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Data in this report from health surveys present statistics by age and other variables on national hospital discharge; selected medical device implants; fecundity and infertility; AIDS knowledge and attitudes; cohabitation, marriage, marriage dissolution, and remarriage; office visits by adolescents; and characteristics of persons by limitation of activity. The reports were originally published in 1990 and 1991.

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Advance Data

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Use of Selected Medical Device Implants in the United States, 1988

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Introduction

During the past few decades, there have been great increases in the numbers of manmade materials and devices introduced to the medical profession for implantation into humans. The search for replacement of natural body parts began in ancient times. Dental implants are traceable to early Egyptians and to Central and South American cultures (1). The first pacemaker was invented in the 1950's, the first artificial heart valve was implanted by Hufnagel in 1952, and in 1954 Charnley performed the first artificial hip replacement (2).

Despite the many advances made to date in research and development of medical device implants, it remains unclear whether there is or ever will be an implant device suitable for every clinical situation. In addition, the long-term effectiveness and safety of the most widely used implants have yet to be definitively established.

All medical device implants are complex in design, materials, and implementation procedures. The biocompatibility, durability, and efficacy of medical device implants are a continuing concern of the Food and Drug Administration (FDA), the medical profession, the device manufacturers, and, most importantly, the patients (3–12). Unfortunately, sufficient scientific documentation and literature presently are not available to assess the success of many of these medical device implants. This report presents previously unavailable baseline estimates of medical device implants in an attempt to address some of these concerns.

Included are estimates from the National Center for Health Statistic's National Health Interview Survey (NHIS) of the percent of persons in the United States with one medical device implant or more. Estimates of the total number of artificial joints, fixation devices, intraocular lens implants, pacemakers, artificial heart valves, and ear vent tubes are also presented. The technical notes to this report include definitions of these medical devices.

The report also includes estimates for several details about these devices, such as length of time the current implant has been in use, implant replacement, implant problems, and reason(s) for the original implant. All estimates are shown by the following sociodemographic and health status indicators: age, sex, race, Hispanic origin, family income, poverty status, education, geographic region, place of residence, activity limitation, and respondent-assessed health status.

Background

Under the Federal Food, Drug, and Cosmetic Act, as amended, FDA is responsible for the approval and regulation of new and existing medical devices (13). This act defines a medical device, including any component part, as any article (a) intended for use in the diagnosis of disease or other conditions; (b) intended for use in the cure, mitigation, treatment, and prevention of disease; or (c) intended to affect the structure and/or function of the

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human body. Implants are classified as medical devices under this act.

FDA's Center for Devices and Radiological Health (CDRH) currently utilizes several sources of medical device implant data to assess the use, safety, and effectiveness of specific classes of implanted medical devices. Some of the sources used by CDRH to monitor medical device implants provide a count of the number of implant procedures performed in any given year but do not provide any accompanying historical information on the patients who received the implants (14). Other sources provide information that is generated from either mandatory reports of device-related deaths and serious injuries or voluntary and anecdotal reports of device utilization experience (15). Manufacturer data on medical device implants are primarily sales data (16).

These information sources lack denominator data needed for proper clinical evaluations. Furthermore, they have limitations that restrict their use for future epidemiologic studies. Prevalence estimates generated from these combined data are based on mathematical models rather than actual population data; reliance on these sources alone may lead to biased estimates.

In 1988, the National Center for Health Statistics, in collaboration with FDA's CDRH and as part of its ongoing NHIS, collected information to produce the first nationally representative, population-based estimates of the prevalence and utilization experience associated with implanted medical devices. The Medical Device Implant (MDI) Survey had two major objectives: (a) to generate reliable estimates of the total number of medical devices implanted in the U.S. population and (b) to provide specific, detailed information on selected generic classes of devices.

The MDI Survey was designed primarily to provide supportive data for CDRH's postmarketing surveillance programs, regulatory functions, and related public health decisions relative to medical device implants. Other organizations, agencies, and individuals, however, should also benefit from data generated from the MDI Survey. For example, the medical device industry could use the estimates for marketing, research, and development of new and improved medical device implant products. Other Government agencies, such as the Centers for Disease Control, the National Institutes of Health, the Health Resources and Services Administration, and the Health Care Financing Administration, may also utilize these data for ongoing research, for developing program objectives for health personnel and health service delivery to populations or subgroups of populations, for aiding in activities concerning complications related to special devices, and for developing programs and policies for standards and quality.

Data and methods

NHIS is a continuous, cross-sectional survey representing the household population of the United States. Each year in NHIS basic health and demographic information is collected by face-to-face interviews with a sample of about 122,000 family members in about 47,000 households. These interviews are conducted by personnel employed by the U.S. Bureau of the Census.

In addition to the basic NHIS questionnaire, questions on one or more selected topics are included each year. Through the 1988 MDI Survey questionnaire, information was obtained about five generic types of medical device implants—artificial joints, fixation devices, artificial heart valves, intraocular lens implants, and pacemakers—and a residual class of all other devices. These classes of medical device implants were selected based on two criteria: The specific generic class of device had to be (a) implanted frequently enough for national projections to be made and/or (b) reported to have associated adverse effects that result in significant morbidity or mortality.

The MDI Survey questionnaire contained a common set of questions for each type of medical device implant: the number, type, and body location of each device reported; the dates of the original and most recent replacement implantation; the frequency of replacement and reasons for the most recent replacement; the length of time in use of the implant; and the types and onset of adverse effects or complications that occurred with each implant, such as healing problems, pain, infection, or mechanical failure. A limited number of other questions unique to each specific implant type were also included. A facsimile of the MDI Survey questionnaire is provided in *Current Estimates from the National Health Interview Survey: United States, 1988* (17).

Persons with a medical device implant were first identified through a series of "screener" questions administered to the NHIS adult household respondent(s). The detailed questions about medical devices asked in response to the screener replies, however, were administered directly to those adult family members with the actual medical device implant. If the person with the medical device was physically or mentally incapable of answering the questions or was temporarily away from home during the interview period, a related family member who was knowledgeable about the person's implant was interviewed. Information about medical devices reported for children was obtained from a knowledgeable adult family member, usually a parent.

The overall response rate, combining the response rates for the household questionnaire and the MDI questionnaire, was about 92 percent. In the survey, 5,592 sample persons reported having one medical device implant or more. A total of about 7,600 devices were reported.

The technical notes to this report contain a brief description of the sample design and data collection procedure employed and the terms used. The definition given for a medical device implant is similar to that used by the International Standards Organization (18). Methods are also provided for deriving

approximate sampling errors for the estimated numbers and percents presented in this report.

Tables 1 and 2 show the number and percent of persons with medical device implants according to the type and total number of implants reported. The number and percent distributions of the medical device implant population are shown by sociodemographic characteristics in table 3. Prevalence estimates by age, sex, and race for several kinds of devices not included elsewhere in this report are given in table 4. Estimates are presented in tables 5–10 of specific types of implants by length of time in use. Table 11 contains percent estimates of implants never replaced by sociodemographic characteristics. In table 12 similar figures are presented for implants with one problem or more reported. Table 13 shows estimates of devices by reason(s) for the original implant.

