingredients most often utilized by general surgeons: United States, 1989–90

Rank	Generic ingredient[1]	Average annual number of mentions in thousands	Percent distribution
All drug mentions		13,923	100.0
1	Acetaminophen	883	6.3
2	Hydrochlorothiazide	510	3.7
3	Furosemide	495	3.6
4	Codeine	483	3.5
5	Ibuprofen	417	3.0
6	Potassium replacement solution	300	2.2
7	Diltiazem	241	1.7
8	Cephalexin	229	1.6
9	Triamterene	219	1.6
10	Erythromycin	213	1.5
11	Phenylpropanolamine	206	1.5
12	Naproxen	196	1.4
13	Glyburide	185	1.3
14	Phenylephrine	173	1.2
15	Aspirin	171	1.2
16	Metronidazole	165	1.2
17	Oxycodone	157	1.1
18	Brompheniramine	148	1.1
19	Theophylline	147	1.1
20	Digoxin	142	1.0

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

Table 15. Average annual number and percent distribution of office visits to general surgeons, by duration and disposition: United States, 1989–90

Duration and disposition	Average annual number of visits in thousands	Percent distribution
Total	23,891	100.0
Duration of visit[1]		
Zero minutes	672	2.8
1–5 minutes	3,094	13.0
6–10 minutes	7,066	29.6
11–15 minutes	6,870	28.8
16–30 minutes	5,417	22.7
31+ minutes	772	3.2
Disposition of visit[2]		
No followup planned	1,687	7.1
Return at specific time	15,381	64.4
Return if needed	4,477	18.7
Telephone followup planned	498	2.1
Referred to other physician	720	3.0
Referred to referring physician	493	2.1
Admit to hospital	799	3.3
Other	1,320	5.5

[1]Mean duration of visit was 14.7 minutes.
[2]Numbers may not add to totals because more than one disposition may be reported per visit.

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

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 236 general surgeons in 1989 and 230 in 1990 of which 179 were eligible in 1989 and 160 were eligible in 1990 for the survey. The physician response rate for the 1989 NAMCS was 74 percent; in 1990, it was 75 percent. General surgeons had a response rate of 77 percent in 1989 and 75 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. General surgeons completed 2,823 patient record forms in 1989 and 2,897 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.

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

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.

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

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*	*General surgeon*
	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: Otolaryngologist 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 a general surgeon 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 errors for estimated numbers of drug mentions: National Ambulatory Medical Care Survey, 1989–90

Estimated number of drug mentions in thousands	*All specialties*	*General surgeon*
	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: Otolaryngologist 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 general surgeon has a relative standard error 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	6.0
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	0.5
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 has a standard error of 4.2 percent or a relative standard error of 14.0 percent (4.2 percent divided by 30 percent).

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 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.

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.

General surgeon—A general surgeon is a physician classified as a specialist in general surgery in the master files of the AMA or AOA.

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.

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
General surgeon	0.01236777	8.46452955
Drug mentions		
Overall totals	0.00157151	81.47054833
General surgeon	0.01603845	11.42009384

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.

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.

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Advance Data

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

Long-Stay Patients in Short-Stay Hospitals

by Margaret Jean Hall, Ph.D., and Lola Jean Kozak, Ph.D., Division of Health Care Statistics

Introduction

Patients hospitalized for more than 3 weeks made up only 5 percent of discharges from short-stay hospitals in 1980 and 4 percent in 1990. However, in both years these long-stay patients used more than a quarter of the days of care in short-stay hospitals. The large share of days used by long-stay patients make them an important group for analysis. This report examines the characteristics of long-stay patients and compares them with characteristics of all discharges from short-stay hospitals in 1980 and 1990.

The period 1980–90 was chosen for analysis because it was a decade of marked change in the health care system. Concern about rising health care costs led to several developments that were intended to reduce hospital use. In 1983, the method of payment for hospitalized Medicare patients was fundamentally changed with the implementation of a prospective payment system based on diagnosis-related groups (DRG's). A rapidly growing number of surgical and diagnostic procedures were shifted from inpatient to outpatient settings during the 1980's. Health maintenance organizations and preferred-provider organizations expanded during the period, and the number and stringency of utilization review programs increased (1–3).

Short-term hospital use declined during the 1980's. The total number of discharges was 19 percent lower, and the number of days of care was reduced 28 percent in 1990 compared with 1980. The number of discharges and days of care declined for patients with hospital stays of 3 weeks or less and for those with stays of more than 3 weeks.

However, despite the pressures to reduce hospital use, long-stay patients hospitalized for more than 3 weeks continued to account for the same disproportionately large share of hospital days in 1990 as they did in 1980. The extent to which the characteristics of long-stay or all patients changed during the 1980's will be examined in this report.

The data were collected by means of the National Hospital Discharge Survey (NHDS), a continuous voluntary survey conducted by the National Center for Health Statistics since 1965. It is comprised of information on patients discharged from non-Federal short-stay hospitals. In 1980, data for the survey were abstracted from medical records of approximately 224,000 patients discharged from 420 hospitals. In 1990, 474 hospitals participated in the survey supplying approximately 266,000 abstracts of medical records.

A two-stage, stratified sample design was used for the NHDS during the period 1965–87. A three-stage, stratified sample design began in 1988. A brief description of these two designs, data collection procedures, and the estimation process are in the "Technical notes" of this report. A description of the two survey designs and the effects of the design changes on estimates from the survey has been published (4).

Up to seven diagnoses and four procedures were coded for each discharge in the survey. Coding of diagnoses and procedures was performed according to the *International Classification of Diseases,*

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CENTERS FOR DISEASE CONTROL AND PREVENTION

9th Revision, Clinical Modification (ICD–9–CM) (5). Although diagnoses included in the ICD–9–CM section, "Supplementary classification of external causes of injury and poisoning" (codes E800–E999), are used in the NHDS, they are excluded from this report.

To interpret data and compare them with available data from other sources on short-stay hospital use, one must become familiar with the definitions used in NHDS. Definitions of the terms in this report are in the "Technical notes."

Highlights

- More than 50 percent of long-stay patients were diagnosed with diseases of the circulatory system, mental disorders, neoplasms, injury, or poisoning.
- Hospitalizations for septicemia, psychoses, and miscellaneous complications of surgical and medical care were more frequent in 1990 than in 1980 for all patients and long-stay patients.
- Long-stay patients were more likely to have diagnoses such as septicemia, malignant neoplasms, psychoses, cerebrovascular disease, and fractures than were all patients.
- The rate of procedures per 1,000 discharges was 50 percent higher for long-stay patients than for all patients; the rates in 1990 were higher than the rates in 1980 for both groups.
- The majority of long-stay patients had Medicare as their expected principal source of payment in 1980 and 1990. Medicaid covered a larger share and private insurance covered a smaller share of long-stay and all discharges in 1990 than in 1980.
- The proportion of discharges transferred to other health care facilities was higher in 1990 than in 1981 for both long-stay and all patients. Long-stay patients were more likely to be transferred or discharged dead than were all patients.

Table 1. Number of discharges, days of care, and average lengths of stay for patients discharged from short-stay hospitals, by length of stay category: United States, 1980 and 1990

Length-of-stay category and measure of hospital use	*1980*	*1990*
All patients		
Number of discharges in thousands	37,832	30,788
Number of days of care in thousands	274,508	197,422
Average length of stay in days	7.3	6.4
Short-stay patients[1]		
Number of discharges in thousands	35,897	29,486
Number of days of care in thousands	202,317	146,999
Average length of stay in days	5.6	5.0
Long-stay patients[2]		
Number of discharges in thousands	1,935	1,302
Number of days of care in thousands	72,191	50,423
Average length of stay in days	37.3	38.7

[1]Short-stay patients had lengths of stay of 3 weeks or less.
[2]Long-stay patients had lengths of stay of more than 3 weeks.

Trends

The number of discharges was lower in 1990 than in 1980 (table 1). The total number of discharges decreased 19 percent from 37.8 million in 1980 to 30.8 million in 1990. Discharges for patients hospitalized 3 weeks or less dropped 18 percent; discharges for long-stay patients hospitalized more than 3 weeks decreased by almost a third, declining from 1.9 million in 1980 to 1.3 million in 1990.

Large decreases in numbers of days of care also occurred during this period. The number of days of care for all patients declined 28 percent from 274.5 million in 1980 to 197.4 million in 1990. Patients with stays of 3 weeks or less had a 27 percent decrease in the number of days of care during the period, and long-stay patients had a 30 percent decrease from 72.2 million days of care in 1980 to 50.4 million days in 1990.

The average length of stay for all patients decreased from 7.3 days in 1980 to 6.4 days in 1990 and the length of stay for short-stay patients declined from 5.6 days in 1980 to 5.0 days in 1990. The average stay for long-stay patients did not change significantly: 37.3 days in 1980 and 38.7 days in 1990.

The objective of this report is to compare characteristics of long-stay patients to all patients. Therefore no additional data are presented for short-stay patients. Because short-stay patients comprise such a large percentage of all patients (95–96 percent), the data for all and short-stay patients are very similar.

Age and sex

Over time, the distribution of discharges and days of care by sex has been stable. Among long-stay patients, 54 percent of discharges were female and they used 54 percent of long-stay days of care in both 1980 and 1990 (table 2). Females made up 60 percent of total discharges and 57–58 percent of total days of care in 1980 and 1990. However, if hospitalizations for deliveries are excluded, the distributions of discharges and days of care by sex are almost the same for long-stay and all patients. For example, in 1990 females made up 54 percent of total discharges and days of care, excluding deliveries.

In 1980 and 1990, approximately half of long-stay discharges and days of care were for patients 65 years of age and over. The elderly made up smaller proportions of total discharges and days of care in both years, but the proportions increased over time. In 1980, the elderly accounted for only 26 percent of total discharges and 38 percent of total days of care. By 1990, they were

Table 2. Number and percent distribution of discharges and days of care for patients discharged from short-stay hospitals, by sex and age of patient, according to length-of-stay category: United States, 1980 and 1990

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

Sex or age	All patients		Long-stay patients[1]		All patients		Long-stay patients[1]	
	1980	1990	1980	1990	1980	1990	1980	1990
	Number of discharges in thousands				Percent distribution of discharges			
Total	37,832	30,788	1,935	1,302	100.0	100.0	100.0	100.0
Male	15,145	12,280	887	603	40.0	39.9	45.8	46.3
Female	22,686	18,508	1,048	699	60.0	60.1	54.2	53.7
Under 15 years	3,672	2,412	72	74	9.7	7.8	3.7	5.7
15–44 years	15,635	11,799	383	309	41.3	38.3	19.8	23.7
45–64 years	8,660	6,244	494	273	22.9	20.3	25.5	21.0
65 years and over	9,864	10,333	986	646	26.1	33.6	50.9	49.6
	Number of days of care in thousands				Percent distribution of days of care			
Total	274,508	197,422	72,191	50,423	100.0	100.0	100.0	100.0
Male	116,267	85,067	32,996	23,438	42.4	43.1	45.7	46.5
Female	158,241	112,355	39,196	26,985	57.6	56.9	54.3	53.5
Under 15 years	16,191	11,655	3,029	3,337	5.9	5.9	4.2	6.6
15–44 years	81,951	54,062	14,743	11,805	29.9	27.4	20.4	23.4
45–64 years	71,008	42,153	18,287	10,575	25.9	21.4	25.3	21.0
65 years and over	105,358	89,552	36,133	24,707	38.4	45.4	50.1	49.0

[1]Long-stay patients had lengths of stay of more than 3 weeks.

34 percent of discharges and used 45 percent of days of care.

Patients 45–64 years of age made up approximately the same proportion of long-stay and total discharges in 1980 and 1990. The proportion of discharges and days of care in this age category decreased for both long-stay and all patients from 1980 to 1990. When compared with all patients, long-stay patients under 45 years of age were underrepresented. The proportion of long-stay discharges and days of care for patients under 45 years of age were higher in 1990 than in 1980, although the share of total discharges for this age group decreased during the period.

Source of payment

In 1980 and 1990, the majority of long-stay discharges and days of care were for patients with Medicare as the expected principal source of payment (table 3), which was consistent with the majority being 65 years of age and over. The proportion of discharges and days of care covered by Medicare were not significantly different in 1980 and 1990 for long-stay patients, although the number of Medicare discharges and days of care decreased for these patients. For all patients, the proportion of Medicare discharges and days of care increased during that period. The number of discharges did not change significantly, and number of days of care decreased for all Medicare patients.

The private insurance category comprised all health insurance provided by nongovernmental sources, including Blue Cross, other insurance companies, private industry, and philanthropic organizations. In 1980 and 1990, long-stay patients were less likely to be covered by private insurance than all patients, and the number and proportion of discharges and days of care covered by private insurance have been decreasing for long-stay and all patients. In 1980, private insurance was the payment source for more than half of all discharges but less than a third of long-stay discharges. In 1990, only 39 percent of all discharges and 24 percent of long-stay discharges were in the private insurance category.

In contrast, the proportion of discharges and days of care for patients with Medicaid as their expected principal source of payment were higher in 1990 than in 1980 for long-stay and all patients, although the number of Medicaid discharges and days of care did not change significantly. Medicaid was the expected source of payment for 7 percent of long-stay discharges and days of care in 1980 and increased to 11–12 percent in 1990.

The self-pay category, where payment for hospitalization was expected from the patient, spouse, family, or next of kin, made up 5–6 percent of discharges and days of care for long-stay and all patients in 1990. Neither the number nor the proportion of discharges or days of care in the self-pay category were significantly different in 1980 and 1990.

These trend data show that private insurers were the leaders in reducing hospital use of long-stay and

Table 3. Number and percent distribution of discharges and days of care for patients discharged from short-stay hosptials, by expected principal source of payment, according to length-of-stay category: United States, 1980 and 1990

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

Source of payment	All patients		Long-stay patients[1]		All patients		Long-stay patients[1]	
	1980	1990	1980	1990	1980	1990	1980	1990
	Number of discharges in thousands				Percent distribution of discharges			
All sources	37,832	30,788	1,935	1,302	100.0	100.0	100.0	100.0
Private insurance	19,597	11,926	607	310	51.8	38.7	31.4	23.8
Medicare	10,766	10,625	1,049	691	28.5	34.5	54.2	53.1
Medicaid	3,374	3,582	134	140	8.9	11.6	6.9	10.8
Self-pay	2,057	1,788	73	63	5.4	5.8	3.8	4.8
Other sources	2,037	1,875	72	64	5.4	6.1	3.7	4.9
Not stated[2]	–	992	–	34	–	3.2	–	2.6
	Number of days of care in thousands				Percent distribution of days of care			
All sources	274,508	197,422	72,191	50,423	100.0	100.0	100.0	100.0
Private insurance	114,947	58,531	22,625	11,708	41.9	29.6	31.3	23.2
Medicare	113,583	92,353	38,500	25,980	41.4	46.8	53.3	51.5
Medicaid	21,531	20,860	5,150	6,276	7.8	10.6	7.1	12.4
Self-pay	11,447	9,743	2,906	2,599	4.2	4.9	4.0	5.2
Other sources	13,000	10,283	3,010	2,672	4.7	5.2	4.2	5.3
Not stated[2]	–	5,652	–	1,188	–	2.9	–	2.4

[1] Long-stay patients had lengths of stay of more than 3 weeks.
[2] In 1980 a source of payment was imputed for patients who did not indicate one.

all patients. One reason may have been that persons with private insurance were generally younger or healthier than populations covered by Medicare or Medicaid. Medicare covers the aged, disabled, and those afflicted with end-stage renal disease. In 1990, three-fourths of Medicaid benefits were for disabled, aged, and blind persons (6). Thus, hospital stays for the privately-insured population could have been shortened with less risk to patients' health, and they would have been likely candidates for treatment in outpatient settings.