Estimates of all persons and the medical device implant population are shown in table 14 according to two NHIS health status measures. Table 15 contains population denominators needed to derive various estimated frequencies for the percent estimates presented in this report. The estimates presented in the tables in this report are weighted to produce representative national estimates of the U.S. civilian noninstitutionalized population.

Results

Persons with implants

In 1988, an estimated 11 million Americans (4.6 percent of the civilian noninstitutionalized population of the United States) had at least one medical device implant (tables 1 and 2). Fixation devices were reported with the greatest frequency. About 40 percent of persons with implants reported their use, followed by lens implants (23 percent) and artificial joints (12 percent).

The percent of persons with an implant, as expected, varied by age and type of device reported. For most types of medical devices, older persons were most likely to have an implant. Of persons 65 years of age and over, about 7 percent had a lens implant, 3.5 percent reported a fixation device, and about 3 percent had an artificial joint. Among those 75 years of age and over, about 1 out of 10 individuals had a lens implant. About 2 percent of children 5 years of age and under used an ear vent tube.

Although the majority of persons with medical device implants reported only one implant, over 30 percent (3.4 million persons) reported multiple implants. Few persons, however (less than 4 percent of the implant population), reported more than two implants. The likelihood of having more than one implant depended somewhat upon the type of implant obtained. For example, over one-half of children with ear vent tubes were reported to have two implants of this type and about 45 percent of persons with a lens implant reported implants in both eyes.

Separate figures are not specifically shown in this report on the proportion of persons in the population with several different kinds of medical device implants. However, estimates from this data base show that about 6 percent of persons with implants reported more than one type of implant.

In table 3, estimates of persons with specific types of medical device implants are shown by a number of sociodemographic characteristics. About one-half of all persons with ear vent tubes were 5 years of age and under (472,000 children). The risk of having an ear vent tube was 1½ times as great for males (60 percent) as it was for females (40 percent), as shown in figure 1. The vast majority of persons with ear vent tube implants were white (93 percent), had an annual family income of at least $15,000 (72 percent), and had at least a high school education (90 percent). (For children, the highest educational level for a family member was used.)

As previously mentioned, more persons reported having a fixation device than any other kind of medical device implant (about 4.4 million individuals). Men were somewhat more at risk of having a fixation device than were women (58 percent compared with 42 percent). This finding probably reflects generally higher rates of injuries found among males. About equal numbers of persons under 45 years of age and persons 45 years and over reported a fixation device.

About 2½ million individuals, almost one-half of whom were 75 years of age and over, had a lens implant. Proportionately more females than males had a lens implant, 12.9 per 1,000 women compared with 8.4 per 1,000 men. The inverse relationship found between lens implants and family income and education is at least partly because of the disproportionate number of elderly persons in the lower income and education categories.

Of the 1.3 million persons with an artificial joint, 62 percent were 65 years of age and over and 58 percent were women. Again, differentials by income and education probably reflect the larger proportion of older individuals, who are at greater risk of having an artificial joint, in the lower income and education groups.

Pacemakers were implanted in an estimated 460,000 persons. Unlike other types of medical device implants, pacemakers were used by about equal numbers of men and women. About 86 percent of those individuals were at least 65 years of age, and 94 percent were white.

In 1988, there were an estimated 253,000 artificial heart valves in use. Although it appears that artificial heart valves were implanted somewhat more frequently in men than in women, the difference between these estimates was not statistically significant. Similarly, the data appear to show that persons living in metropolitan statistical areas (MSA's) were somewhat more likely to have an implant of this type than persons living outside these areas (about 111 per 100,000 persons in MSA's compared with 88 per 100,000 individuals not in MSA's). The difference may reflect greater access to this medical procedure in urbanized areas but also may be due to sampling variation.

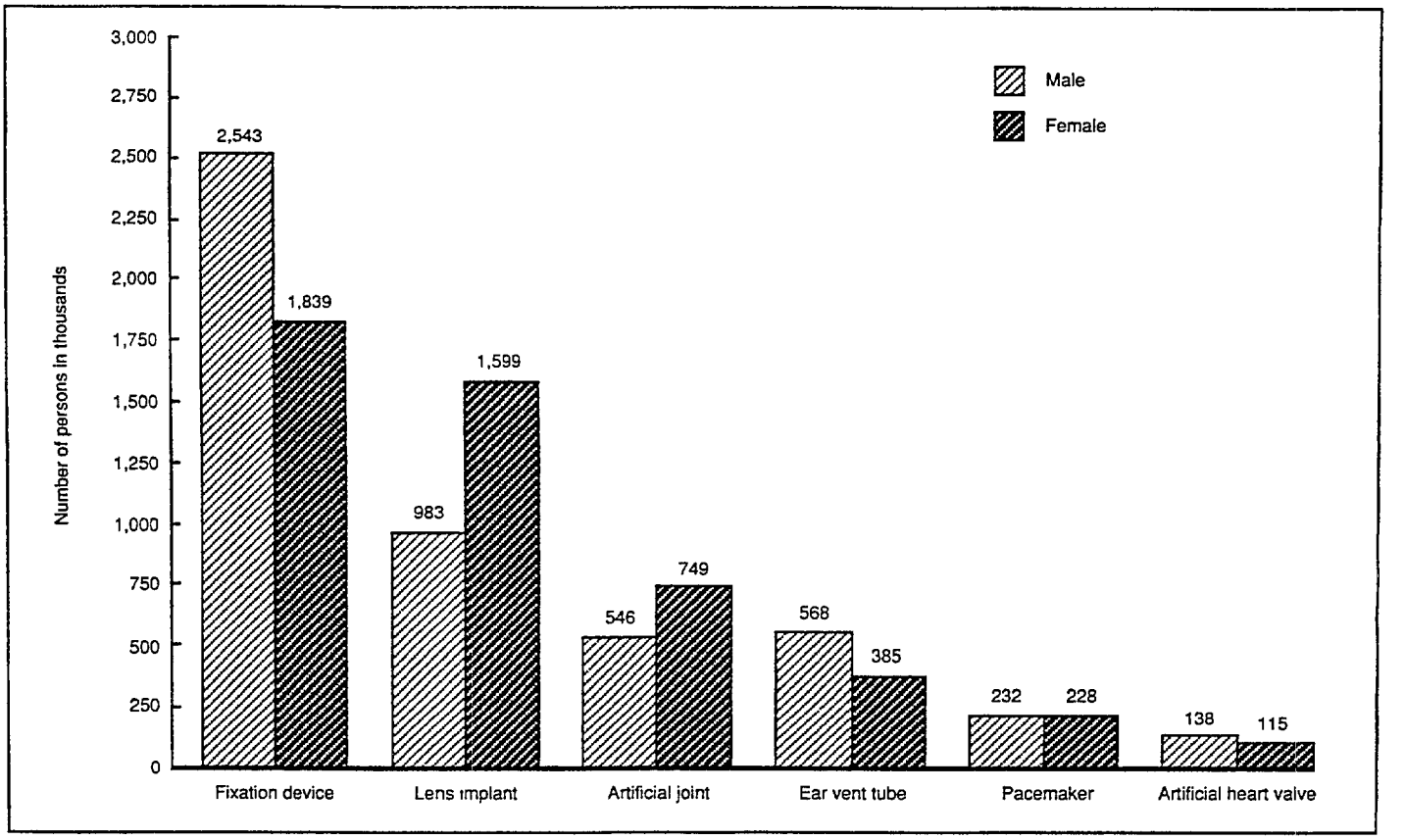

Figure 1. Number of persons with selected medical device implants, by sex: United States, 1988

Prevalence by age, sex, and race

In table 4, number and percent estimates are shown for several additional medical device implants, some by specified body site, that are not included in the other tables of this report. These data are distributed according to age, sex, and race. This table, as well as tables 5–13, differ from tables 2 and 3 in that the estimates are based on the number of implants reported rather than on the number of persons with implants.

About one-half of all reported artificial joints were hip joint replacements (816,000 implants) and another third (521,000) involved the knee. Similarly, over one-half of all fixation devices (about 2.7 million implants) were located in the lower extremities. The distributions of the estimates shown in table 4 according to age, sex, and race closely parallel the patterns found in table 3 for persons with these types of implants.

Women were the primary recipients of silicone implants, with breast implants leading the list of sites reported most frequently. Of the estimated 620,000 silicone implants, almost 90 percent were breast implants, with about three-fourths of them implanted in women ages 18–44 years. Estimated numbers of silicone breast implants from other sources suggest that the MDI Survey figure may be an underestimate of the actual number of devices of this type.

Dental implants represented less than 2 percent of all medical devices in use in 1988. Based on estimates derived from the MDI Survey questionnaire, a somewhat higher proportion of dental implants was found in males and about 60 percent of dental implants were for persons under 45 years of age.

Length of time in use

Tables 5–10 present estimates that pertain to the interval of time different types of medical devices currently in use have been implanted. About 270,000 of the 1.6 million artificial joints currently in use were obtained within the past year, and about one-half of all artificial joints were implanted 5 years ago or more (table 5). A somewhat higher proportion of artificial joints in persons 65 years and over were implanted within the past 12 months—19 percent compared with 12 percent of all joints implanted in younger individuals (0.10 level of significance).

Almost two-thirds of all reported fixation devices (62 percent) were implanted at least 5 years prior to the interview (table 6). Among the estimated 193,000 devices of this type reported among children, however, about 30 percent were implanted within the year. With fixation devices, men were somewhat more likely to have had their implant for a minimum of 5 years than were women, 66 percent compared with 57 percent.

The relatively small number of artificial heart valves and pacemakers upon which the estimates in tables 7 and 8 are based limits the type of comparisons that can be made. Of the estimated 279,000 heart valve implants currently in use, over one-half were implanted 5 years ago or more and 90 percent were in use for at least 1 year. Of the estimated 460,000

pacemakers reported, about 75,000 were implanted during the 12-month period preceding the interview.

About one-fifth of all reported intraocular lens implants, an estimated 840,000 devices, were obtained within the past year (table 9). Among white persons, about 22 percent of all lens implants were obtained during the past 12 months. In contrast, about 44 percent of lens implants obtained by black persons were implanted during the same period. This finding may reflect a different usage pattern for intraocular lens implants between these two population groups. Similar distributions, however, were found for most of the other sociodemographic characteristics shown in this table.

Unlike most other medical device implants, ear vent tubes are commonly implanted for temporary conditions and are usually removed once the problem is corrected. Consequently, percent estimates of the length of time this type of device has been in use, shown in table 10, vary considerably from similar figures for the other types of implants described in this report.

About 45 percent of all ear vent tubes, 670,000 devices, were implanted within the past year. Only 9 percent of all such devices were implanted 5 years ago or more, and the vast majority of these were for adult users. Specifically, about one out of three ear vent tubes for persons 18 years of age and over (38.5 percent) were implanted this length of time.

Estimates of the overall length of time ear vent tubes were in use were similar (or within sampling variation) for most of the other sociodemographic groups shown in table 10. Note, however, that about one-half of the ear vent tubes implanted in persons from the South were in use for less than 1 year, a somewhat higher proportion than estimated for the other geographic regions (0.10 level of significance).

Implant replacement

The MDI Survey questionnaire contained a number of items about the replacement experience associated with different types of medical device implants. For each implant reported, questions were asked to determine whether the device had ever been replaced and, if so, the total number of replacements obtained. Data on the reason(s) for replacement and the length of time implanted before replacement were also collected about the most recent replacement. Reliable estimates cannot, however, be produced for many of these items because of the relatively small number of replacements reported for some types of medical devices.

Overall, of an estimated 15 million medical device implants in use during 1988, about 8.8 percent (1.3 million) were replaced at least one time. Given the diversity of medical device implants and their unique uses, all estimates about replacements presented in this report are shown by type of implant. Specifically, table 11 shows percent estimates of implants that were never replaced by selected sociodemographic variables for the following types of medical device implants: ear vent tubes, fixation devices, artificial joints, artificial heart valves, pacemakers, and lens implants.

These data demonstrate that the vast majority of medical device implants in use have never been replaced—from 69 percent of ear vent tubes to 99 percent of lens implants. Although a greater proportion of ear vent tubes than other types of devices were replaced, these replacements are often the result of a recurrence of a specific health problem. In contrast, replacements involving other types of implants are usually because of some problem with the device itself. Most likely to have had an ear vent tube replacement were non-Hispanic white children 6–17 years of age living in the Northeast and Midwest Regions of the country. (Age and geographic region differences tested at the 0.10 level of significance.)

About 95 percent of all fixation device implants were never replaced or repaired. The risk of replacement or repair for this type of device was inversely related to the person's age, with 93 percent of implants for persons under 45 years of age not replaced, compared with 97 percent not replaced among persons 65 years of age and over. Although specific estimates of replacement reasons are not provided in this analysis, the most frequently reported reasons for replacement or repair of fixation devices reported by respondents included breakage, loosening, and defects.

Ninety-two percent of artificial joints were never replaced. The Northeast Region had a greater proportion of joint replacements than elsewhere, with 85 percent not requiring replacement versus 94 percent for the other regions of the country (0.10 level of significance).

The likelihood of replacement was somewhat greater for pacemakers than for most of the other types of medical device implants identified in this table. About 16 percent of all pacemakers (72,000 devices) were replaced at least one time. Although not specifically shown in table 11, about 60 percent of them lasted for 5 years or more before they were replaced. Risk of pacemaker replacement was about the same regardless of age, sex, or race.

Problems with implants

The MDI Survey questionnaire also included an extensive set of questions about various kinds of problems sometimes experienced with medical device implants. In addition to questions to identify the kinds of problems encountered with each device, it also contained questions to identify when the problem was first noticed (that is, less than 30 days, 30–90 days, or more than 90 days from the date of implantation).

A different set of problems was used for each type of medical device implant listed on the questionnaire. Even though the problems varied somewhat depending upon the implant, there were similarities in the kinds of problems specified for all devices, such as pain (other than discomfort generally associated with surgery and healing), healing problems, defects or failure, infection, bleeding, or blood clots. One open-ended question about other problems or complications was also included for each type of device.