Disposition

Changes over time in the dispositions of long-stay patients and all patients are shown in table 4. Data for 1981 rather than 1980 are used in table 4 because the disposition categories for the NHDS were the same in 1981 and 1990. In 1980 and earlier years, data were collected for different disposition categories.

Most patients leave short-stay hospitals as routine discharges. However, long-stay patients were less likely to be routine discharges than all patients, and the proportion of long-stay discharges in this category decreased over time. In 1981, 67 percent of long-stay discharges were classified as routine, but only 59 percent were in this category in 1990. For all patients, the proportion of routine discharges was not significantly different in 1981 and 1990.

The proportion of long-stay and all patients transferred to other institutions increased over time. In 1981, 14 percent of the long-stay discharges were transferred to another facility or institution compared with 20 percent in 1990. For all discharges, 4 percent were transferred to other facilities in 1981 compared with 8 percent in 1990. In both years, more than three-quarters of the transfers of long-stay patients were to long-term care institutions and two-thirds of all transfers were in this category.

The increase in transfers may indicate that hospitalized patients were more seriously ill in 1990 than in 1981, which is consistent with the findings of other studies (1,7,8). Prior research has also found that to reduce lengths of stay, hospitals have discharged patients in less stable condition in recent years. Hence, patients are now more likely to require further care (1).

A larger proportion of long-stay patients than all patients were discharged dead in 1981 and 1990. However, the proportion discharged dead in 1981 was not significantly different than in 1990 for either group. For long-stay patients, 10–11 percent were discharged dead compared with 3 percent of all patients. If the severity of illness for hospitalized patients has increased, the proportion discharged dead would be expected to grow. However, there is evidence that an increase in the severity of illness was combined with an increased tendency for hospitals to discharge terminally ill patients before their deaths (1). Deaths in short-stay hospitals made up 50 percent of all deaths in 1981, but decreased to 41 percent of all deaths in 1990 (9,10).

Region

The distribution of discharges and days of care, by region, for long-stay and all patients is shown in

Table 4. Number and percent distribution of discharges and days of care for patients discharged from short-stay hospitals, by disposition, according to length-of-stay category: United States, 1981 and 1990

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

Disposition	All patients		Long-stay patients[1]		All patients		Long-stay patients[1]	
	1981	1990	1981	1990	1981	1990	1981	1990
	Number of discharges in thousands				Percent distribution of discharges			
All dispositions	38,544	30,788	1,976	1,302	100.0	100.0	100.0	100.0
Routine discharge	31,879	25,713	1,327	764	82.7	83.5	67.2	58.7
Transfer to another short-term hospital	539	805	49	58	1.4	2.6	2.5	4.4
Transfer to long-term care institution	1,038	1,612	220	198	2.7	5.2	11.2	15.2
Other live discharges	3,449	1,284	157	116	8.9	4.1	8.0	8.9
Dead	982	877	193	137	2.5	2.8	9.8	10.5
Not stated	657	498	29	29	1.7	1.6	1.5	2.2
	Number of days of care in thousands				Percent distribution of days of care			
All dispositions	277,230	197,422	72,560	50,423	100.0	100.0	100.0	100.0
Routine discharge	214,319	143,498	46,670	27,856	77.3	72.7	64.3	55.2
Transfer to another short-term hospital	4,604	6,932	1,877	2,625	1.6	3.5	2.6	5.2
Transfer to long-term care institution	17,105	20,628	9,063	8,400	6.2	10.4	12.5	16.7
Other live discharges	23,359	11,906	5,791	4,360	8.4	6.0	8.0	8.6
Dead	13,166	10,871	7,993	6,073	4.7	5.5	11.0	12.0
Not stated	4,677	3,586	1,165	1,109	1.7	1.8	1.6	2.2

[1]Long-stay patients had lengths of stay of more than 3 weeks.

Table 5. Number and percent distribution of discharges and days of care for patients from short-stay hospitals, by region, according to length-of-stay category: United States, 1980 and 1990

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

Region	All patients		Long-stay patients[1]		All patients		Long-stay patients[1]	
	1980	1990	1980	1990	1980	1990	1980	1990
	Number of discharges in thousands				Percent distribution of discharges			
All regions	37,832	30,788	1,935	1,302	100.0	100.0	100.0	100.0
Northeast	7,868	6,895	577	426	20.8	22.4	29.8	32.7
Midwest	10,878	7,620	615	302	28.8	24.8	31.8	23.2
South	12,983	11,173	523	403	34.3	36.3	27.0	30.9
West	6,103	5,100	220	171	16.1	16.6	11.4	13.1
	Number of days of care in thousands				Percent distribution of days of care			
All regions	274,508	197,422	72,191	50,423	100.0	100.0	100.0	100.0
Northeast	67,238	52,823	22,694	17,858	24.5	26.8	31.4	35.4
Midwest	82,000	48,698	22,070	10,702	29.9	24.7	30.6	21.2
South	88,216	67,810	18,778	15,063	32.1	34.3	26.0	29.9
West	37,054	28,091	8,649	6,779	13.5	14.2	12.0	13.4

[1]Long-stay patients had lengths of stay of more than 3 weeks.

table 5. The Northeast Region had larger proportions of discharges and days of care for long-stay patients than for all patients in 1980 and 1990. In 1990, 33 percent of the discharges for long-stay patients were in the Northeast as compared with 22 percent of all discharges; 35 percent of long-stay days of care were also in the Northeast, but only 27 percent of all days of care were in this region.

The Midwest Region was notable for sizeable decreases in its proportions of long-stay discharges and days of care. In 1980, 32 percent of the discharges and 31 percent of the days of care for long-stay patients were in the Midwest. However, in 1990 the Midwest had only 23 percent of long-stay discharges and 21 percent of long-stay days. Although the total discharges and days of care also decreased in the Midwest during this period, the proportion of discharges and days of care were smaller in the Midwest for long-stay patients than for all patients in 1990.

The proportions of discharges and days of care in the South Region

were smaller for long-stay patients than for all patients in both 1980 and 1990. In 1990, for example, 36 percent of all discharges, but only 31 percent of long-stay discharges, were in the South. The West, like the South, had proportionately fewer discharges for long-stay patients than for all patients. The West accounted for 11–13 percent of long-stay discharges as compared with 16–17 percent of all discharges.

Diagnoses

Four of the diagnostic chapters in the International Classification of Diseases (5) accounted for 62 percent of discharges of long-stay patients in 1980 and 58 percent in 1990 (table 6). These chapters encompass diseases of the circulatory system, mental disorders, neoplasms, and injury and poisoning. They accounted for only 34 percent of the discharges of all patients in 1980 and 37 percent in 1990.

The proportion of long-stay patients with diseases of the circulatory system decreased from 22 percent in 1980 to 19 percent in 1990, but was larger in both years than the proportion of all patients with circulatory diseases (14 percent in 1980 and 17 percent in 1990). Heart disease was the diagnosis for a larger proportion of long-stay patients than for all patients in 1980, but in 1990, the proportions were not significantly different for these two groups. In 1980 and 1990, long-stay patients were more likely to have diagnoses of cerebrovascular disease and diseases of arteries, arterioles, and capillaries than all patients. The number and proportion of discharges for ischemic heart disease, other than acute myocardial infarction, were lower in 1990 than in 1980 for long-stay patients.

Mental disorders increased from 13 percent of long-stay diagnoses in 1980 to 19 percent in 1990. For all patients, mental disorders accounted for approximately 5 percent of discharges in both years. Psychoses was a major and dramatically increasing diagnostic category for long-stay patients, making up 5 percent of long-stay discharges in 1980 and 12 percent in 1990. The proportion of all patients with diagnoses of psychoses also increased from 1 to 3 percent. The number and proportion of long-stay and all discharges for neurotic and personality disorders were lower in 1990 than in 1980.

Neoplasms made up 15 percent of long-stay discharges in 1980, but decreased to 11 percent in 1990. Most of these hospitalizations were for treatment of malignant neoplasms, which accounted for 14 percent of the long-stay discharges in 1980, but declined to 11 percent in 1990. Among all patients, those with neoplasms were 6–7 percent of discharges and those with malignant neoplasms were approximately 5 percent of discharges in 1980 and 1990. The number and proportion of discharges with the diagnosis of malignant neoplasm of trachea, bronchus, and lung were lower in 1990 than in 1980 for long-stay patients, but did not change significantly for all patients during this period.

Injury and poisoning was the diagnostic category for 12 percent of long-stay discharges in 1980 and 10 percent in 1990. For all patients, the injury and poisoning category accounted for 10 percent of discharges in 1980 and 9 percent in 1990. In 1980 and 1990, a larger proportion of long-stay patients than of all patients had fractures, including fractures of the neck of the femur (hip fractures). However, the number and proportion of all fractures and hip fractures were lower in 1990 than in 1980 for long-stay patients. For all patients, the number and proportion did not change significantly for all fractures, but increased for hip fractures. For long-stay and all patients, the number and proportion of discharges classified as miscellaneous complications of surgical and medical care were higher in 1990 than in 1980.

Increases in long-stay discharges were also found for other diagnostic categories. For infectious and parasitic diseases, in particular septicemia, the number and proportion of long-stay discharges in 1990 were two to four times those in 1980. By 1990, septicemia accounted for half of the long-stay discharges in the infectious and parasitic disease category. The 1990 number and proportion of all discharges with septicemia were also more than three times those in 1980.

In 1990, the number of long-stay discharges assigned to the supplementary classifications doubled, and the proportion more than tripled what they had been in 1980. Within this category, care involving use of rehabilitation procedures was rarely reported as a diagnosis in 1980, but in 1990, it accounted for more than half of the long-stay discharges in the supplementary classification.

The proportion of long-stay discharges for diseases of the respiratory system increased from 6 percent in 1980 to 9 percent in 1990, although the numbers did not change significantly. Pneumonia increased from 2 to 4 percent of long-stay discharges during this period. Both the number and proportion of all discharges for pneumonia were higher in 1990 than in 1980.

Notable decreases were seen in discharges for other diagnostic categories. The number and proportion of discharges for diseases of the musculoskeletal system and connective tissue were lower in 1990 than in 1980 for long-stay and all patients. For long-stay patients, the number of discharges for arthropathies and related disorders decreased by two-thirds, and the proportion dropped 50 percent during this period. Neither the number nor the proportion of all discharges for these disorders changed significantly. Diabetes mellitus was a less common diagnosis in 1990 than in 1980. The number and proportion of discharges with diabetes mellitus declined for long-stay patients and all patients.

The number and percent distribution of days of care for long-stay and all patients are shown by diagnostic categories in table 7. The pattern and trend in days of care

Table 6. Number and percent distribution of discharges from short-stay hospitals, by selected categories of first-listed diagnoses, according to length-of-stay category: United States, 1980 and 1990

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

First-listed diagnosis and ICD–9–CM code	All patients		Long-stay patients[1]		All patients		Long-stay patients[1]	
	1980	1990	1980	1990	1980	1990	1980	1990
	Number of discharges in thousands				Percent distribution of discharges			
All conditions	37,832	30,788	1,935	1,302	100.0	100.0	100.0	100.0
Infectious and parasitic diseases 001–139	649	737	26	58	1.7	2.4	1.4	4.5
Septicemia 038	59	216	10	29	0.2	0.7	0.5	2.2
Neoplasms 140–239	2,476	1,965	285	143	6.5	6.4	14.7	11.0
Malignant neoplasms 140–208,230–234	1,829	1,571	267	137	4.8	5.1	13.8	10.5
Malignant neoplasm of large intestine and rectum 153–154,197.5	200	175	45	26	0.5	0.6	2.3	2.0
Malignant neoplasm of other digestive organs and peritoneum 150–152,155–159, 197.4,197.6–197.8	143	154	31	21	0.4	0.5	1.6	1.6
Malignant neoplasm of trachea, bronchus and lung 162,197.0,197.3	277	231	46	16	0.7	0.8	2.4	1.3
Endocrine, nutritional and metabolic diseases, and immunity disorders 240–279	1,145	1,089	82	48	3.0	3.5	4.2	3.7
Diabetes mellitus 250	645	420	54	21	1.7	1.4	2.8	1.6
Mental disorders 290–319	1,692	1,538	246	244	4.5	5.0	12.7	18.7
Psychoses 290–299	507	812	105	155	1.3	2.6	5.4	11.9
Neurotic and personality disorders 300–301	330	128	34	11	0.9	0.4	1.8	0.8
Alcohol dependence syndrome 303	439	239	56	36	1.2	0.8	2.9	2.8
Diseases of the nervous system and sense organs 320–389	1,762	770	58	34	4.7	2.5	3.0	2.6
Disorders of the central nervous system 320–336,340–349	408	342	45	29	1.1	1.1	2.3	2.2
Diseases of the circulatory system 390–459	5,140	5,161	423	240	13.6	16.8	21.9	18.5
Heart disease 391–392,393–398, 402, 404,410–416,420–429	3,201	3,556	231	137	8.5	11.6	11.9	10.5
Acute myocardial infarction 410	431	675	50	36	1.1	2.2	2.6	2.8
Other ischemic heart disease 411–414	1,355	1,280	75	26	3.6	4.2	3.9	2.0
Congestive heart failure 428.0	401	701	34	30	1.1	2.3	1.8	2.3
Cerebrovascular disease 430–438	796	812	110	69	2.1	2.6	5.7	5.3
Diseases of arteries, arterioles, and capillaries 440–448	306	267	47	21	0.8	0.9	2.4	1.6
Diseases of the respiratory system 460–519	3,445	2,966	112	114	9.1	9.6	5.8	8.8
Pneumonia 480–486	782	1,052	35	51	2.1	3.4	1.8	3.9
Diseases of the digestive system 520–579	4,650	3,239	165	92	12.3	10.5	8.5	7.1
Diseases of the genitourinary system 580–629	3,599	2,175	62	33	9.5	7.1	3.2	2.5
Diseases of the skin and subcutaneous tissue 680–709	597	462	42	27	1.6	1.5	2.1	2.1
Diseases of the musculoskeletal system and connective tissue 710–739	2,245	1,592	122	44	5.9	5.2	6.3	3.4
Arthropathies and related disorders 710–719	543	479	43	14	1.4	1.6	2.2	1.1
Disorders of bone and cartilage 730–733	286	196	32	17	0.8	0.6	1.7	1.3
Injury and poisoning 800–999	3,593	2,774	240	132	9.5	9.0	12.4	10.1
Fractures, all sites 800–829	1,163	1,017	148	60	3.1	3.3	7.7	4.6
Fracture of neck of femur 820	210	281	64	26	0.6	0.9	3.3	2.0
Miscellaneous complications of surgical and medical care 996–999	252	517	19	33	0.7	1.7	1.0	2.5
Supplementary classifications V01–V82	4,421	4,507	20	47	11.7	14.6	1.1	3.6
Care involving use of rehabilitation procedures V57	*	63	*	26	*	0.2	*	2.0
All other conditions 280–289,630–676,740–799	2,417	1,814	50	46	6.4	5.9	2.6	3.5

[1]Long-stay patients had lengths of stay of more than 3 weeks.