Because the kinds of problems reported among the respondents varied greatly in severity, the estimates of the percent of implants with one problem or more presented in this report reflect a wide range of experience. Furthermore, as with all information obtained in NHIS, the types of problems reported were only those known and identified by the respondent. These estimates, therefore, may be higher than estimates from other data sources.

Table 12 presents percent estimates of selected types of implants with one problem or more for a number of sociodemographic characteristics. Based on respondent reports from NHIS, it appears that problems occur with a significant number of implants. Depending upon the type of implant, 20–50 percent of all devices resulted in one problem or more. Problems were reported for about one-third of all ear vent tubes, fixation devices, and artificial joints. One out of five artificial heart valves, one out of four pacemakers, and one out of two lens implants also had complications associated with them.

For most types of implants, the most frequently reported problem related to pain. With lens implants, clouding or blurred vision was most often cited. The most common problem for persons with pacemakers was an irregular heartbeat.

A somewhat larger proportion of ear vent tubes (40 percent) caused problems in very young children (under 3 years of age) than among older individuals (0.10 level of significance). With fixation devices, in contrast, proportionately fewer problems were reported for persons in the youngest age group—22 percent under 18 years of age (0.10 level of significance). Among respondents with fixation devices, problems were reported most often by those with the least family income (43 percent) and least completed years of education (38 percent).

Problems were experienced with almost one-half of all artificial joints implanted in persons ages 18–44 years, compared with about one-third of similar implants for other persons. Artificial joints were also more likely to result in problems among men (37 percent) than women (28 percent). Lens implants were somewhat more likely to cause problems for persons under 65 years of age than for older individuals (0.10 level of significance), but no percent differences in reporting problems were found by sex or race for this type of device.

Reason for original implant

Table 13 contains estimates of the original reason(s) for implantation of five kinds of medical devices: artificial joints, fixation devices, intraocular lens implants, ear vent tubes, and dental implants. The specific reason categories shown in this table appeared on the questionnaire and were used by the interviewers to record the respondent's responses to the question "Why did you need to get the (type of implant) in the first place?" This questionnaire procedure should be considered when assessing the responses. In addition, some device categories such as dental implants show a large proportion of "other" reasons for the original implant. Interviewers appear to have recorded some responses in the "other" reason category when, in fact, the reason may have been one of the specific categories listed on the questionnaire.

According to respondent reports, almost one-half of all artificial joints were implanted because of arthritis. The second leading cause of joint replacements, about one-quarter of all such implants, related to injuries. Injuries also accounted for the majority of fixation devices that were reported. About 70 percent of all fixation devices, 3.4 million implants, resulted from injuries. Injuries were also reported as the cause of about one-fourth of all dental implants.

Almost all lens implants were attributed to the presence of cataracts. Of the estimated 3.8 million lens implants in use during 1988, 94 percent were said to be caused by this condition. Infection was cited as the leading cause of ear vent tube implants, with 71 percent (about 1 million devices) the result of this reported reason.

Health status of persons with implants

Two NHIS health measures are included in this report to assess the overall health of persons with medical device implants: limitation of activity because of chronic conditions and respondent-assessed health status.

The limitation-of-activity categories are used to classify persons by their ability to perform the major activity most often associated with healthy persons their age and their ability to participate in other activities. Major activities include normal play activities for young children, attending regular school for older children, working and/or keeping house for adults, and performing daily activities associated with independent living for senior citizens. Assessed health status is determined by the respondent's opinion of each family member's overall health as reported when asked the question "Would you say _____'s health is excellent, very good, good, fair, or poor?"

Table 14 shows estimates of all persons and persons with selected types of medical device implants according to the two NHIS health measures described. Data are aggregated according to two broad age groups because measures of overall health and medical device implants are highly correlated with age.

Compared with the general population, persons with implants are more likely to be limited in their ability to perform their major and other activities and to be assessed in fair or poor health. Specifically, about 44 percent of persons with one medical device implant or more were limited, compared with about 14 percent of the U.S. population. When estimates are further compared by age, persons with implants who were under 65 years of age were almost four times as likely to report an activity limitation as other persons of similar age. Among the age group 65 years and over, the implant

population was about 1½ times as likely to be limited, 52 compared with 37 percent. Similar ratios between the estimates for these two population groups were also found for the two separate activity-limitation categories shown in table 14.

The percent of the implant population reporting an activity limitation also differed according to the type of medical device. Of persons under 65 years of age with a medical device implant, proportionately about twice as many persons with an artificial heart valve as persons with a fixation device reported an activity limitation (74 compared with 39 percent). Among older persons with medical device implants, those with lens implants were the least likely to report an activity limitation.

The likelihood of being assessed in fair or poor health was almost three times greater for persons with a medical device implant as it was for the U.S. population. An estimated 10 percent of all persons in the United States were in fair or poor health, compared with about 27 percent of the implant population. Among older persons, differences in the percent of persons in fair or poor health for these two populations were not as great (29 and 37 percent in fair or poor health, respectively). Similarly, whereas about 71 percent of all U.S. persons 65 years of age and over were reported in excellent to good health, 61 to 65 percent of persons with various types of implants specified (except for the pacemaker population) were also assessed in this way.

Accordingly, based on these two health status measures, the relative overall health of persons with implants under the age of 65 years appears to be poorer (when compared with all persons of similar age) than for the older implant population.

Conclusion

Medical device implants are expected to become one of the most promising areas of medicine in the next decade (19). Although there has been great progress in medical device implant technology, some devices are so new that no baseline data exist to evaluate them, and their effectiveness in future years is unknown. The data collected through the 1988 MDI Survey will serve as a valuable source of information for conducting clinical epidemiologic studies designed to identify risk factors associated with the implantation and replacement of medical devices in humans and for evaluating the long-term safety and effectiveness of these devices.

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Table 1. Percent of persons with 1 medical device implant or more, by selected types of implants and age: United States, 1988

Type of implant and age	Percent of persons
All persons with 1 implant or more[1]	4.6
Artificial joint	
All ages	0.5
65 years and over	2.8
Fixation device	
All ages	1.8
65 years and over	3.5
Lens implant	
All ages	1.1
65 years and over	7.3
75 years and over	11.3
Pacemaker	
All ages	0.2
65 years and over	1.4
75 years and over	2.6
Artificial heart valve	
All ages	0.1
65 years and over	0.5
Ear vent tube	
All ages	0.4
Under 3 years	2.0
3–5 years	2.3

[1]Includes all types of implants reported, such as artificial joints, fixation devices, artificial heart valves, intraocular lens implants, pacemakers, ear vent tubes, infusion pumps, dental implants, silicone implants, and artificial arteries, ligaments, and veins.

Table 2. Number and percent distribution of persons with 1 medical device implant or more by number of implants person now has of each type, according to selected types of implants: United States, 1988

Number of implants	All persons with 1 implant or more[1]	Type of implant: Artificial heart valve	Lens implant	Artificial joint	Fixation device[2]	Ear vent tube	Silicone implant
		Number of persons in thousands					
Total	11,051	253	2,582	1,294	4,382	953	381
1 implant	7,659	230	1,399	1,013	3,933	411	144
2 implants	2,982	*22	1,183	251	398	542	235
3 implants or more	409	*1	–	*30	51	–	*2
		Percent distribution					
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 implant	69.3	90.9	54.2	78.3	89.8	43.1	37.8
2 implants	27.0	*8.7	45.8	19.4	9.1	56.9	61.7
3 implants or more	3.7	*0.4	–	*2.3	1.2	–	*0.5

[1]Includes all types of implants reported, such as artificial joints, fixation devices, artificial heart valves, intraocular lens implants, pacemakers, ear vent tubes, infusion pumps, dental implants, silicone implants, and artificial arteries, ligaments, and veins.
[2]Number of fixation device implants refers to the number of body sites containing the devices, such as pins, screws, plates, wires, or rods, that were implanted. It is not the actual number of such devices implanted in a particular body part.

Table 3. Number and percent distribution of persons with selected types of medical device implants by selected sociodemographic characteristics: United States, 1988

Characteristic	Ear vent tube	Fixation device	Artificial joint	Artificial heart valve	Pacemaker	Lens implant	Ear vent tube	Fixation device	Artificial joint	Artificial heart valve	Pacemaker	Lens implant
	Number of persons in thousands						Percent distribution					
All persons[1]	953	4,382	1,294	253	460	2,582	100.0	100.0	100.0	100.0	100.0	100.0
Age												
Under 3 years	222	...	...	...	...	...	23.3	...	...	...	...	...
3–5 years	250	...	...	...	...	...	26.2	...	...	...	...	...
6–17 years	328	...	...	...	...	...	34.4	...	...	...	...	...
18 years and over	152	...	...	...	...	...	15.9	...	...	...	...	...
Under 18 years	...	173	...	...	...	...	...	3.9	...	...	...	...
18–44 years	...	1,932	...	...	...	...	...	44.1	...	...	...	...
45–64 years	...	1,264	...	...	...	...	...	28.8	...	...	...	...
65 years and over	...	1,013	...	...	...	...	...	23.1	...	...	...	...
Under 45 years	...	...	180	*33	...	...	...	...	13.9	*13.0	...	...
45–64 years	...	...	311	88	...	...	...	...	24.0	34.8	...	...
65 years and over	...	...	804	132	...	...	...	...	62.1	52.2	...	...
Under 65 years	...	...	...	...	62	502	...	...	...	...	13.5	19.4
65–74 years	...	...	...	...	113	819	...	...	...	...	24.6	31.7
75 years and over	...	...	...	...	286	1,261	...	...	...	...	62.2	48.8
Sex												
Male	568	2,543	546	138	232	983	59.6	58.0	42.2	54.5	50.4	38.1
Female	385	1,839	749	115	228	1,599	40.4	42.0	57.9	45.5	49.6	61.9
Race												
White	890	4,015	1,193	231	431	2,457	93.4	91.6	92.2	91.3	93.7	95.2
Black	48	295	82	*20	*24	102	5.0	6.7	6.3	*7.9	*5.2	4.0
Hispanic origin												
Non-Hispanic	903	4,194	1,256	252	447	2,526	94.8	95.7	97.1	99.6	97.2	97.8
Hispanic	49	187	*39	*2	*13	56	5.1	4.3	*3.0	*0.8	*2.8	2.2
Family income												
Less than $15,000	167	1,073	452	48	187	975	17.5	24.5	34.9	19.0	40.7	37.8
$15,000–$34,999	345	1,664	406	98	121	800	36.2	38.0	31.4	38.7	26.3	31.0
$35,000 or more	345	1,126	225	57	46	339	36.2	25.7	17.4	22.5	10.0	13.1
Poverty status												
In poverty	132	434	114	*15	51	208	13.9	9.9	8.8	*5.9	11.1	8.1
Not in poverty	784	3,647	1,052	199	327	2,048	82.3	83.2	81.3	78.7	71.1	79.3
Education												
Less than 12 years	96	1,080	504	71	233	1,106	10.1	24.6	38.9	28.1	50.7	42.8
12 years	370	1,733	433	117	141	793	38.8	39.5	33.5	46.2	30.7	30.7
13 years or more	485	1,541	356	61	83	667	50.9	35.2	27.5	24.1	18.0	25.8
Geographic region												
Northeast	128	683	250	47	92	466	13.4	15.6	19.3	18.6	20.0	18.0
Midwest	329	1,193	372	84	128	709	34.5	27.2	28.7	33.2	27.8	27.5
South	353	1,528	443	81	156	918	37.0	34.9	34.2	32.0	33.9	35.6
West	142	977	229	41	84	489	14.9	22.3	17.7	16.2	18.3	18.9
Place of residence												
MSA	694	3,165	909	206	350	1,836	72.8	72.2	70.2	81.4	76.1	71.1
Central city	249	1,225	354	100	159	800	26.1	28.0	27.4	39.5	34.6	31.0
Outside central city	445	1,940	555	106	191	1,036	46.7	44.3	42.9	41.9	41.5	40.1
Not MSA	259	1,217	386	48	110	746	27.2	27.8	29.8	19.0	23.9	28.9

[1] Includes all other races, unknown family income, unknown poverty status, and unknown education.

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

Table 4. Number of selected types of medical device implants and percent distribution by age, sex, and race, according to type and location of implant: United States, 1988

Type and location of implant	Number of implants in thousands	Total[1]	Age				Sex		Race	
			Under 18 years	18–44 years	45–64 years	65 years and over	Male	Female	White	Black
		Percent distribution								
All artificial joints[2]	1,625	100.0	*0.6	13.0	24.6	61.7	39.9	60.1	92.3	6.2
Hip joint	816	100.0	*0.5	6.5	26.3	66.7	37.5	62.4	93.5	5.5
Knee joint	521	100.0	–	10.9	20.5	68.5	41.8	58.2	88.1	10.0
All fixation devices[2,3]	4,890	100.0	3.9	44.3	28.4	23.4	57.2	42.8	91.7	6.6
Head	351	100.0	*4.3	67.8	22.8	*5.4	57.3	42.7	93.2	*4.8
Torso	563	100.0	*5.3	49.6	31.8	13.3	62.7	37.5	92.2	*6.9
Upper extremity	646	100.0	*3.7	55.9	25.4	15.0	70.4	29.7	91.6	*5.6
Lower extremity	2,690	100.0	3.0	39.6	27.9	29.4	52.8	47.2	91.1	7.7
Other site	622	100.0	*6.4	34.4	34.1	25.1	57.9	42.1	93.6	*3.7
All silicone implants[2]	620	100.0	*0.5	73.1	23.7	*2.9	8.2	91.8	97.6	*0.8
Breast implant	544	100.0	*0.6	73.0	24.1	*2.6	*2.0	98.0	98.5	–
Shunt or catheter	321	100.0	24.3	24.3	22.1	29.3	50.5	49.2	85.7	*12.5
Dental implant	275	100.0	*2.2	57.8	27.3	*12.7	56.4	43.6	93.8	*4.0

[1]Includes all other races.
[2]Includes all and unknown sites.
[3]Each fixation device represents a single body site, regardless of the number of pins, screws, plates, wires, rods, clips, or nails that were used to hold or fasten it in a fixed position.