Table 7. Number and percent distribution of days of care for patients discharged from short-stay hospitals, by selected categories of first-listed diagnoses, according to length-of-stay category: United States, 1980 and 1990

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

First-listed diagnosis and ICD–9–CM code	All patients		Long-stay patients[1]		All patients		Long-stay patients[1]	
	1980	1990	1980	1990	1980	1990	1980	1990
	Number of days of care in thousands				Percent distribution of days of care			
All conditions	274,508	197,422	72,191	50,423	100.0	100.0	100.0	100.0
Infectious and parasitic diseases .001–139	4,509	6,725	1,150	2,714	1.6	3.4	1.6	5.4
Septicemia .038	849	2,858	436	1,273	0.3	1.4	0.6	2.5
Neoplasms 140–239	26,004	16,771	10,525	5,707	9.5	8.5	14.6	11.3
Malignant neoplasms 140–208,230–234	22,009	14,693	9,848	5,327	8.0	7.4	13.6	10.6
Malignant neoplasm of large intestine and rectum 153–154,197.5	3,143	2,402	1,515	961	1.1	1.2	2.1	1.9
Malignant neoplasm of other digestive organs and peritoneum 150–152, 155–159,197.4,197.6–197.8	2,251	1,876	1,182	806	0.8	0.9	1.6	1.6
Malignant neoplasm of trachea, bronchus and lung 162,197.0,197.3	3,561	1,961	1,683	561	1.3	1.0	2.3	1.1
Endocrine, nutritional and metabolic diseases, and immunity disorders .240–279	10,972	7,610	3,124	1,854	4.0	3.9	4.3	3.7
Diabetes mellitus .250	6,754	3,295	2,061	891	2.5	1.7	2.9	1.8
Mental disorders .290–319	19,578	18,824	9,299	8,589	7.1	9.5	12.9	17.0
Psychoses .290–299	7,480	11,861	4,068	5,720	2.7	6.0	5.6	11.3
Neurotic and personality disorders .300–301	3,362	1,121	1,324	405	1.2	0.6	1.8	0.8
Alcohol dependence syndrome .303	4,424	2,366	1,808	1,034	1.6	1.2	2.5	2.1
Diseases of the nervous system and sense organs .320–389	9,597	4,268	2,326	1,381	3.5	2.2	3.2	2.7
Disorders of the central nervous system .320–336,340–349	4,372	2,955	1,906	1,212	1.6	1.5	2.6	2.4
Diseases of the circulatory system .390–459	51,431	37,899	15,602	8,679	18.7	19.2	21.6	17.2
Heart disease 391–392.0,393–398, 402,404,410–416,420–429	30,500	24,557	7,819	4,694	11.1	12.4	10.8	9.3
Acute myocardial infarction .410	5,432	5,674	1,496	1,218	2.0	2.9	2.1	2.4
Other ischemic heart disease .411–414	11,702	6,896	2,621	837	4.3	3.5	3.6	1.7
Congestive heart failure 428.0	4,154	5,604	1,155	1,021	1.5	2.8	1.6	2.0
Cerebrovascular disease .430–438	10,114	7,727	4,649	2,798	3.7	3.9	6.4	5.5
Diseases of arteries, arterioles, and capillaries .440–448	4,127	2,550	1,880	747	1.5	1.3	2.6	1.5
Diseases of the respiratory system .460–519	21,649	20,433	3,842	4,566	7.9	10.4	5.3	9.1
Pneumonia 480–486	6,497	8,744	1,236	2,013	2.4	4.4	1.7	4.0
Diseases of the digestive system .520–579	32,342	19,197	5,818	3,500	11.8	9.7	8.1	6.9
Diseases of the genitourinary system .580–629	20,068	10,989	2,159	1,422	7.3	5.6	3.0	2.8
Diseases of the skin and subcutaneous tissue .680–709	4,803	3,670	1,717	1,089	1.7	1.9	2.4	2.2
Diseases of the musculoskeletal system and connective tissue .710–739	18,679	10,222	4,208	1,630	6.8	5.2	5.8	3.2
Arthropathies and related disorders .710–719	5,090	3,752	1,501	513	1.9	1.9	2.1	1.0
Disorders of bone and cartilage .730–733	3,122	1,871	1,203	652	1.1	0.9	1.7	1.3
Injury and poisoning .800–999	27,640	18,891	9,711	5,593	10.1	9.6	13.5	11.1
Fractures, all sites .800–829	12,583	8,435	5,800	2,310	4.6	4.3	8.0	4.6
Fracture of neck of femur .820	4,333	3,610	2,371	1,060	1.6	1.8	3.3	2.1
Miscellaneous complications of surgical and medical care .996–999	2,144	4,296	750	1,516	0.8	2.2	1.0	3.0
Supplementary classifications V01–V82	16,337	14,212	776	1,803	6.0	7.2	1.1	3.6
Care involving use of rehabilitation procedures .V57	*	1,413	*	915	*	0.7	*	1.8
All other conditions 280–289,630–676,740–799	10,900	7,709	1,935	1,897	4.0	3.9	2.7	3.8

[1]Long-stay patients had lengths of stay of more than 3 weeks.

for diagnoses were generally similar to those seen in the discharge data. Diseases of the circulatory system, mental disorders, neoplasms, and injury and poisoning together accounted for 63 percent of the days of care for long-stay patients in 1980 and 57 percent in 1990.

As was the case with discharges, the proportion of days of care for diagnostic categories such as septicemia; most malignant neoplasms; mental disorders; cerebrovascular disease; diseases of arteries, arterioles, and capillaries; all fractures; and hip fractures was higher for long-stay patients than for all patients. Unlike discharges, the proportion of days of care for diseases of the circulatory system was lower for long-stay patients than for all patients in 1990.

Days of care for long-stay patients increased for infectious and parasitic diseases (especially septicemia), psychoses, pneumonia, miscellaneous complications of surgical and medical care, and the supplementary classifications (where care involving use of rehabilitation procedures accounted for half of the days in 1990).

Long-stay patients had decreases in days of care for diagnostic categories such as malignant neoplasms of trachea, bronchus, and lung; diabetes mellitus; neurotic and personality disorders; ischemic heart disease (other than acute myocardial infarction); diseases of arteries, arterioles, and capillaries; arthropathies and related disorders; all fractures; and hip fractures.

Procedures

The rate of procedures per 1,000 discharges for long-stay patients was 1,255 in 1980 and 2,046 in 1990, an increase of 63 percent (table 8). For all patients, the rate of procedures per 1,000 discharges increased by 58 percent—from 830 in 1980 to 1,316 in 1990. In 1980 and 1990, the rate of procedures per 1,000 discharges was more than 50 percent higher for long-stay patients than for all patients. Although long-stay patients accumulated more procedures per hospitalization, they had fewer procedures per hospital day. In 1990, the rate of procedures per 100 hospital days was 5 for long-stay patients compared with 21 for all patients.

In 1990, 31 percent of the procedures performed on long-stay patients were in the category, miscellaneous diagnostic and therapeutic procedures. Operations on the digestive system made up 19 percent of the procedures and operations on the cardiovascular system accounted for 17 percent of procedures on long-stay patients. Thus, more than two-thirds of the procedures performed on long-stay patients were in these three categories. Only 52 percent of the procedures for all patients were in these three categories in 1990. In 1980, the same three categories of procedures made up approximately half of the procedures performed on long-stay patients and a third of the procedures for all patients.

The rate of miscellaneous diagnostic and therapeutic procedures per 1,000 discharges in 1990 was more than double the rate in 1980 for long-stay patients. The rate for all patients more than tripled during this period. Large increases can be seen in the rates for a number of specific procedures in this category. The rate of computerized axial tomography (CAT) scans more than tripled for long-stay patients and increased six-fold for all patients. Long-stay patients had a rate of diagnostic ultrasound per 1,000 discharges in 1990 that was 4.7 times the 1980 rate, and the 1990 rate of diagnostic ultrasound for all patients was more than six times the 1980 rate. Respiratory therapy and insertion of endotracheal tube were reported infrequently for long-stay and all patients in 1980, but were common procedures in 1990. The rate per 1,000 discharges for arteriography and angiocardiography using contrast material was not significantly higher for long-stay patients in 1990 than in 1980, but it more than tripled for all patients. This was one of the few diagnostic procedures for which all patients had a higher rate per 1,000 discharges than long-stay patients in 1990.

The increases in miscellaneous diagnostic and therapeutic procedures were probably due in part to changes in the methodology of the National Hospital Discharge Survey (see "Technical notes"). Beginning in 1985, some data for the survey have been obtained from abstracting service organizations. Analysis has indicated that a greater number of nonsurgical procedures per patient were reported by hospitals using abstract services than by hospitals submitting data in the traditional manual form. In addition, more complete reporting of relatively minor procedures has been linked to the implementation of the 1983 Medicare prospective payment system, which is based on diagnosis-related groups (DRG's) (11–13).

Like the rate of miscellaneous diagnostic and therapeutic procedures, the rate of operations on the cardiovascular system per 1,000 discharges in 1990 was more than double the 1980 rate for long-stay patients and more than triple the 1980 rate for all patients. A number of cardiovascular procedures contributed to these increases. The rate of coronary artery bypass grafts per 1,000 discharges more than tripled for long-stay and all patients. The cardiac catheterization rate doubled for long-stay patients and more than tripled for all patients. Puncture of vessel was also reported at a much higher rate in 1990 than in 1980 for long-stay and all patients.

The rate of operations on the digestive system was not significantly different in 1980 as compared with 1990 for long-stay or all patients, but rates of several specific digestive system procedures increased during this period. The rates per 1,000 discharges for gastrostomy and endoscopy of the small intestine more than tripled for long-stay patients and all patients. Long-stay patients had an 86 percent higher rate of endoscopy of the large intestine in 1990 than in 1980, and rates for lysis of peritoneal

Table 8. Number of procedures and ratio of procedures to discharges for patients discharged from short-stay hospitals, by procedure and length-of-stay categories: United States, 1980 and 1990

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

Procedure category and ICD–9–CM code	All patients discharged		Long-stay patients[1]		All patients discharged		Long-stay patients[1]	
	1980	1990	1980	1990	1980	1990	1980	1990
	Number of procedures in thousands				Procedures per 1,000 discharges			
All procedures	31,412	40,506	2,428	2,665	830.3	1,315.6	1,254.8	2,046.3
Operations on the nervous system 01–05	728	952	106	103	19.2	30.9	54.8	78.8
Spinal tap .03.31	216	396	33	41	5.7	12.9	17.1	31.8
Operations on the respiratory system 30–34	868	975	192	202	22.9	31.7	99.2	155.4
Temporary tracheostomy 31.1	49	41	32	30	1.3	1.3	16.5	23.2
Bronchoscopy with or without biopsy 33.21–33.24,33.27	290	298	63	56	7.7	9.7	32.6	43.0
Incision of chest wall and pleura 34.0	117	180	26	33	3.1	5.8	13.5	25.6
Operations on the cardiovascular system 35–39	1,352	3,881	236	444	35.7	126.1	122.2	341.1
Coronary artery bypass graft 36.1	137	392	24	47	3.6	12.7	12.1	36.4
Cardiac catheterization 37.21–37.23	348	995	28	39	9.2	32.3	14.4	29.7
Puncture of vessel 38.9	56	515	17	124	1.5	16.7	8.7	95.3
Shunt or vascular bypass 39.0–39.2	98	162	31	26	2.6	5.2	16.1	20.2
Operations on the hemic and lymphatic system 40–41	321	361	61	49	8.5	11.7	31.3	37.6
Biopsy of bone marrow .41.31	144	157	28	32	3.8	5.1	14.7	24.4
Operations on the digestive system 42–54	5,320	5,271	563	509	140.6	171.2	290.8	391.1
Gastrostomy 43.1	33	115	15	45	0.9	3.7	7.6	34.3
Endoscopy of small intestine 45.11–45.14,45.16	282	785	25	73	7.4	25.5	12.9	56.2
Endoscopy of large intestine 45.21–45.25	535	548	44	55	14.1	17.8	22.9	42.5
Resection of intestine 45.6–45.8	180	266	51	48	4.8	8.6	26.2	37.1
Ileostomy, colostomy, and other enterostomy 46.1–46.3	82	89	37	29	2.2	2.9	18.9	22.3
Cholecystectomy 51.2	458	522	32	18	12.1	17.0	16.8	13.9
Lysis of peritoneal adhesions 54.5	228	323	26	30	6.0	10.5	13.3	23.4
Operations on the urinary system 55–59	1,921	1,664	148	89	50.8	54.1	76.3	68.2
Cystoscopy 57.31–57.33	875	527	61	30	23.1	17.1	31.3	22.7
Operations on the male genital organs 60–64	799	594	57	19	21.1	19.3	29.5	14.9
Prostatectomy 60.2–60.6	335	364	35	9	8.9	11.8	17.9	7.0
Operations on the female genital organs 65–71	4,274	2,440	44	22	113.0	79.2	22.5	17.3
Operations on the musculoskeletal system 76–84	3,215	3,132	340	187	85.0	101.7	175.7	143.4
Open reduction of fracture with internal fixation 79.3	301	391	58	29	8.0	12.7	29.9	21.9
Amputation of lower limb 84.1	96	107	52	35	2.5	3.5	26.9	26.5
Operations on the integumentary system 85–86	1,896	1,387	184	167	50.1	45.1	95.3	128.5
Debridement of wound, infection, or burn 86.22,86.28	196	332	56	82	5.2	10.8	29.0	63.2
Skin graft 86.6–86.7	183	110	60	32	4.8	3.6	30.8	24.3
Miscellaneous diagnostic and therapeutic procedures 87–99	3,930	11,890	444	818	103.9	386.2	229.5	628.2
Computerized axial tomography 87.03,87.41,87.71, 88.01,88.38	306	1,506	51	124	8.1	48.9	26.6	94.8
Arteriography and angiocardiography using contrast material 88.4–88.5	569	1,735	57	48	15.0	56.4	29.3	36.7
Diagnostic ultrasound 88.7	318	1,608	33	103	8.4	52.2	17.0	79.3
Radioisotope scan 92.0–92.1	525	603	78	52	13.9	19.6	40.6	39.6
Respiratory therapy 93.9	*7	1,164	*	97	*0.2	37.8	*	74.2
Insertion of endotracheal tube .96.04	14	297	*	49	0.4	9.7	*	38.0
All other procedures 06–29,72–75	6,788	7,959	53	54	179.4	258.5	27.6	41.6

[1] Long-stay patients had lengths of stay of more than 3 weeks.

adhesions increased approximately 75 percent for long-stay and all patients. In contrast, the rates of cholecystectomy per 1,000 discharges were not significantly higher in 1990 as compared with 1980 for long-stay or all patients.