Table 5. Number of artificial joints and percent distribution by length of time in use of current joint, according to selected sociodemographic characteristics: United States, 1988

Characteristic	Number of joints in thousands	Total[1]	Length of time in use		
			Less than 1 year	1–4 years	5 years or more
		Percent distribution			
All joints[2]	1,625	100.0	16.6	34.8	48.6
Age					
Under 45 years	222	100.0	*5.6	31.0	63.5
45–64 years	400	100.0	15.8	40.6	43.3
65 years and over	1,003	100.0	19.3	33.3	47.4
Sex					
Male	649	100.0	15.6	34.9	49.5
Female	976	100.0	17.3	34.8	48.0
Race					
White	1,500	100.0	16.8	34.7	48.5
Black	100	100.0	*15.0	*40.0	*46.3
Hispanic origin					
Non-Hispanic	1,566	100.0	16.7	34.8	48.5
Hispanic	58	100.0	*12.8	*34.0	*53.2
Family income					
Less than $15,000	562	100.0	13.5	35.6	50.7
$15,000–$34,999	513	100.0	19.1	32.1	48.5
$35,000 or more	281	100.0	18.5	37.0	44.5
Poverty status					
In poverty	140	100.0	*7.4	34.7	57.9
Not in poverty	1,320	100.0	17.2	35.2	47.7
Education					
Less than 12 years	645	100.0	19.5	31.2	49.2
12 years	533	100.0	16.0	36.8	47.1
13 years or more	444	100.0	13.3	37.0	49.8
Geographic region					
Northeast	308	100.0	*11.5	35.1	53.5
Midwest	467	100.0	18.2	32.9	49.0
South	556	100.0	21.1	33.6	45.3
West	293	100.0	*10.9	40.1	48.6
Place of residence					
MSA	1,150	100.0	14.1	34.1	51.8
Central city	421	100.0	11.9	33.1	54.8
Outside central city	730	100.0	15.2	34.7	50.2
Not MSA	474	100.0	22.8	36.5	40.7

[1]Excludes artificial joints with unknown length of time in use.
[2]Includes all other races, unknown family income, unknown poverty status, and unknown education.

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

Table 6. Number of fixation devices and percent distribution by length of time in use of current device, according to selected sociodemographic characteristics: United States, 1988

Characteristic	Number of devices in thousands	Total[1]	Length of time in use		
			Less than 1 year	1–4 years	5 years or more
		Percent distribution			
All devices[2]	4,890	100.0	12.9	24.9	62.2
Age					
Under 18 years	193	100.0	30.8	43.4	25.3
18–44 years	2,168	100.0	12.6	23.6	63.8
45–64 years	1,388	100.0	10.3	21.8	67.8
65 years and over	1,142	100.0	13.4	27.9	58.7
Sex					
Male	2,799	100.0	11.3	22.7	66.0
Female	2,092	100.0	15.0	27.8	57.2
Race					
White	4,486	100.0	13.1	25.0	62.0
Black	322	100.0	*10.8	21.2	68.1
Hispanic origin					
Non-Hispanic	4,683	100.0	12.9	25.3	61.8
Hispanic	208	100.0	*13.2	*16.3	70.5
Family income					
Less than $15,000	1,220	100.0	12.1	25.7	62.3
$15,000–$34,999	1,870	100.0	12.6	23.8	63.5
$35,000 or more	1,208	100.0	10.8	27.1	62.1
Poverty status					
In poverty	487	100.0	13.6	28.9	57.5
Not in poverty	4,057	100.0	12.2	24.7	63.0
Education					
Less than 12 years	1,206	100.0	14.7	23.9	61.4
12 years	1,942	100.0	13.6	25.3	61.1
13 years or more	1,710	100.0	10.9	25.4	63.7
Geographic region					
Northeast	777	100.0	18.3	26.2	55.5
Midwest	1,340	100.0	10.5	27.2	62.3
South	1,680	100.0	13.7	22.1	64.3
West	1,093	100.0	10.8	25.7	63.5
Place of residence					
MSA	3,534	100.0	13.0	25.3	61.7
Central city	1,387	100.0	12.8	25.9	61.4
Outside central city	2,148	100.0	13.2	24.9	61.9
Not MSA	1,356	100.0	12.7	24.0	63.4

[1]Excludes fixation devices with unknown length of time in use.
[2]Includes all other races, unknown family income, unknown poverty status, and unknown education.

NOTES: Number of fixation devices refers to the number of body sites containing the devices, such as pins, screws, plates, wires, or rods, that were implanted. It is not the actual number of such devices implanted in a particular body part. Poverty status is determined in the National Health Interview Survey by family size, number of children, and family income using 1987 poverty levels defined by the U.S. Bureau of the Census. MSA is metropolitan statistical area.

Table 7. Number of artificial heart valves and percent distribution by length of time in use of current valve, according to selected sociodemographic characteristics: United States, 1988

Characteristic	Number of valves in thousands	Total[1]	Length of time in use		
			Less than 1 year	1–4 years	5 years or more
		Percent distribution			
All valves[2]	279	100.0	*10.3	36.0	53.6
Age					
Under 45 years	41	100.0	*18.9	*54.1	*27.0
45–64 years	99	100.0	*4.0	*39.4	56.6
65 years and over	139	100.0	*12.8	28.0	59.2
Sex					
Male	146	100.0	*5.9	39.7	55.1
Female	133	100.0	*16.0	*32.8	52.0
Race					
White	249	100.0	*9.1	35.5	55.4
Black	*28	100.0	*25.0	*35.7	*42.9
Hispanic origin					
Non-Hispanic	277	100.0	*10.4	35.8	53.8
Hispanic	*2	100.0	–	*100.0	–
Family income					
Less than $15,000	55	100.0	*11.8	*33.3	*56.9
$15,000–$34,999	102	100.0	*7.0	*37.0	56.0
$35,000 or more	66	100.0	–	*40.0	*60.0
Poverty status					
In poverty	*21	100.0	*10.5	*26.3	*63.2
Not in poverty	215	100.0	*5.9	36.9	56.7
Education					
Less than 12 years	86	100.0	*12.2	*35.4	52.4
12 years	123	100.0	*12.0	*29.1	59.8
13 years or more	67	100.0	*3.4	*50.0	*46.6
Geographic region					
Northeast	49	100.0	*10.6	*25.5	*63.8
Midwest	96	100.0	*6.5	*38.0	55.4
South	87	100.0	*16.0	*42.0	*42.0
West	48	100.0	*9.5	*33.3	*57.1
Place of residence					
MSA	228	100.0	*10.4	38.2	51.4
Central city	109	100.0	*10.1	*40.4	48.5
Outside central city	119	100.0	*9.7	36.3	54.0
Not MSA	51	100.0	*12.2	*26.5	*63.3

[1]Excludes artificial heart valves with unknown length of time in use.
[2]Includes all other races, unknown family income, unknown poverty status, and unknown education.