Other significant changes included a 57-percent-higher rate of operations on the respiratory system per 1,000 discharges for long-stay patients in 1990 as compared with 1980. Within the respiratory category, the rate for incision of the chest wall and pleura per 1,000 discharges increased 87–90 percent for long-stay and all patients. Notable in other categories was the change in the rate for debridement of wound, infection, and burn per 1,000 discharges, which in 1990 was twice the 1980 rate. The rate for spinal tap also doubled for all patients and increased 86 percent for long-stay patients during this period.

Unlike most rates, the rate of operations on the male genital organs per 1,000 discharges was lower for

long-stay patients in 1990 than in 1980. In particular, the rate of prostatectomy per 1,000 discharges decreased for long-stay patients, even though it did not change significantly for all patients during this period. Prostatectomy was performed at a higher rate per 1,000 discharges for long-stay patients in 1980 but at a higher rate for all patients in 1990.

The rate per 1,000 discharges for the "all other procedures" category was higher for all patients than for long-stay patients in 1980 and 1990. This category included obstetrical procedures and operations on the endocrine system, eye, ear, nose, mouth, and pharynx.

Summary

In 1980 and 1990, only 4–5 percent of patients in short-stay hospitals were hospitalized for more than 3 weeks. The number of discharges and days of care for these long-stay patients were lower in 1990 as compared with 1980, but they continued to use more than a quarter of all hospital days in 1990. Long-stay patients were more likely than all patients to be 65 years of age and over and have Medicare as their expected principal source of payment. For long-stay and all patients, private insurance covered smaller proportions of discharges and days of care, and Medicaid covered larger proportions in 1990 than in 1980.

Long-stay patients were more likely than all patients to be discharged dead or transferred to other hospitals or nursing homes. Long-stay and all patients were more likely to be transferred at discharge in 1990 than in 1981. The Northeast Region had a larger proportion of long-stay patients than of all patients, and that proportion increased from 1980 to 1990. The proportion of long-stay discharges and days of care in the Midwest decreased during this period.

In 1980 and 1990, more than 50 percent of the discharges and days of care for long-stay patients were for diseases of the circulatory system, mental disorders, neoplasms, or injury and poisoning. Despite the overall decreases in hospital use by long-stay patients, their discharges and days of care increased significantly from 1980 to 1990 for diagnoses such as septicemia, psychoses, and miscellaneous complications of surgical and medical care. Over time, decreases were seen in long-stay discharges and days of care for a variety of diagnostic categories, including malignant neoplasm of trachea, bronchus, and lung; diabetes mellitus; and fracture of the neck of the femur.

Long-stay patients had a higher rate of procedures per 1,000 discharges in 1990 than in 1980, and a higher rate than all patients in both years. Approximately half of all the procedures performed on long-stay patients in 1980 and two-thirds in 1990 were miscellaneous diagnostic and therapeutic procedures, operations on the cardiovascular system, or operations on the digestive system. The rates of numerous procedures, especially diagnostic tests, increased for long-stay and all patients from 1980 to 1990.

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Technical notes

Survey methodology

Source of data

The National Hospital Discharge Survey (NHDS) covers discharges from noninstitutional hospitals, except Federal, military, and Veterans' Administration hospitals, that are located in the 50 States and the District of Columbia. Only hospitals with at least six beds and an average length of stay of less than 30 days for all patients were included in the survey from 1965–87. Beginning in 1988, the universe also included hospitals whose specialty was general (medical or surgical) or children's general, even if the hospital's average length of stay for patients was 30 days or more.

The original universe for the survey consisted of 6,965 hospitals listed in the 1963 National Master Facility Inventory (NMFI). The universe was updated periodically using NMFI data and data from the American Hospital Association to reflect new hospitals entering the universe. Beginning in 1988, the universe for the NHDS consisted of hospitals that were listed in the April 1987 SMG Hospital Market Tape, met the above criteria, and began accepting patients by August 1987.

In 1980, the sample consisted of 544 hospitals, of which 52 were found to be out-of-scope because they had gone out of business or failed to meet the criteria for the NHDS universe. Of the 492 in-scope (eligible) hospitals, 420 participated in the survey. In 1990, 542 hospitals were sampled and 23 were found to be out- of- scope. Of the 519 in-scope hospitals, 474 responded to the survey.

Sample design and data collection

From 1965 to 1987, the NHDS had a stratified, two-stage design. Sample hospitals were selected with probabilities ranging from certainty for the largest hospitals to 1 in 40 for the smallest hospitals. Within each sample hospital, a systematic random sample was selected.

Beginning in 1988, the NHDS sample included, with certainty, all hospitals with 1,000 beds or more, or 40,000 discharges or more annually. The remaining sample of hospitals was based on a stratified, three-stage design. The first stage consisted of a selection of 112 primary sampling units (PSU's) that were a probability subsample of PSU's to be used in the 1985–94 National Health Interview Survey. The second stage consisted of a selection of noncertainty hospitals from the sample PSU's. At the third stage, a sample of discharges was selected by a systematic random-sampling technique. A detailed description of the old and new survey designs has been published (4).

Two data collection procedures were used for the survey. The first was a manual system of sample selection and data abstraction, which was used for all hospitals in 1980. The second, an automated method used for approximately 34 percent of the respondent hospitals in 1990, involved the purchase of data tapes from abstracting services.

In the manual system, the sample selection and transcription of information from hospital records to abstract forms were performed at the hospitals. The completed forms, along with sample selection control sheets, were forwarded to the National Center for Health Statistics (NCHS) for coding, editing, and weighting. A few of these hospitals have submitted their data via computer printout or tape in recent years. In about 55 percent of the hospitals that participated in the survey in 1980, and about two-thirds of hospitals using this manual system in 1990, the work was performed by their own medical records staff. In the remaining hospitals using the manual system, the U.S. Bureau of the Census personnel, on behalf of NCHS, did the work.

For the automated system, NCHS purchased tapes containing machine-readable medical record data from abstracting services and State data systems. Records were systematically sampled by NCHS.

The data collected for the survey included items relating to the patient's personal characteristics, including birth date, sex, race, and marital status (but not the patient's name and address); administrative information, including admission and discharge dates, discharge status, and medical record number; and medical information, including diagnoses and surgical and nonsurgical operations or procedures. Beginning in 1977, data pertaining to patient ZIP Code, expected source of payment, and dates of surgery were also collected. (The medical record number and patient ZIP Code are confidential information and are not available to the public.)

Presentation of estimates

The relative standard error (RSE) of the estimate and the number of sample records that the estimate was based on are used to identify estimates with relatively low reliability. Because of the complex sample design of the NHDS, estimates of less than 5,000 are not presented; only an asterisk (*) appears in the tables. Generally, these estimates have an RSE of more than 30 percent or are based on a sample of less than 30 cases. Estimates of 5,000–9,000 are preceded by an asterisk (*) to indicate they should not be assumed reliable. These estimates are usually based on fewer than 60 cases.

Sampling errors and rounding of numbers

The standard error is primarily a measure of sampling variability that occurs by chance, because only a sample rather than the entire universe is surveyed. The RSE of the estimate is obtained by dividing the standard error by the estimate itself. The resulting value is multiplied by 100, so the RSE is expressed as a percent of the estimate.

Estimates of sampling variability for 1980 data were calculated using a customized computer routine based

on an unbiased algebraic estimator of the variance (14). The RSE's for 1980 discharges or first-listed diagnoses, days of care, and procedures are shown in tables I and II.

SESUDAAN software was used to calculate estimates of sampling variability for 1990 data. This software computes standard errors by using a first-order Taylor approximation of the deviation of estimates from their expected values. A description of the software and the approach it uses has been published (15). The constants for RSE curves for 1990 NHDS estimates are presented in table III. The RSE of an estimate (X) can be estimated from the formula:

$$\mathrm{RSE}(X) = 100\left(\sqrt{a + b/X}\right)$$

where X, a, and b are as defined in table III.

Estimates have been rounded to the nearest thousand. For this reason, figures within tables do not always add to the totals. Percents and rates were calculated from original, unrounded figures and do not necessarily agree precisely with percents and rates calculated from rounded data.

Table I. Approximate relative standard errors of estimated numbers of discharges or first-listed diagnoses and all-listed procedures by size of estimate: United States, 1980

Size of estimate	Number of discharges or first-listed diagnoses	Number of all-listed procedures
5,000	18.0	17.3
10,000	14.9	14.7
50,000	10.1	10.6
100,000	8.8	9.4
300,000	7.1	7.9
500,000	6.5	7.3
1,000,000	5.8	6.7
3,000,000	5.0	5.9
5,000,000	4.7	5.6
10,000,000	4.3	5.2
20,000,000	4.0	4.9
30,000,000	3.8	4.7
40,000,000	3.7	...

Table II. Approximate relative standard errors of estimated numbers of days of care by size of estimate: United States, 1980

Size of estimate	Number of days of care
10,000	24.7
30,000	18.9
50,000	16.8
100,000	14.3
300,000	11.2
500,000	10.1
1,000,000	8.8
3,000,000	7.1
5,000,000	6.5
10,000,000	5.7
50,000,000	4.4
100,000,000	4.0
250,000,000	3.5

Tests of significance

In this report, statistical inference is based on the two-tailed t-test for independent samples using the Bonferroni critical values for post-hoc multiple comparisons (0.05 level of significance). Critical values were determined for each set of comparisons, that is, within each table. In comparisons of data for all discharges and long-stay discharges, estimates were not from independent samples; therefore, the t-test used is conservative. Terms such as "higher" and "less" indicate that differences are statistically significant. Terms such as "similar" and "no difference" mean that no statistically significant difference exists between the estimates being compared. A lack of comment on the difference between any two estimates does not mean that the difference was tested and found insignificant.

Definitions of terms

Age—Patient's age at birthday prior to admission to the hospital.

Average length of stay—The number of days of care accumulated by patients discharged during the year divided by the number of patients.

Days of care—The number of patient days accumulated by a patient at time of discharge. A stay of less than 1 day (patient admission and discharge on the same day) is counted as 1 day in the summation of total days of care. For patients admitted and discharged on different days, the number of days of care is computed by counting all days from (and including) the date of admission to (but not including) the date of discharge. The terms days of care, patient days, and hospital days are synonymous.

Diagnosis—A disease or injury (or other factor that influences health status and contact with health services) listed on the medical record of a patient.

- *Principal diagnosis*—The condition established after study to be chiefly responsible for occasioning the admission of the patient to the hospital for care.
- *First-listed diagnosis*—The coded diagnosis identified as the principal diagnosis or listed first on the face sheet or discharge summary of the medical record if the principal diagnosis cannot be identified. The number of first-listed diagnoses is equal to the number of discharges.

Discharge—The formal release of a patient by a hospital, that is, the termination of a period of hospitalization by death or disposition to place of residence, nursing home, another hospital, or other location. The terms discharge, patient, and inpatient are synonymous.

Disposition—The disposition of a patient on termination of hospitalization is classified in one of six categories in this report:

- *Routine discharge*—Patients who returned to their previous place of residence after discharge.
- *Transfer to another short-term hospital*—Patients who were transferred to another short-term hospital at discharge.
- *Transfer to long-term care institution*—Patients who entered a nursing home or other long-term care institution upon discharge from the hospital.
- *Other live discharges*—Patients who left the hospital against medical advice, patients discharged alive with dispositions other than routine discharge or transfer, and patients discharged alive whose dispositions were not stated.

Table III. Estimated parameters for relative standard error equations for National Hospital Discharge Survey statistics by selected characteristics: United States, 1990

Characteristic	Number of discharges first-listed diagnoses		Number of days of care	
	a	b	a	b
Total	0.00213	228.834	0.00404	1,438.643
Sex				
Male	0.00152	313.079	0.00311	1,853.369
Female	0.00125	311.632	0.00253	1,907.568
Age				
Under 15 years	0.01597	47.166	0.01976	1,248.390
15–44 years	0 00142	299.762	0.00298	1,225.181
45–64 years	0.00157	234.543	0.00278	1,551.060
65 years and over	0.00161	263.223	0.00295	2,110.341
Region				
Northeast	0.00274	56.268	0.00432	972.782
Midwest	0.00487	183.531	0.01289	1,493.015
South	0.00375	343.892	0.00436	1,408.247
West	0.00564	318.914	0.01456	1,361.642
Source of payment				
Private	0.00141	356.276	0.00278	2,855.345
Medicare	0.00233	147.208	0.00773	1,118.298
Medicaid	0.00542	225.144	0.07067	1,495.250
Self pay	0.00571	255.679	0.03949	1,337.799
		Number of procedures		
Total	0.00547	92.597	...	...

NOTE: The relative standard error (RSE) for an estimate (X) can be determined by using the equation $RSE(X) = 100(\sqrt{a+b/X})$.

- *Dead*—Patients who died during an inpatient stay.
- *Not stated*—Patients whose discharge status, that is, alive or dead, was not reported at discharge.

Expected principal source of payment—The expected principal source of payment is reported by the patient or the patient's representative at time of admission and may differ somewhat from the actual source of payment as determined after discharge. In this report, payment sources are grouped as follows:

- *Private insurance*—Insurance provided by nongovernmental sources, including Blue Cross and other insurance companies, private industry, and philanthropic organizations.
- *Medicare*—A nationwide program providing health insurance protection to people 65 years of age and over, people eligible for Social Security disability payments for more than 2 years, and people with end-stage renal disease.
- *Medicaid*—A joint Federal-State program that provides benefits for people who meet their State's definition of "low income."
- *Self-pay*—Patients who expect the costs of hospitalization to be paid for primarily by themselves, spouses, parents, or next of kin.
- *Other sources*—Includes Worker's Compensation and other government programs, such as CHAMPUS (for dependents of military personnel); other nonprofit sources, such as church welfare; hospitalizations for which there was no charge; and sources that could not be assigned to any other category.
- *Not stated*—In 1990, patients for whom no source of payment was indicated. In 1980, source of payment was imputed for patients who did not indicate one.

Geographic region—Hospitals are classified by location in one of the four geographic regions of the United States that correspond to those used by the U.S. Bureau of the Census.

Region	*States included*
Northeast	Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania
Midwest	Michigan, Ohio, Illinois, Indiana, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas
South	Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky,

	Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas
West	Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Hawaii, and Alaska

Hospital—Hospitals with an average length of stay of less than 30 days for all patients. In 1990, hospitals whose specialty was general (medical or surgical) were also included, even if the average length of stay of all patients was 30 days or more. Federal hospitals, hospital units of institutions, and hospitals with less than six beds staffed for patients' use were not included.

Long-stay patient—A patient whose length of stay in the hospital was more than 3 weeks.

Patient—A person formally admitted to the inpatient service of a short-stay hospital for observation, care, diagnosis, or treatment. Newborn infants, defined as those admitted by birth to the hospital, are excluded from this report. The terms patient, inpatient, and discharge are synonymous.

Population—The U.S. resident population, excluding members of the Armed Forces. The population estimates are from tabulations provided by the U.S. Bureau of the Census. The 1990 estimates do not include the results of the 1990 Census.

Procedure—Surgical or nonsurgical operations, diagnostic procedures, or special treatments reported on the medical record of a patient. In the NHDS, a maximum of four procedures are coded. Certain procedures that do not carry an operative or anesthetic risk or require highly trained personnel, special facilities, or special equipment were not coded. Lists of the ICD–9–CM codes not used are available in previous reports (10, 16).

Symbols

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

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Advance Data

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

National Ambulatory Medical Care Survey: 1991 Summary

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

Introduction

During the 12-month period from January 1991 through December 1991, an estimated 669.7 million visits were made to nonfederally employed, office-based physicians in the United States—about 2.7 visits per person. This rate is not statistically different from office visit rates observed since 1975 (1,2,3).

This report presents data highlights from the 1991 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. The data summarized here should be considered provisional because final editing may result in minor changes in the estimates. Statistics are presented on patient, physician, and visit characteristics.

Because the estimates presented in this report are based on a sample rather than on the entire universe of office visits, they are subject to sampling variability. The technical notes found at the end of this report include a brief overview of the sample design used in the 1991 NAMCS, an explanation of sampling errors, and guidelines for judging the precision of the estimates.

The Patient Record is used by physicians participating in the NAMCS to record information about their patients' office visits. This form is reproduced in figure 1 and is intended to serve as a reference for readers as they review the survey findings presented in this document.

The 1991 Patient Record included several questions that were new to the National Ambulatory Medical Care Survey. Through these data items, information was collected on whether the current office visit was injury related, whether the patient smoked cigarettes, and whether ambulatory surgery was scheduled or performed at the visit. In addition, revisions were made to some of the existing data items concerned with diagnostic, screening, and therapeutic services. These changes are discussed in detail below.

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

Patient characteristics

Office visits by patient's age, sex, and race are shown in table 1. Females made 59.8 percent of all office visits during 1991 and accounted for a higher percent of visits than males in all age categories except the youngest (under 15 years). Females also had significantly higher visit rates than males did in each age category with the exception of the youngest group (under 15 years) and the two oldest groups (65–74 years and 75 years and over). These patterns were also observed in the 1990 NAMCS.

Visit rates tended to increase with age after the age of 24. Persons 75 years of age and over had the highest visit rate of the six age categories analyzed, at 6.0 visits per

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

D

PATIENT RECORD
NATIONAL AMBULATORY MEDICAL CARE SURVEY

OMB No. 0920-0234
Expires 4-30-93
CDC 64.21D

1. DATE OF VISIT — Month / Day / Year

2. DATE OF BIRTH — Month / Day / Year

3. SEX — 1 Female 2 Male

4. COLOR OR RACE — 1 White; 2 Black; 3 Asian / Pacific Islander; 4 American Indian / Eskimo / Aleut

5. ETHNICITY — 1 Hispanic origin; 2 Not Hispanic

6. EXPECTED SOURCE(S) OF PAYMENT *[Check all that apply]* — 1 HMO/other prepaid; 2 Medicare; 3 Medicaid; 4 Other government; 5 Private / commercial; 6 Patient paid; 7 No charge; 8 Other

7. WAS PATIENT REFERRED FOR THIS VISIT BY ANOTHER PHYSICIAN? — 1 Yes; 2 No

8. IS THIS VISIT INJURY RELATED? — 1 Yes 2 No

9. DOES PATIENT SMOKE CIGARETTES? — 1 Yes; 2 No; 3 Unknown

10. PATIENT'S COMPLAINT(S), SYMPTOM(S), OR OTHER REASON(S) FOR THIS VISIT *[In patient's own words]*
a. Most important
b. Other
c. Other

11. PHYSICIAN'S DIAGNOSES
a. Principal diagnosis / problem associated with item 10.a
b. Other
c. Other

12. HAVE YOU OR ANYONE IN YOUR PRACTICE SEEN PATIENT BEFORE? — 1 Yes 2 No
If yes, for the condition in item 11a? — 1 Yes 2 No

13. DOES PATIENT NOW HAVE: *[Check all that apply regardless of any entry in item 11]* — 1 None of below; 2 Depression; 3 Hypertension; 4 Hypercholesterolemia; 5 Obesity

14. AMBULATORY SURGICAL PROCEDURE(S) *[Record any outpatient diagnostic or therapeutic procedure. For the first, check appropriate boxes.]*
a — 1 Scheduled 2 Performed 3 Local anesthesia 4 Regional anesthesia 5 General anesthesia
b

15. DIAGNOSTIC / SCREENING SERVICES *[Check all ordered or provided]* — 1 None; 2 Blood pressure; 3 Urinalysis; 4 EKG - resting; 5 EKG - exercise; 6 Mammogram; 7 Chest x-ray; 8 Other radiology; 9 Allergy testing; 10 Spirometry; 11 Pap test; 12 Strep throat test; 13 HIV serology; 14 Cholesterol measure; 15 Other lab test; 16 Hearing test; 17 Visual acuity; 18 Mental status exam; 19 Other *[Specify]*

16. THERAPEUTIC SERVICES *[Check all ordered or provided. Exclude medication]* — 1 None
COUNSELING / EDUCATION: 2 Diet; 3 Exercise; 4 Cholesterol reduction; 5 Weight reduction; 6 Drug abuse; 7 Alcohol abuse; 8 Smoking cessation; 9 Family / social; 10 Growth / development; 11 Family planning; 12 Other counseling
OTHER THERAPY: 13 Psychotherapy; 14 Corrective lenses; 15 Hearing aid; 16 Physiotherapy; 17 Other therapy *[Specify]*

17. MEDICATION *[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 / No
1. 2. 3. 4. 5.

18. 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]*

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

Figure 1. Patient record

person. The pattern, however, was found to be slightly different for males and females. Among males, rates increased with each age group after the age of 24, with males 75 years and over having the highest rate of 6.1 visits per person.

Females, despite a general trend toward increasing visit rates with age after the age of 24, showed no statistical difference in the rates for females aged 25–44 years compared with those aged 45–64 years, or in the rates for females aged 65–74 years compared with those aged 75 years and over.

White persons made 87.8 percent of all office visits during 1991, with black persons and Asian/Pacific Islanders accounting for 8.7 percent and 3.0 percent, respectively. The percent of visits made by white persons was higher than that reported in 1990, but this is probably due to a change in the coding procedure. For survey years before 1989, unspecified responses to the race item were randomly imputed a race designation. The 1989 and 1990 NAMCS included an "unspecified" category in the race item, which resulted in a significantly smaller proportion of visits by white persons than in previous survey years. The 1991 NAMCS reverted to the previous method of imputation of unspecified responses in order to maximize comparability across years of survey data. This method yielded a slightly higher proportion of visits by white

Table 1. Number, percent distribution, and annual rate of office visits by patient's age, sex, race, and geographic region: United States, 1991

Patient characteristic	Number of visits in thousands	Percent distribution	Number of visits per person per year[1]
All visits	669,689	100.0	2.7
Age			
Under 15 years	125,025	18.7	2.2
15–24 years	61,534	9.2	1.8
25–44 years	185,267	27.7	2.3
45–64 years	141,994	21.2	3.0
65–74 years	83,689	12.5	4.6
75 years and over	72,181	10 8	6.0
Sex and age			
Female	400,485	59.8	3.1
Under 15 years	60,157	9.0	2.2
15–24 years	40,447	6.0	2.3
25–44 years	122,449	18.3	3.0
45–64 years	83,210	12.4	3.4
65–74 years	49,475	7.4	4.9
75 years and over	44,747	6.7	5.9
Male	269,205	40.2	2.2
Under 15 years	64,868	9.7	2.3
15–24 years	21,088	3.1	1.2
25–44 years	62,818	9.4	1.6
45–64 years	58,783	8.8	2.6
65–74 years	34,214	5.1	4.2
75 years and over	27,434	4.1	6.1
Race and age			
White	587,800	87.8	2.8
Under 15 years	103,174	15.4	2.3
15–24 years	54,099	8.1	2.0
25–44 years	161,071	24.1	2.4
45–64 years	125,363	18.7	3.1
65–74 years	76,306	11.4	4.7
75 years and over	67,787	10.1	6.2
Black	58,494	8.7	1.9
Under 15 years	16,377	2.4	1.9
15–24 years	5,213	0.8	1.0
25–44 years	17,198	2.6	1.8
45–64 years	11,660	1.7	2.4
65–74 years	4,682	0.7	2.9
75 years and over	3,364	0.5	3.5
All other races			
Asian/Pacific Islander	20,127	3.0	---
American Indian/Eskimo/Aleut	3,269	0.5	---
Geographic region			
Northeast	154,869	23.1	3.1
Midwest	166,680	24.9	2.8
South	193,071	28.8	2.3
West	155,070	23.2	2.8

[1]Based on U.S. Bureau of the Census estimates of the civilian noninstitutionalized population of the United States as of July 1, 1991.

persons compared with 1989 and 1990 data. However, visit rates by age, sex, and race were not statistically different from rates observed in the 1989 NAMCS.

Physician characteristics

The distribution of office visits according to physician specialty for the 13 most visited specialties is presented in table 2. The largest share of visits (24.6 percent) was made to physicians specializing in general and family practice (GFP); this percentage, however, is significantly smaller than the one noted in 1990 (29.8 percent). A significant decrease was also seen in the visit rate to general and family practitioners, from 85.2 visits per 100 persons in 1990 to 66.3 visits per 100 person in 1991. Visit rates to each of the other 12 specialties were not significantly different from 1990 visit rates. However, provisional data concerning these physician specialties for 1991 indicates increases in the proportion of visits made to internists, orthopedic surgeons, dermatologists, otolaryngologists, and urologists compared with 1990 figures, as well as a slight decrease in the proportion of visits made to psychiatrists. No significant differences were found in the proportion of visits to pediatricians, obstetricians and gynecologists, ophthalmologists, general surgeons, and neurologists.

A slightly higher proportion of visits were made to doctors of osteopathy in 1991 (7.0 percent) than in 1990 (5.6 percent). Osteopathic physicians received 18.8 visits per 100 persons during the year, compared with 250.5 visits per 100 persons to all other physicians.

Visit characteristics

Referral status and prior-visit status

In general, 6.2 percent of office visits in 1991 were made as the result of a referral from another physician, an increase from the 5.5 percent noted in 1990. The majority of office visits (83.3 percent) were made by patients who had seen the physician on a previous occasion, and more than half (61.8 percent) of all visits were made by persons who were returning to the physician for care of a previously treated problem (table 3). Only 16.7 percent of visits were made by new patients. These percents are not significantly different from those reported in 1990.

Expected source of payment

This item was revised slightly from the 1990 NAMCS, with the addition of the "private/commercial" and "other government" payment categories. "Private/commercial" replaces the former categories of commercial insurance and Blue Cross/Blue Shield from the 1990 NAMCS. Data on expected source of payment are shown in table 4.

Expected sources of payment were most often private commercial

Table 2. Number, percent distribution, and annual rate of office visits by physician specialty and professional identity: United States, 1991

Physician specialty	Number of visits in thousands	Percent distribution	Number of visits per 100 persons per year[1]
All visits	669,689	100.0	269.3
General and family practice	164,857	24.6	66.3
Internal medicine	102,923	15.4	41.4
Pediatrics	74,646	11.1	30.0
Obstetrics and gynecology	56,834	8.5	22.9
Ophthalmology	41,207	6.2	16.6
Orthopedic surgery	35,932	5.4	14.4
Dermatology	29,659	4.4	11.9
General surgery	21,285	3.2	8.6
Otolaryngology	19,101	2.9	7.7
Psychiatry	15,720	2.3	6.3
Urological surgery	12,758	1.9	5.1
Cardiovascular diseases	11,629	1.7	4.7
Neurology	6,798	1.0	2.7
All other specialties	76,341	11.4	30.7
Professional identity			
Doctor of osteopathy	46,727	7.0	18.8
Doctor of medicine	622,962	93.0	250.5

[1]Based on U.S. Bureau of the Census estimates of the civilian noninstitutionalized population of the United States as of July 1, 1991.

Table 3. Number and percent distribution of office visits by referral status and prior-visit status: United States, 1991

Visit characteristic	Number of visits in thousands	Percent distribution
All visits	669,689	100.0
Referral status		
Referred by another physician	41,598	6.2
Not referred by another physician	628,091	93.8
Prior-visit status		
New patient	111,801	16.7
Old patient	557,888	83.3
New problem	144,190	21.5
Old problem	413,698	61.8

Table 4. Number and percent distribution of office visits by patient's expected source of payment: United States, 1991

Expected source of payment[1]	Number of visits in thousands	Percent distribution
All visits	669,689	100.0
Private/commercial insurance	239,425	35.8
Patient-paid	157,834	23.6
Medicare	141,679	21.2
HMO/other prepaid	100,983	15.1
Medicaid	63,411	9.5
Other government[2]	14,409	2.2
No charge	10,437	1.6
Other	27,390	4.1
Unknown	13,828	2.1

[1]Number may exceed total number of visits because more than one source of payment may be coded for each visit.
[2]Category is new on the 1991 National Ambulatory Medical Care Survey

insurance (35.8 percent of visits) and patient-paid (23.6 percent). The patient-paid category includes the patient's contribution toward "co-payments" and "deductibles." Medicare was an expected payment source at 21.2 percent of visits overall, a significant increase from the 1990 level of 19.8 percent. For persons 65 years of age and over, Medicare was an expected source of payment at 80.6 percent of visits.

"HMO/other prepaid" was mentioned at 15.1 percent of visits, which was not significantly different from the 1990 level of 14.5 percent. An increase was noted in the percent of visits with Medicaid as an expected payment source, from 8.5 percent in 1990 to 9.5 percent in 1991. Readers should note that physicians were asked to check all of the applicable payment categories for this survey item, with the result that multiple payment sources could be coded for each visit.

Is this visit injury related?

The 1991 NAMCS included a new item on the Patient Record in which the physician was asked to record whether the visit was injury related. About 66.1 million visits, or 9.9 percent of all office visits, were injury related; more than half of these visits (55.3 percent) were made by males, and 41.1 percent were made by persons 25–44 years old. Males had a higher injury–visit rate than females did overall (30.3 visits per 100 males compared with 23.1 visits per 100 females), but these differences were evidenced only in the age groups 15–24 years and 25–44 years. Injury–visit rates for males and females in the age groups under 15, 45–64, 65–74, and 75 years and over were not found to differ significantly.

Among females, injury–visit rates were lowest for those in the age group under 15 years (11.4 visits per 100 females under age 15). Visit rates for the other age groups (15–24 years, 25–44 years, 45–64 years, 65–74 years, and 75 years and over) were higher than that of the youngest group, but were not significantly different from each other. For males, injury–visit

rates were not statistically different for the youngest and two oldest age groups (under 15, 65–74, and 75 years and over). Males 15–24 years, 25–44 years, and 45–64 years had higher injury visit rates (37.4, 39.7, and 33.7 visits per 100 males in each age group respectively), but these rates were not statistically different from each other. Injury-related office visits are described in terms of the patient's age and sex in table 5.

Does patient smoke cigarettes?

Another new item in the 1991 NAMCS collected data on whether the patient currently smokes cigarettes. Results from the survey showed that 10.1 percent of all office visits, or 67.7 million, were made by patients who smoke cigarettes. However, the patient's smoking status was not known for 27.7 percent of the total, or 185.2 million office visits. Data on visits according to patient's cigarette smoking status are presented in tables 6 and 7.

Reason for visit

Item 10 of the Patient Record asks the physician to record the patient's (or patient surrogate's) "complaint(s), symptom(s), or other reason(s) for this visit in the patient's own words." Up to three reasons for visit are classified and coded from the survey according to *A Reason for Visit Classification for Ambulatory Care* (RVC) (4). The principal reason for visit is the problem, complaint, or reason listed in item 9a.