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

Table 8. Number of pacemakers and percent distribution by length of time in use of current pacemaker, according to selected sociodemographic characteristics: United States, 1988

Characteristic	Number of pacemakers in thousands	Total[1]	Length of time in use		
			Less than 1 year	1–4 years	5 years or more
		Percent distribution			
All pacemakers[2]	460	100.0	16.3	45.9	38.0
Age					
Under 65 years	62	100.0	*14.5	*41.9	*41.9
65–74 years	113	100.0	*20.2	49.5	*30.3
75 years and over	286	100.0	14.9	44.9	39.9
Sex					
Male	232	100.0	18.7	48.9	32.4
Female	228	100.0	*13.5	42.8	43.7
Race					
White	431	100.0	15.6	46.2	38.5
Black	*24	100.0	*34.8	*34.8	*30.4
Hispanic origin					
Non-Hispanic	447	100.0	16.9	45.0	38.3
Hispanic	*13	100.0	–	*71.2	*28.8
Family income					
Less than $15,000	187	100.0	*18.0	47.5	34.4
$15,000–$34,999	121	100.0	*12.7	42.4	44.1
$35,000 or more	46	100.0	*17.4	*47.8	*34.8
Poverty status					
In poverty	51	100.0	*29.4	*62.7	*7.8
Not in poverty	327	100.0	13.2	43.8	42.9
Education					
Less than 12 years	233	100.0	*11.4	44.3	43.9
12 years	141	100.0	*20.4	46.7	33.6
13 years or more	83	100.0	*22.8	*48.1	*30.4
Geographic region					
Northeast	92	100.0	*10.3	*46.0	*43.7
Midwest	128	100.0	*21.4	43.7	34.9
South	156	100.0	*16.3	47.1	36.6
West	84	100.0	*14.8	*46.9	*38.3
Place of residence					
MSA	350	100.0	14.0	47.4	38.3
Central city	159	100.0	*13.8	48.4	37.7
Outside central city	191	100.0	*14.2	46.4	39.3
Not MSA	110	100.0	*22.9	40.0	*36.2

[1]Excludes pacemakers with unknown length of time in use.
[2]Includes all other races, unknown family income, unknown poverty status, and unknown education.

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

Table 9. Number of intraocular lens implants and percent distribution by length of time in use of current implant, according to selected sociodemographic characteristics: United States, 1988

Characteristic	Number of lens implants in thousands	Total[1]	Length of time in use		
			Less than 1 year	1–4 years	5 years or more
		Percent distribution			
All lens implants[2]	3,765	100.0	22.3	54.8	22.9
Age					
Under 65 years	703	100.0	25.6	54.2	20.0
65–74 years	1,193	100.0	24.4	50.1	25.5
75 years and over	1,869	100.0	19.6	58.0	22.3
Sex					
Male	1,415	100.0	21.6	53.8	24.6
Female	2,349	100.0	22.7	55.5	21.8
Race					
White	3,599	100.0	21.6	55.1	23.3
Black	131	100.0	44.0	42.4	*12.8
Hispanic origin					
Non-Hispanic	3,675	100.0	22.4	54.9	22.7
Hispanic	90	100.0	*18.5	51.9	*29.6
Family income					
Less than $15,000	1,432	100.0	20.0	56.6	23.4
$15,000–$34,999	1,157	100.0	24.7	53.2	22.1
$35,000 or more	486	100.0	22.9	57.0	20.0
Poverty status					
In poverty	302	100.0	20.2	54.6	25.5
Not in poverty	2,987	100.0	22.6	55.2	22.2
Education					
Less than 12 years	1,621	100.0	21.4	55.9	22.8
12 years	1,164	100.0	21.1	53.1	25.8
13 years or more	957	100.0	24.6	55.6	19.8
Geographic region					
Northeast	646	100.0	22.4	57.9	19.5
Midwest	1,049	100.0	22.5	51.2	26.3
South	1,334	100.0	24.4	54.8	20.8
West	736	100.0	18.0	57.2	24.6
Place of residence					
MSA	2,687	100.0	21.8	56.4	21.8
Central city	1,185	100.0	21.1	55.1	23.8
Outside central city	1,501	100.0	22.3	57.4	20.3
Not MSA	1,078	100.0	23.5	51.0	25.5

[1]Excludes lens implants with unknown length of time in use.
[2]Includes all other races, unknown family income, unknown poverty status, and unknown education.

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

Table 10. Number of ear vent tubes and percent distribution by length of time in use of current implant, according to selected sociodemographic characteristics: United States, 1988

Characteristic	Number of ear vent tubes in thousands	Total[1]	Length of time in use		
			Less than 1 year	1–4 years	5 years or more
		Percent distribution			
All ear vent tubes[2]	1,494	100.0	44.9	46.0	9.0
Age					
Under 3 years	385	100.0	65.9	33.8	–
3–5 years	404	100.0	45.6	54.4	–
6–17 years	517	100.0	35.6	53.1	11.4
18 years and over	188	100.0	28.0	33.0	38.5
Sex					
Male	896	100.0	47.0	45.2	7.8
Female	599	100.0	42.0	47.3	10.9
Race					
White	1,400	100.0	45.0	46.7	8.3
Black	69	100.0	*47.5	*34.4	*18.0
Hispanic origin					
Non-Hispanic	1,413	100.0	45.2	46.3	8.5
Hispanic	82	100.0	*40.0	*41.3	*17.5
Family income					
Less than $15,000	267	100.0	44.2	42.1	*13.6
$15,000–$34,999	528	100.0	44.2	46.1	9.8
$35,000 or more	556	100.0	45.3	50.6	*4.3
Poverty status					
In poverty	211	100.0	41.3	41.8	*17.3
Not in poverty	1,231	100.0	45.5	46.9	7.5
Education					
Less than 12 years	151	100.0	35.2	50.0	*14.8
12 years	566	100.0	44.3	45.3	10.6
13 years or more	775	100.0	47.2	45.8	6.9
Geographic region					
Northeast	196	100.0	34.1	56.1	*9.8
Midwest	505	100.0	44.7	43.5	11.8
South	568	100.0	51.4	42.8	*6.0
West	226	100.0	37.9	51.7	*10.3
Place of residence					
MSA	1,087	100.0	44.0	47.0	8.9
Central city	387	100.0	45.8	43.0	*11.2
Outside central city	700	100.0	42.9	49.4	7.7
Not MSA	408	100.0	47.3	43.5	*9.5

[1]Excludes ear vent tube implants with unknown length of time in use.
[2]Includes all other races, unknown family income, unknown poverty status, and unknown education.