The RVC is divided into the eight modules or groups of reasons displayed in table 8. More than half of all visits were made for reasons classified as symptoms (57.6 percent). Respiratory symptoms accounted for 11.5 percent of all visits, and musculoskeletal symptoms accounted for 11.4 percent.

The 20 most frequently mentioned principal reasons for visit, representing 38.2 percent of all visits, are shown in table 9. (It is important to note that the rank ordering presented in this and other tables in this report may not always be reliable because near estimates may not differ from each other due to sampling variability.) General medical examination was the most frequently mentioned reason for visit overall (4.4 percent of the total), while cough was the most frequently mentioned reason having to do with illness or injury (3.6 percent).

Eighteen of the top 20 reasons for 1991 were also listed among the 20 most frequently mentioned reasons for 1990, albeit in slightly different order. The other two, depression and low back symptoms, each accounted

Table 5. Number, percent distribution, and annual rate of injury-related office visits by patient's age and sex: United States, 1991

Patient characteristic	Number of visits in thousands	Percent distribution	Number of visits per 100 persons per year[1]	Percent of all office visits[2]
All injury-related visits	66,066	100.0	26.6	9.9
Age				
Under 15 years	7,417	11.2	13.3	1.1
15–24 years	10,510	15.9	30.4	1.6
25–44 years	27,126	41.1	33.4	4.1
45–64 years	14,222	21.5	30.2	2.1
65–74 years	3,955	6.0	21.6	0.6
75 years and over	2,836	4.3	23.7	0.4
Sex and age				
Female	29,544	44.7	23.1	4.4
Under 15 years	3,098	4.7	11.4	0.5
15–24 years	4,094	6.2	23.5	0.6
25–44 years	11,300	17.1	27.4	1.7
45–64 years	6,596	10.0	26.9	1.0
65–74 years	2,510	3.8	24.8	0.4
75 years and over	1,945	2.9	25.9	0.3
Male	36,522	55.3	30.3	5.5
Under 15 years	4,319	6.5	15.2	0.6
15–24 years	6,415	9.7	37.4	1.0
25–44 years	15,826	24.0	39.7	2.4
45–64 years	7,626	11.5	33.7	1.1
65–74 years	1,450	2.2	17.7	0.2
75 years and over	891	1.3	19.9	0.1

[1]Based on U.S. Bureau of the Census estimates of the civilian noninstitutionalized population of the United States as of July 1, 1991.
[2]Based on an estimated total of 669,689,000 office visits in 1991.

Table 6. Number and percent distribution of office visits by patient's cigarette-smoking status: United States, 1991

Does patient smoke cigarettes?	Number of visits in thousands	Percent distribution
All visits	669,689	100.0
Yes	67,674	10.1
No	416,771	62.2
Unknown	185,245	27.7
Patient characteristic		
All visits by patients who smoke cigarettes	67,674	100.0
Age		
Under 15 years	*237	*0.4
15–24 years	6,131	9.1
25–44 years	27,939	41.3
45–64 years	22,652	33.5
65–74 years	7,575	11.2
75 years and over	3,139	4.6
Sex		
Female	39,308	58.1
Male	28,366	41.9

Table 7. Number and percent distribution of office visits by physician specialty, according to patient's cigarette-smoking status: United States, 1991

Physician specialty	Number of visits in thousands	Does patient smoke cigarettes?			
		Total	Yes	No	Don't know
		Percent distribution			
All visits	669,689	100.0	10 1	62.2	27.7
General and family practice	164,857	100.0	12.6	63.5	23.9
Internal medicine	102,923	100.0	13.3	63.3	23.4
Pediatrics	74 646	100 0	*0.4	96.8	2.8
Obstetrics and gynecology	56.834	100.0	11 8	61.9	26.3
Ophthalmology	41.207	100.0	6.6	43.0	50 4
Orthopedic surgery	35,932	100 0	9.2	38.8	52.0
Dermatology	29.659	100.0	4 2	33.0	62.8
General surgery	21.285	100 0	13.2	56 3	30.5
Otolaryngology	19.101	100 0	8.0	62.3	29.7
Psychiatry	15.720	100 0	16.1	59.6	24.3
Urological surgery	12.758	100 0	9.3	51.4	39.3
Cardiovascular diseases	11.629	100.0	8.2	61.7	30.1
Neurology	6.798	100.0	13.7	63.4	22.9
All other specialties	76.341	100.0	11.7	61.3	26.9

for about 7.1 million visits. Their higher position on the rank-listing for 1991 was due mainly to a small but significant decrease in the number of visits for hypertension and chest pain and related symptoms.

Diagnostic and screening services

Statistics on diagnostic and screening services ordered or provided by the physician during the office visit are displayed in table 10. The list of diagnostic and screening services appearing on the Patient Record is changed periodically to reflect the changing needs of data users, recommendations of advisors, and anticipated future health data needs. The 1991 NAMCS added a number of services that either had never appeared on the Patient Record or had not been included for several years. New categories for 1991 include the following: EKG - resting, EKG - exercise, allergy testing, spirometry, strep throat test, hearing test, and mental status exam. In addition, the former "other" category was expanded to permit greater specificity with the addition of the "other radiology" and "other lab test" categories.

More than half (64.8 percent) of all office visits included one or more diagnostic or screening service. The most frequently mentioned diagnostic service was blood pressure check, recorded at 43.2 percent of visits. This percent was significantly higher than that recorded in 1990. (The 1990 percent was also higher than that found in 1989.) Also, blood pressure checks were ordered or provided at a higher percent of visits by females (47.9 percent) than visits by males (36.1 percent) in 1991, but the percents for both sexes showed an increase over 1990 figures.

Other frequently mentioned diagnostic and screening services included the new category of "other lab test" (17.1 percent of visits), urinalysis (12.7 percent), and visual acuity (6.0 percent). Pap tests were ordered or performed at 4.2 percent of visits, while cholesterol measures were taken at 4.0 percent of visits.

Also prominent among the new categories for 1991 were visits at which other radiology (that is, radiology other than chest x ray) was mentioned (5.5 percent), visits at which a resting EKG was ordered or provided (2.8 percent), and visits with a test for strep throat (2.0 percent).

Ambulatory surgical procedures

The 1991 NAMCS included a new item concerning ambulatory surgical procedures that were scheduled or performed at the current visit. Physicians were asked to record up to two outpatient diagnostic or therapeutic procedures, and additional data were collected on the type of anesthesia used for the first-listed procedure. Preliminary results indicate that ambulatory surgical procedures were reported at 6.2 percent of all office visits—about 44.4 million procedures scheduled or performed. More detailed data on these procedures will be reported in a forthcoming publication.

Principal diagnosis

Item 11 of the Patient Record asks the physician to record the principal diagnosis or problem associated with the patient's most important reason for the current visit as well as any other significant current diagnoses. Up to three diagnoses are coded and classified according to the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (5).

Displayed in table 11 are office visits by principal diagnosis using the major disease categories specified by the ICD–9–CM. The supplementary classification, used for diagnoses that are not classifiable to injury or illness (for example, general medical examination, routine prenatal examination, and health supervision of an infant or child), accounted for 15.1 percent of all office visits. Diseases of the respiratory system (13.8 percent) and diseases of the nervous system and sense organs (11.6 percent) were also prominent on the list.

The 20 most frequently reported principal diagnoses for 1991 are shown in table 12. These are categorized at the three-digit coding level of the ICD–9–CM, and account for 35.2 percent of all office visits made during the year. The most common diagnosis rendered by physicians at office visits in 1991 was essential hypertension, occurring at 3.5 percent of all visits. Essential hypertension has been the most frequently reported morbidity-related diagnosis in every survey year since the NAMCS began in 1973. (Morbidity-related diagnoses are

Table 8. Number and percent distribution of office visits by patient's principal reason for visit: United States, 1991

Principal reason for visit and RVC code[1]		Number of visits in thousands	Percent distribution
All visits		669,689	100.0
Symptom module	S001–S999	385,861	57.6
General symptoms	S001–S099	44,230	6.6
Symptoms referable to psychological/mental disorders	S100–S199	18,291	2.7
Symptoms referable to the nervous system (excluding sense organs)	S200–S259	21,066	3.1
Symptoms referable to the cardiovascular/lymphatic system	S260–S299	3,417	0.5
Symptoms referable to the eyes and ears	S300–S399	43,589	6.5
Symptoms referable to the respiratory system	S400–S499	76,764	11.5
Symptoms referable to the digestive system	S500–S639	27,074	4.0
Symptoms referable to the genitourinary system	S640–S829	31,265	4.7
Symptoms referable to the skin, hair, and nails	S830–S899	43,809	6.5
Symptoms referable to the musculoskeletal system	S900–S999	76,356	11.4
Disease module	D001–D999	64,926	9.7
Diagnostic, screening, and preventive module	X100–X599	101,002	15.1
Treatment module	T100–T899	65,333	9.8
Injuries and adverse effects module	J001–J999	20,462	3.1
Test results module	R100–R700	6,832	1.0
Administrative module	A100–A140	7,122	1.1
Other[2]	U990–U999	18,150	2.7

[1]Based on *A Reason for Visit Classification for Ambulatory Care* (RVC), (4).
[2]Includes problems and complaints not elsewhere classified, entries of "none," blanks, and illegible entries.

Table 9. Number and percent distribution of office visits by the 20 principal reasons for visit most frequently mentioned by patients: United States, 1991

Reason for visit and RVC code[1]		Number of visits in thousands	Percent distribution of visits		
			All visits	Female	Male
All visits		669,689	100.0	100.0	100.0
General medical examination	X100	29,720	4.4	4.8	3.9
Cough	S440	24,263	3.6	3.6	3.7
Routine prenatal examination	X205	19,675	2.9	4.9	.
Symptoms referable to throat	S455	17,882	2.7	2.7	2.6
Postoperative visit	T205	16,308	2.4	2.3	2.7
Earache or ear infection	S355	13,404	2.0	1.9	2.1
Well baby examination	X105	13,276	2.0	1.7	2.4
Back symptoms	S905	12,977	1.9	1.9	2.0
Skin rash	S860	12,119	1.8	1.7	2.0
Stomach pain, cramps, and spasms	S545	11,106	1.7	1.8	1.4
Fever	S010	10,318	1.5	1.5	2.1
Headache, pain in head	S210	10,128	1.5	1.2	1.5
Vision dysfunctions	S305	10,011	1.5	1.5	1.5
Knee symptoms	S925	9,522	1.4	1.2	1.7
Nasal congestion	S400	8,444	1.3	1.1	1.5
Blood pressure test	X320	7,645	1.1	1.2	1.1
Head cold, upper respiratory infection (coryza)	S445	7,616	1.1	1.1	1.2
Neck symptoms	S900	7,193	1.1	1.0	1.1
Depression	S110	7,060	1.1	1.2	0.9
Low back symptoms	S910	7,051	1.1	0.8	1.4
All other reasons		413,971	61.8	60.9	63.2

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

those classifiable to illness or injury. Nonmorbidity-related diagnoses include routine prenatal examination, health supervision of an infant or child, and general medical examination, among others.)

Of the 20 diagnoses shown in table 12, 17 also appeared on the list of the 20 most frequent diagnoses for 1990. New on the list for 1991 were contact dermatitis and other eczema, general symptoms, and special investigations and examinations. The latter is a diagnosis in the supplementary classification and includes routine examinations of specific systems, for example, gynecological, vision, and hearing exams. Dropping out of the top 20 from 1990 were osteoarthrosis and allied disorders, disorders of refraction and accommodation, and other forms of chronic ischemic heart disease.

In order to assess the significance of some of the changes in physicians' diagnoses over the years, visit rates for selected diagnoses from 1985–91 are compared in table 13. Between 1985 and 1991, increases were seen in office visit rates for chronic sinusitis and glaucoma, while decreases were noted in visit rates for disorders of refraction and accommodation and neurotic disorders. Slight decreases were also noted in visit rates for essential hypertension and normal pregnancy between 1985 and 1991. Additional years of data will help to put these apparent changes into better perspective.

Physicians' checklist of medical conditions

In addition to the diagnostic data reported in item 11 of the Patient Record, selected information on the patient's current health status was collected in item 13, another addition to the 1991 NAMCS. Physicians were given a list of four common conditions—depression, hypertension, hypercholesterolemia, and obesity—and asked to record whether the patient now had any of them, regardless of what was recorded as the current diagnosis in item 11 of the survey form. Results from item 13 are shown in tables 14 and 15.

Nearly one-quarter (24.1 percent) of the visits were made by patients who were reported to have one or more of the four conditions listed on the survey form. Hypertension was checked most frequently, at 12.7 percent of the total—about 85.3 million visits. This figure is substantially higher than the number of visits in which a first, second, or third diagnosis of essential hypertension (ICD–9–CM code 401) was reported in item 11 of the Patient Record (41.9 million visits or 6.3 percent of the total), and suggests

Table 10. Number and percent distribution of office visits by diagnostic and screening services and patient's sex: United States, 1991

Diagnostic and screening services ordered or provided by physician[1]	Number of visits in thousands	Percent distribution of visits		
		All visits	Female	Male
All visits	669,689	100.0	100.0	100.0
None	236,035	35.2	31.6	40.7
Blood pressure	289,153	43.2	47.9	36.1
Urinalysis	85,194	12.7	15.3	8.9
EKG - Resting[2]	19,020	2.8	2.6	3.2
EKG - Exercise[2]	2,661	0.4	0 2	0.7
Mammogram	11,558	1.7	2.9	...
Chest x ray	16,307	2.4	2.2	2.7
Other radiology[2]	36,864	5.5	4.9	6.3
Allergy testing[2]	1,445	0.2	0.2	0.3
Spirometry[2]	2,486	0.4	0.3	0.4
Pap test	28,313	4.2	7.1	0.0
Strep throat test[2]	13,650	2.0	2.0	2.1
HIV serology	1,362	0.2	0.2	0.2
Cholesterol measure	26,932	4.0	4.4	3.4
Other lab test[2]	114,274	17.1	18.4	15.1
Hearing test[2]	9,282	1.4	1.1	1.9
Visual acuity	40,374	6.0	5.6	6.7
Mental status exam[2]	8,664	1.3	1.1	1.5
Other	67,757	10.1	10.6	9.4

[1]Numbers may not add to totals because more than one service may be reported per visit.
[2]Category is new in the 1991 National Ambulatory Medical Care Survey.

Table 11. Number and percent distribution of office visits by principal diagnosis: United States, 1991

Principal diagnosis and ICD–9–CM code[1]		Number of visits in thousands	Percent distribution
All visits		669,689	100.0
Infectious and parasitic diseases	001–139	24,570	3.7
Neoplasms	140–239	23,308	3.5
Endocrine, nutritional and metabolic diseases and immunity disorders	240–279	27,312	4.1
Mental disorders	290–319	26,167	3.9
Diseases of the nervous system and sense organs	320–389	77,724	11.6
Diseases of the circulatory system	390–459	50,226	7.5
Diseases of the respiratory system	460–519	92,100	13.8
Diseases of the digestive system	520–579	22,724	3.4
Diseases of the genitourinary system	580–629	39,308	5.9
Diseases of the skin and subcutaneous tissue	680–709	39,578	5.9
Diseases of the musculoskeletal system and connective tissue	710–739	45,829	6.8
Symptoms, signs, and ill-defined conditions	780–799	25,694	3.8
Injury and poisoning	800–999	53,400	8.0
Supplementary classification	V01–V82	101,433	15.1
All other diagnoses[2]		9 292	1.4
Unknown[3]		11,025	1.6

[1]Based on the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (5).
[2]Includes diseases of the blood and blood-forming organs (280–289); complications of pregnancy, childbirth, and the puerperium (630–676); congenital anomalies (740–759); and certain conditions originating in the perinatal period (760–799).
[3]Includes blank diagnoses, uncodable diagnoses, and illegible diagnoses.

the possibility that physicians tend to underreport chronic conditions in item 11.

Therapeutic services

Data on therapeutic services ordered or provided by the physician at the office visit (item 16 on the Patient Record) are shown in table 16. This item underwent substantial revision in the 1991 NAMCS, with an expanded list of therapeutic categories permitting greater specificity in physicians' responses.

About one-third (33.1 percent) of all office visits included some form of counseling, education, or other nonmedication therapy. Diet education or counseling was mentioned most frequently, at 11.4 percent of the total, or 76.5 million visits. Other prominent categories included exercise (8.2 percent), drug abuse (3.8 percent), weight reduction (3.1 percent), and growth/development (3.1 percent).

Medication therapy

Data on medication therapy are shown in tables 17–21. Medication therapy was the most commonly mentioned therapeutic service in 1991, reported at 423.7 million office visits or 63.3 percent of the total (table 17). Physicians were instructed to record all new or continued medications ordered or provided at the visit, including prescription and nonprescription preparations, and immunizing and desensitizing agents. As used in the NAMCS, the term "drug" is interchangeable with the term "medication," and the term "prescribing" is used broadly to mean ordering or providing any medication, whether prescription or over-the-counter. Visits with one or more drug mentions are termed "drug visits" in the NAMCS. As many as five medications, or drug mentions, could be coded per drug visit, resulting in a total of 804.6 million drug mentions during 1991. This yields an average of 1.2 drug mentions per office visit, or 1.9 drug mentions per drug visit.

Data on number of drug visits and drug mentions by physician specialty are shown in table 18. Internists and cardiovascular disease specialists had the highest percentage of drug visits, at 81.6 percent and 80.4 percent, respectively.

Drug mentions are displayed by therapeutic class in table 19. This classification is based on the therapeutic categories used in the *National Drug Code Directory*, 1985 edition (6). It should be noted that some drugs have more than one therapeutic application. In cases of

Table 12. Number and percent distribution of office visits by the 20 principal diagnoses most frequently rendered by physicians: United States, 1991

Principal diagnosis and ICD–9–CM code[1]	Number of visits in thousands	Percent distribution of visits		
		All visits	Female	Male
All visits	669,689	100.0	100.0	100.0
Essential hypertension .401	23,188	3.5	3.6	3.3
Normal pregnancy .V22	20,657	3.1	5.2	.
General medical examination .V70	18,321	2.7	2.6	3.0
Health supervision of infant or child .V20	17,271	2.6	2.1	3.3
Acute upper respiratory infections of multiple or unspecified sites	16,928	2.5	2.4	2.7
Suppurative and unspecified otitis media .382	16,185	2.4	2.1	3.0
Diabetes mellitus .250	12,793	1.9	1.8	2.0
Chronic sinusitis .473	11,570	1.7	1.8	1.7
Glaucoma .365	11,043	1.6	1.7	1.6
Acute pharyngitis .462	11,015	1.6	1.5	1.9
Bronchitis, not specified as acute or chronic .490	9,757	1.5	1.6	1.2
Diseases of sebaceous glands .706	9,464	1.4	1.5	1.4
Allergic rhinitis .477	9,405	1.4	1.4	1.4
Asthma .493	8,804	1.3	1.2	1.5
Cataract .366	7,540	1.1	1.1	1.1
Contact dermatitis and other eczema .692	7,048	1.1	1.0	1.1
Sprains and strains of other and unspecified parts of back .847	6,381	1.0	0.9	1.1
Special investigations and examinations .V72	6,318	0.9	1.3	0.5
Neurotic disorders .300	6,220	0.9	1.0	0.8
General symptoms .780	6,101	0.9	0.9	1.0
All other diagnoses	433,680	64.8	63.3	66.4

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

this type, each drug was assigned to the category for which it was most frequently prescribed. Cardiovascular-renal drugs accounted for 15.5 percent of all drug mentions, while antimicrobial agents (14.9 percent), pain relief drugs (10.6 percent) and respiratory tract drugs (10.0 percent) were also prominent.

The 20 most frequently used generic substances for 1991 are shown in table 20. In this table, drug products containing more than one ingredient (combination products) are included in the data for each ingredient. For example, acetaminophen with codeine is included in both the count for acetaminophen and the count for codeine. Amoxicillin was the generic ingredient most frequently used in drugs ordered or provided by the physician at office visits in 1991 (as well as in 1990), occurring in 4.1 percent of drug mentions. Seventeen of the 20 most used generic ingredients for 1991 were also on the list of the top 20 for 1990.

The 20 medications most frequently ordered or supplied by physicians at office visits are shown by entry name of drug in table 21. Entry name refers to the actual designation used by the physician on the Patient Record form and may be a trade name, a generic name, or simply a desired therapeutic effect. Amoxicillin was the medication most frequently prescribed by physicians, with 18.0 million mentions, or 2.2 percent of the total. It was followed by Amoxil (1.2 percent), Lasix (1.2 percent), and Ceclor (1.2 percent).

The NAMCS drug data base permits classification by a wide range of variables, including specific product name, generic class, entry form chosen by the physician (that is, brand name, generic name, or the desired therapeutic effect), prescription status (that is, whether the product is prescription or nonprescription), federally controlled substance status, composition status (that is, single- or multiple ingredient product), and therapeutic category. A report describing the method and instruments used to collect and process drug information for the NAMCS is available (7).

Disposition of visit

About two-thirds (66.7 percent) of all office visits included a scheduled follow-up visit or telephone call, while another 21.6 percent included instructions to return if needed. Less than one percent of visits resulted in a hospital admission. These percentages are not statistically different than those reported in 1990. Data on office visit disposition are displayed in table 22.

Duration of visit

Data on the duration of office visits are presented in table 23. Duration of visit refers to the amount of time spent in face-to-face contact between the physician and the patient. This time is estimated and recorded by the physician and does not include time spent waiting to see the physician, time spent receiving care from someone other than the physician without the presence of the physician, or time spent by the physician in reviewing patient records and/or test results. In cases where the patient received care from a member of the physician's staff, but did not actually see the physician during the visit, duration was recorded as "zero" minutes.

More than two-thirds (68.3 percent) of office visits had a duration of 15 minutes or less in 1991. The mean duration time for all visits was 17.0 minutes. Corresponding numbers for 1990 were 69.3 percent and 16.7 minutes, respectively.

Additional reports that utilize 1991 NAMCS data are forthcoming in the Advance Data from Vital and Health Statistics series. In addition, survey data will be available on computer tape from the National Technical Information Service at a nominal cost beginning about June 1993. Questions regarding this report, future reports, or the NAMCS may be directed to the Ambulatory Care Statistics Branch by calling (301) 436–7132.

References

1. Nelson C, McLemore T. The National Ambulatory Medical Care Survey. United States, 1975–81 and 1985 trends. National Center for Health Statistics. Vital Health Stat 13(93). 1988.

Table 13. Number, percent distribution, and annual rate of office visits by selected principal diagnoses, according to year of survey: United States, 1985–91

Principal diagnosis and ICD–9–CM code[1]	1985	1989	1991
		Number of visits in thousands	
All visits	636,386	692,702	669,689
Essential hypertension .401	26,049	27,708	23,188
Normal pregnancy .V22	24,182	23,578	20,657
Health supervision of infant or child .V20	17,088	15,669	17,271
Suppurative and unspecified otitis media .382	15,607	20,033	16,185
General medical examination .V70	14,916	20,166	18,321
Acute upper respiratory infections of multiple or unspecified sites .465	14,691	15,765	16,928
Diabetes mellitus .250	12,302	13,237	12,793
Neurotic disorders .300	9,320	8,511	6,220
Acute pharyngitis .462	9,302	10,958	11,015
Disorders of refraction and accommodation .367	8,268	7,686	5,420
Diseases of sebaceous glands .706	8,104	8,146	9,464
Allergic rhinitis .477	7,835	11,631	9,405
Bronchitis, not specified as acute or chronic .490	7,563	11,160	9,757
Other forms of chronic ischemic heart disease .414	6,732	5,712	5,713
Asthma .493	6,503	6,822	8,804
Cataract .366	6,285	6,335	7,540
Special investigations and examinations .V72	5,838	4,261	6,318
Contact dermatitis and other eczema .692	5,837	6,542	7,048
Chronic sinusitis .473	5,675	8,700	11,570
Osteoarthrosis and allied disorders .715	5,522	6,259	5,513
Sprains and strains of other and unspecified parts of back .847	5,322	7,614	6,381
General symptoms .780	4,874	5,550	6,101
Glaucoma .365	4,304	4,952	11,043
		Percent distribution	
All visits	100.0	100.0	100.0
Essential hypertension .401	4.1	4.0	3.5
Normal pregnancy .V22	3.8	3.4	3.1
Health supervision of infant or child .V20	2.7	2.3	2.6
Suppurative and unspecified otitis media .382	2.5	2.9	2.4
General medical examination .V70	2.3	2.9	2.7
Acute upper respiratory infections of multiple or unspecified sites .465	2.3	2.3	2.5
Diabetes mellitus .250	1.9	1.9	1.9
Neurotic disorders .300	1.5	1.2	0.9
Acute pharyngitis .462	1.5	1.6	1.6
Disorders of refraction and accommodation .367	1.3	1.1	0.8
Diseases of sebaceous glands .706	1.3	1.2	1.4
Allergic rhinitis .477	1.2	1.7	1.4
Bronchitis, not specified as acute or chronic .490	1.2	1.6	1.5
Other forms of chronic ischemic heart disease .414	1.1	0.8	0.9
Asthma .493	1.0	1.0	1.3
Cataract .366	1.0	0.9	1.1
Special investigations and examinations .V72	0.9	0.6	0.9
Contact dermatitis and other eczema .692	0.9	0.9	1.1
Chronic sinusitis .473	0.9	1.3	1.7
Osteoarthrosis and allied disorders .715	0.9	0.9	0.8
Sprains and strains of other and unspecified parts of back .847	0.8	1.1	1.0
General symptoms .780	0.8	0.8	0.9
Glaucoma .365	0.7	0.7	1.6
		Number of visits per 100 persons[2]	
All visits	274.1	284.4	269.3
Essential hypertension .401	11.2	11.4	9.3
Normal pregnancy .V22	10.4	9.7	8.3
Health supervision of infant or child .V20	7.4	6.4	6.9
Suppurative and unspecified otitis media .382	6.7	8.2	6.5
General medical examination .V70	6.4	8.3	7.4
Acute upper respiratory infections of multiple or unspecified sites .465	6.3	6.5	6.8
Diabetes mellitus .250	5.3	5.4	5.1
Neurotic disorders .300	4.0	3.5	2.5
Acute pharyngitis .462	4.0	4.5	4.4
Disorders of refraction and accommodation .367	3.6	3.2	2.2
Diseases of sebaceous glands .706	3.5	3.3	3.8
Allergic rhinitis .477	3.4	4.8	3.8
Bronchitis, not specified as acute or chronic .490	3.3	4.6	3.9
Other forms of chronic ischemic heart disease .414	2.9	2.3	2.3
Asthma .493	2.8	2.8	3.5
Cataract .366	2.7	2.6	3.0
Special investigations and examinations .V72	2.5	1.7	2.5
Contact dermatitis and other eczema .692	2.5	2.7	2.8
Chronic sinusitis .473	2 4	3.6	4.7
Osteoarthrosis and allied disorders .715	2.4	2.6	2.2
Sprains and strains of other and unspecified parts of back .847	2.3	3.1	2.6
General symptoms .780	2.1	2.3	2.5
Glaucoma .365	1.9	2.0	4.4

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

[2]Based on U.S. Bureau of the Census estimates of the civilian noninstitutionalized population of the United States as of July 1 of each year.

Table 14. Number and percent distribution of office visits by selected medical conditions, according to patient's age and sex: United States, 1991

Medical condition[1]	Patient's age							Patient's sex	
	All ages	Under 15 years	15–24 years	25–44 years	45–64 years	65–74 years	75 years and over	Male	Female
	Number of visits in thousands								
All visits	669,689	125,025	61,534	185,267	141,994	83,689	72,181	269,205	400,485
Depression	40,712	1,276	1,863	14,794	12,915	5,735	4,130	12,955	27,757
Hypertension	85,266	*524	*559	9,007	27,215	23,989	23,972	32,624	52,642
Hypercholesterolemia	46,044	*217	*174	4,644	13,937	10,475	6,597	12,798	23,247
Obesity	52,961	1,567	2,653	15,897	18,808	9,134	4,903	15,196	37,765
None of the above	508,172	121,799	56,781	148,782	89,606	48,764	42,441	211,913	296,259
	Percent distribution								
All visits	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Depression	6.1	1.0	3.0	8.0	9.1	6.9	5.7	4.8	6.9
Hypertension	12.7	*0.4	*0.9	4.9	19.2	28.7	33.2	12.1	13.1
Hypercholesterolemia	6.9	*0.2	*0.3	2.5	9.8	12.5	9.1	4.8	5.8
Obesity	7.9	1.3	4.3	8.6	13.2	10.9	6.8	5.6	9.4
None of the above	75.9	97.4	92.3	80.3	63.1	58.3	58.8	78.7	74.0

[1]Numbers may not add to totals because patients may have more than one condition.

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Table 15. Number and percent distribution of office visits by selected medical conditions occurring singly and in clusters: United States, 1991

Medical condition	Number of visits in thousands	Percent distribution
All visits	669,689	100.0
One of four conditions	119,445	17.8
Depression	29,380	4.4
Hypertension	50,676	7.6
Hypercholesterolemia	12,147	1.8
Obesity	27,242	4.1
Two of four conditions	31,867	4.8
Depression and hypertension	3,433	0.5
Depression and hypercholesterolemia	951	0.1
Depression and obesity	2,800	0.4
Hypertension and hypercholesterolemia	10,800	1.6
Hypertension and obesity	10,728	1.6
Hypercholesterolemia and obesity	3,155	0 5
Three of four conditions	9,016	1.3
Depression, hypertension, and hypercholesterolemia	1,169	0.2
Depression, hypertension, and obesity	1,213	0.2
Depression, hypercholesterolemia, and obesity	*576	*0.1
Hypertension, hypercholesterolemia, and obesity	6,058	0.9
All four conditions	1,190	0.2
Depression, hypertension, hypercholesterolemia, and obesity	1,190	0.2

Table 16. Number and percent distribution of office visits by therapeutic services: United States, 1991

Therapeutic service ordered or provided by physician[1]	*Number of visits in thousands*	*Percent distribution*
All visits	669,689	100.0
None	448,044	66.9
Counseling/education		
Diet[2]	76,476	11.4
Exercise[2]	54,617	8.2
Cholesterol reduction	20,818	3.1
Weight reduction	25,761	3.8
Drug abuse[2]	1,570	0.2
Alcohol abuse[2]	3,187	0.5
Smoking cessation	13,013	1.9
Family/social[2]	12,486	1.9
Growth/development[2]	20,580	3.1
Family planning[2]	5,456	0.8
Other counseling	55,911	8.3
Other therapy		
Psychotherapy	17,789	2.7
Corrective lenses	7,934	1.2
Hearing aid[2]	*440	*0.0
Physiotherapy	16,763	2.5
Other therapy	21,235	3.2

[1]Numbers may not add to totals because more than one category may be reported per visit.
[2]Category is new in the 1991 National Ambulatory Medical Care Survey.

Table 17. Number and percent distribution of office visits by medication therapy and number of medications ordered or provided by the physician: United States, 1991

Medication therapy[1]	*Number of visits in thousands*	*Percent distribution*
All visits	669,689	100.0
Drug visits[2]	423,675	63.3
Visits without mention of medication	246,014	36.7
Number of medications ordered or provided by physician		
None	246,014	36.7
One	217,786	32.5
Two	107,800	16.1
Three-Five	98,089	14.6

[1]Medications include prescription drugs, over-the-counter preparation, immunizing agents, and desensitizing agents.
[2]Drug visits are visits at which one or more medication is ordered or supplied by the physician.

Table 18. Number and percent distribution of drug visits and drug mentions by physician specialty: United States, 1991

Physician specialty	*Number of drug visits in thousands*[1]	*Percent distribution*	*Number of drug mentions in thousands*	*Percent distribution*	*Percent drug visits*[2]
All drug visits	423,675	100.0	804,615	100.0	63.3
General and family practice	119,003	28.1	222,158	27.6	72.2
Internal medicine	83,975	19.8	193,229	24.0	81.6
Pediatrics	51,903	12.3	81,746	10.2	69.5
Obstetrics and gynecology	27,106	6.4	35,507	4.4	47.7
Ophthalmology	19,125	4.5	32,259	4.0	46.4
Dermatology	16,979	4.0	31,609	3.9	57.2
Psychiatry	10,161	2.4	16,320	2.0	64.6
Cardiovascular diseases	9,350	2.2	30,029	3.7	80.4
Orthopedic surgery	9,309	2.2	12,115	1.5	25.9
Otolaryngology	8,744	2.1	12,405	1.5	45.8
General surgery	6,920	1.6	13,498	1.7	32.5
Urological surgery	5,093	1.2	6,616	0.8	39.9
Neurology	4,210	1.0	6,625	0.8	61.9
All other specialties	51,797	12.2	110,499	13.7	67.8

[1]Drug visits are visits at which one or more drugs are ordered or supplied by the physician.
[2]Number of drug visits divided by number of office visits multiplied by 100.

Table 19. Number and percent distribution of drug mentions by therapeutic classification: United States, 1991

Therapeutic classification[1]	*Number of drug mentions in thousands*	*Percent distribution*
All drug mentions	804,615	100.0
Cardiovascular-renal drugs	124,554	15.5
Antihypertensive agents	45,462	5.7
Diuretics	28,913	3.6
Antianginal agents	22,888	2.8
Cardiac glycosides	10,446	1.3
Antiarrhythmic agents	9,398	1.2
Agents used in peripheral or cerebral vascular disorders	4,308	0.5
Other	3,139	0.4
Antimicrobial agents	119,663	14.9
Penicillins	37,470	4.7
Cephalosporins	23,822	3.0
Erythromycins and lincosamides	19,801	2.5
Tetracyclines	10,374	1.3
Sulfonamides and trimethoprim	10,025	1.2
Urinary tract antiseptics	5,288	0.7
Miscellaneous antibacterial agents	4,463	0.6
Antiviral agents	3,307	0.4
Antifungal agents for systemic mycoses	2,878	0.4
Other	2,235	0.3
Drugs used for relief of pain	85,132	10.6
General analgesics	43,667	5.4
Antiarthritics	37,696	4.7
Drugs used in gout	2,988	0.4
Other	*780	*0.1
Respiratory tract drugs	80,758	10.0
Bronchodilators, antiasthmatics	24,992	3.1
Nasal decongestants	20,084	2.5
Antitussives, expectorants, mucolytics	18,323	2.3
Antihistamines	17,300	2.2
Other	*60	*<.1
Hormones and related agents	76,507	9.5
Adrenal corticosteroids	24,180	3.0
Blood glucose regulators	17,186	2.1
Estrogens and progestins	13,254	1.6
Agents used to treat thyroid disease	10,843	1.3
Contraceptive agents	8,516	1.1
Other	2,528	0.3
Psychopharmacologic drugs	49,588	6.2
Antidepressants	19,722	2.5
Antianxiety agents	16,209	2.0
Antipsychotic drugs	5,824	0.7
Sedatives and hypnotics	5,282	0.7
CNS stimulants, anorexiants	2,551	0.3
Skin/mucous membrane	43,912	5.5
Dermatologics	41,053	5.1
Other	2,859	0.4
Metabolic and nutrient agents	36,964	4.6
Vitamins, minerals	18,579	2.3
Replenishers and regulators of water and electrolytes	8,948	1.1
Agents used to treat hyperlipidemia	8,631	1.1
Other	*806	*0.1
Ophthalmic drugs	35,260	4.4
Ocular anti-infective and anti-inflammatory agents	14,726	1.8
Agents used to treat glaucoma	13,121	1.6
Miscellaneous ophthalmic preparations	5,521	0.7
Mydriatics and cycloplegics	1,892	0.2
Gastrointestinal agents	34,157	4.2
Agents used in disorders of upper GI tract	17,615	2.2
Miscellaneous gastrointestinal agents	9,707	1.2
Laxatives	3,737	0.5
Antidiarrheal agents	2,155	0.3
Other	*942	*0.1
Immunologic agents	28,440	3.5
Vaccines and antiserum	27,959	3.5
Other	*481	*0.1
Neurologic drugs	16,372	2.0
Hematologic agents	10,571	1.3
Other and unclassified[2]	62,737	7.8

[1]Therapeutic classification is based on the standard drug classification used in the *National Drug Code Directory*, 1985 Edition.
[2]Includes anesthetics, antidotes, radiopharmaceuticals/contrast media, oncolytics, otologics, antiparasitics, and unclassified/miscellaneous drugs.

Table 20. Number and percent distribution of drug mentions for the 20 most frequently used generic substances: United States, 1991

Generic substance	Number of drug mentions in thousands[1]	Percent distribution	Therapeutic classification[2]
All drug mentions	804,615	100.0	...
Amoxicillin	33,304	4.1	Penicillins
Acetaminophen	28,387	3.5	General analgesics
Erythromycin	16,060	2.0	Erythromycins and lincosamides
Hydrochlorothiazide	15,727	2.0	Diuretics
Aspirin	13,426	1.7	General analgesics
Ibuprofen	13,321	1.7	Antiarthritics
Phenylephrine	12,900	1.6	Nasal decongestants
Codeine	12,655	1.6	General analgesics
Phenylpropanolamine	11,734	1.5	Nasal decongestants
Albuterol	11,387	1.4	Bronchodilators, antiasthmatics
Digoxin	10,411	1.3	Cardiac glycosides
Naproxen	10,341	1.3	Antiarthritics
Guaifenesin	10,281	1.3	Antitussives, expectorants, mucolytics
Furosemide	10,257	1.3	Diuretics
Vitamin A	10,169	1.3	Vitamins, minerals
Riboflavin	9,402	1.2	Vitamins, minerals
Trimethoprim	9,343	1.2	Sulfanomides and trimethoprim
Sulfamethoxazole	9,223	1.1	Sulfanomides and trimethoprim
Ergocalciferol	9,165	1.1	Vitamins, minerals
Cefaclor	8,791	1.1	Cephalosporins

[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 *National Drug Code Directory*, 1985 Edition (6). In cases where a drug had more than one therapeutic classification, it was listed in the category for which it was most frequently prescribed.

Table 21. Number, percent distribution, and therapeutic classfication for the 20 drugs most frequently prescribed at office visits, by entry name of drug: United States, 1991

Entry name of drug[1]	Number of drug mentions in thousands	Percent distribution	Therapeutic classification[2]
All drug mentions	804,615	100.0	...
Amoxicillin	18,017	2.2	Penicillins
Amoxil	9,653	1.2	Penicillins
Lasix	9,271	1.2	Diuretics
Ceclor	8,791	1.1	Cephalosporins
Allergy relief or shots	7,737	1.0	Diagnostics, nonradioactive and radiopaque
Prednisone	7,688	1.0	Adrenal corticosteroids
Synthroid	7,601	0.9	Agents used to treat thyroid disease
Lanoxin	7,566	0.9	Cardiac glycosides
Zantac	7,127	0.9	Agents used in disorders of upper GI tract
Motrin	7,033	0.9	Antiarthritics
Naprosyn	7,021	0.9	Antiarthritics
Diptheria Tetanus Toxoids Pertussis	6,996	0.9	Vaccines and antiserums
Premarin	6,879	0.9	Estrogens and progestins
Vasotec	6,632	0.8	Antihypertensive agents
Cardizem	6,516	0.8	Antianginal agents
Tylenol	6,330	0.8	General analgesics
Seldane	5,897	0.7	Antihistamines
Poliomyelitis vaccine	5,586	0.7	Vaccines and antiserums
Proventil	5,478	0.7	Bronchodilators, antiasthmatics
Keflex	5,422	0.7	Cephalosporins

[1]The entry made by the physician on the prescription or other medical records. This may be a trade name, generic name, or desired therapeutic effect.
[2]Therapeutic classification is based on the *National Drug Code Directory*, 1985 Edition (6). In cases where a drug had more than one therapeutic classification, it was listed in the category for which it was most frequently prescribed.

Table 22. Number and percent distribution of office visits by disposition of visit: United States, 1991

Disposition[1]	Number of visits in thousands	Percent distribution
All visits	669,689	100.0
Return at specified time	423,785	63.3
Return if needed	144,693	21.6
No followup planned	63,538	9.5
Telephone followup planned	22,813	3.4
Referred to other physician	21,783	3.3
Admit to hospital	5,856	0.9
Returned to referring physician	5,594	0.8
Other	7,917	1.2

[1]Numbers may not add to totals because more than one disposition may be reported per visit.

Table 23. Number and percent distribution of office visits by duration of visit: United States, 1991

Duration	Number of visits in thousands	Percent distribution
All visits	669,689	100.0
0 minutes[1]	8,469	1.3
1–5 minutes	59,584	8.9
6–10 minutes	177,511	26.5
11–15 minutes	211,340	31.6
16–30 minutes	164,581	24.6
31 minutes and over	48,204	7.2

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

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

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 1991 through December 1991. 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). For 1991, a sample of 2,540 nonfederal, office-based physicians was selected from master files maintained by the American Medical Association and American Osteopathic Association. Of this group, 1,887 physicians were in scope, or eligible to participate in the survey. The physician response rate for the 1991 NAMCS was 72 percent. Sample physicians were asked to complete Patient Records (see figure 1) for a systematic random sample of office visits occurring during a randomly assigned 1-week reporting period. Responding physicians completed 33,795 patient records.

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

Table I. Relative standard errors for estimated number of office visits: National Ambulatory Medical Care Survey, 1991

Estimated number of office visits in thousands	Relative standard error in percent
100	72.1
200	51.1
500	32.5
1,000	23.1
2,000	16.6
5,000	11.0
10,000	8.3
20,000	6.6
50 000	5.3
100,000	4.8
200,000	4.5
500,000	4.3
600,000	4.3
700,000	4.3

NOTE: The smallest reliable estimate for visits to aggregated specialties is 588,000 visits. Estimates below this figure have a relative standard error greater than 30 percent and are deemed unreliable by NCHS standards.
Example of use of table: An aggregate estimate of 50 million visits has a relative standard error of 5.3 percent or a standard error of 2,650,000 visits (5.3 percent of 50 million).

Table II. Relative standard errors for estimated number of drug mentions: National Ambulatory Medical Care Survey, 1991

Estimated number of drug mentions in thousands	Relative standard error in percent
100	78.1
200	68.8
500	43.7
1,000	31.2
2,000	22.4
5,000	14.8
10,000	11.2
20,000	8.9
50,000	5.8
100,000	6.5
200,000	6.1
600,000	5.8
800,000	5.8

NOTE: The smallest reliable estimate for drug mentions is 1,083,000 mentions. Estimates below this figure have a relative standard error greater than 30 percent and are deemed unreliable by NCHS standards.
Example of use of table: An aggregate estimate of 50 million drug mentions has a relative standard error of 5.8 percent or a standard error of 2,900,000 mentions (5.8 percent of 50 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 for estimated numbers of office visits in 1991 are shown in table I, relative standard errors for estimated numbers of drug mentions are presented in table II, and standard errors for estimated percents of visits are displayed in table III.

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.

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

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.

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

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 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

Table III. Standard errors for percents of estimated number of office visits: National Ambulatory Medical Care Survey, 1991

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	7.2	15.7	21.6	28.8	33.0	36.0
200	5.1	11.1	15 3	20.4	23.3	25.5
500	3.2	7.0	9.7	12.9	14 8	16.1
1,000	2 3	5.0	6.8	9.1	10 4	11.4
2,000	1.6	3.5	4.8	6 4	7.4	8 1
5,000	1.0	2.2	3 1	4.1	4.7	5.1
10,000	0.7	1 6	2 2	2 9	3.3	3 6
20,000	0.5	1 1	1 5	2 0	2.3	2 6
50,000	0.3	0.7	1 0	1.3	1.5	1.6
100,000	0.2	0.5	0.7	0.9	1.0	1.1
600,000	0 1	0.2	0.3	0.4	0.4	0.5
700,000	0.1	0.2	0.3	0 3	0.4	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 3.3 percent or a relative standard error of 11.0 percent (3.3 percent divided by 30 percent).

Table IV. Coefficients appropriate for determining relative standard errors by type of estimate and physician groups: National Ambulatory Medical Care Survey, 1991

Type of estimate and physician group	Coefficient	
	A	B
Visits		
Overall totals	0.001744284	51.82697927
General and family practice	0.006617364	33.29640705
Internal medicine	0 01573396	45.10067385
Doctors of osteopathy, pediatrics, obstetrics and gynecology, general surgery, orthopedic surgery, cardiovascular diseases, psychiatry, urological surgery, dermatology, neurology, ophthalmology, otolaryngology	0.0163602	10.90230286
All other	0.03340709	29.631108
Drug mentions		
Overall totals	0.003224617	93.92631687
General and family practice, internal medicine	0.0122584	57.64543271
Doctors of osteopathy, general surgery, orthopedic surgery, cardiovascular diseases, urological surgery, dermatology, neurology, ophthalmology, otolaryngology, obstetrics and gynecology, pediatrics, psychiatry	0.02784109	11.55212504
All other	0.0483582	46.33697419

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.

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 (MD) or doctor of osteopathy (DO) 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—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 is prescribed or provided by the physician.

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.

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For answers to questions about this report or for a list of reports published in these series, contact:

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