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

Table 11. Percent of selected types of medical device implants never replaced, by selected sociodemographic characteristics: United States, 1988

Characteristic	Ear vent tube	Fixation device	Artificial joint	Artificial heart valve	Pacemaker	Lens implant
	Percent of implants never replaced					
All implants[1]	68.7	94.6	92.2	95.3	84.3	99.1
Age						
Under 3 years	90.6	...	...	...	...	...
3–5 years	67.7	...	...	...	...	...
6–17 years	54.7	...	...	...	...	...
18 years and over	64.7	...	...	...	...	...
Under 18 years	...	90.6	*100.0	...	...	...
18–44 years	...	93.3	93.1	...	...	...
45–64 years	...	94.9	90.9	...	...	...
65 years and over	...	97.2	92.5	...	...	...
Under 45 years	...	...	...	*92.7	...	...
45–64 years	...	...	...	94.9	...	...
65 years and over	...	...	...	96.4	...	...
Under 65 years	...	...	...	...	87.1	99.1
65–74 years	...	...	...	...	83.2	99.3
75 years and over	...	...	...	...	83.9	98.8
Sex						
Male	66.2	93.7	90.6	97.9	84.5	98.7
Female	72.6	95.7	93.3	92.5	84.6	99.3
Race						
White	67.3	94.6	92.8	95.1	84.7	99.2
Black	87.7	95.6	84.7	*96.4	*83.3	95.9
Hispanic origin						
Non-Hispanic	67.3	94.5	92.3	95.3	84.3	99.0
Hispanic	92.4	95.9	88.5	*100.0	*92.3	100.0
Family income						
Less than $15,000	65.3	94.9	91.0	94.3	80.2	98.5
$15,000–$34,999	72.0	93.6	93.5	97.1	87.6	99.8
$35,000 or more	67.6	96.0	92.3	98.5	89.1	99.0
Poverty status						
In poverty	67.3	93.9	91.4	*89.5	*76.5	98.6
Not in poverty	68.7	94.8	92.1	95.8	84.1	99.1
Education						
Less than 12 years	74.5	95.3	91.9	96.5	85.4	99.0
12 years	67.6	95.2	92.6	94.3	89.4	99.0
13 years or more	68.3	93.4	92.3	96.9	73.5	99.3
Geographic region						
Northeast	60.0	94.1	85.4	91.5	76.1	99.2
Midwest	64.3	94.7	95.2	92.7	86.7	98.4
South	73.6	94.1	93.9	96.6	87.2	99.6
West	73.5	95.6	91.1	100.0	84.5	98.6
Place of residence						
MSA	68.4	94.4	91.8	95.6	84.0	98.9
Central city	73.6	95.2	90.3	93.5	82.4	99.0
Outside central city	65.4	93.9	92.5	97.5	85.3	98.9
Not MSA	69.5	95.0	93.2	94.1	86.4	99.4

[1]Includes all other races, unknown family income, unknown poverty status, and unknown education.

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

Table 12. Percent of selected types of medical device implants with 1 problem or more, by selected sociodemographic characteristics: United States, 1988

Characteristic	Type of implant[1]				
	Ear vent tube	Fixation device	Artificial joint	Lens implant	Pacemaker
	Percent of implants with 1 problem or more				
All implants[2]	31.4	33.2	31.6	49.3	26.9
Age					
Under 3 years	40.2	...	...	...	...
3–5 years	29.6	...	...	...	...
6–17 years	25.9	...	...	...	...
18 years and over	32.6	...	...	...	...
Under 18 years	...	22.3	*33.3	...	...
18–44 years	...	36.1	46.6	...	...
45–64 years	...	33.7	32.4	...	...
65 years and over	...	29.1	28.2	...	...
Under 65 years	...	...	...	56.0	*20.7
65–74 years	...	...	...	46.1	*24.3
75 years and over	...	...	...	48.8	29.7
Sex					
Male	31.9	32.9	37.4	48.8	21.6
Female	30.5	33.7	27.7	49.7	32.5
Race					
White	31.2	32.9	30.6	49.4	26.4
Black	*43.1	34.9	*40.8	48.1	*19.0
Hispanic origin					
Non-Hispanic	31.6	33.2	31.6	49.3	27.3
Hispanic	*28.0	33.7	*32.7	*52.8	*15.4
Family income					
Less than $15,000	33.6	42.7	32.9	51.1	30.3
$15,000–$34,999	31.7	31.6	26.1	45.3	*21.9
$35,000 or more	28.7	27.1	36.8	50.6	*28.2
Poverty status					
In poverty	34.1	47.6	43.9	51.7	*22.0
Not in poverty	30.0	31.8	30.2	48.3	27.4
Education					
Less than 12 years	38.9	37.9	31.0	54.3	25.7
12 years	27.4	32.3	32.4	44.5	33.1
13 years or more	32.8	31.3	31.7	46.6	*21.1
Geographic region					
Northeast	29.5	32.1	29.1	52.4	*25.3
Midwest	35.1	33.1	28.3	45.5	*24.8
South	28.6	34.5	35.5	46.6	*27.1
West	32.1	32.3	32.4	57.1	*30.0
Place of residence					
MSA	29.5	32.8	30.4	48.4	28.0
Central city	27.9	34.6	31.4	47.7	27.0
Outside central city	30.1	31.7	29.9	49.0	29.1
Not MSA	36.6	34.3	34.5	51.5	*24.0

[1]Detailed estimates for artificial heart valves are not shown because data are statistically unreliable as a result of small cell size. The percent of all artificial heart valve implants with 1 problem or more is 19.5.

[2]Excludes implants with unknown problems experienced. Includes all other races, unknown family income, unknown poverty status, and unknown education.

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

Table 13. Number and percent distribution of selected types of medical device implants by reason for original implant: United States, 1988

Type of implant and reason for original implant	*Number of implants in thousands*	*Percent distribution of implants*
Artificial joint		
Total implants[1]	1,625	100.0
Arthritis[2]	778	47.9
Osteoarthritis	246	15.1
Rheumatoid arthritis	190	11.7
Injury	460	28.3
Pain	135	8.3
Other	373	23.0
Fixation device		
Total implants[1]	4,890	100.0
Injury	3,362	68.8
Deformity	275	5.6
Cancer	*39	*0.8
Infection	*21	*0.4
Other	1,140	23.3
Intraocular lens implant		
Total implants[1]	3,765	100.0
Cataract	3,552	94.3
Injury	*26	*0.7
Other	166	4.4
Ear vent tube		
Total implants[1]	1,494	100.0
Infection	1,057	70.7
Injury	*4	*0.3
Other	474	31.7
Dental implant		
Total implants[1]	275	100.0
Injury	67	24.4
Infection	*15	*5.5
Other	194	70.5

[1]Includes unknown reason.
[2]Includes all arthritis, specified and unspecified.

NOTE: Percents may total more than 100.0 because some devices are implanted for multiple reasons.

Table 14. Total number of persons and number of persons with 1 medical device implant or more, and percent distribution by activity limitation and respondent-assessed health status, according to type of implant and age: United States, 1988

Age, activity limitation, and respondent-assessed health status	All persons	Persons with 1 implant or more[1]	Type of implant				
			Fixation device	Lens implant	Artificial joint	Pacemaker	Artificial heart valve
			Number in thousands				
All ages	240,890	11,051	4,382	2,582	1,294	460	253
Under 65 years	212,207	6,617	3,369	502	490	62	121
65 years and over	28,683	4,434	1,013	2,080	804	398	132
All ages			Percent distribution				
Activity limitation:							
All persons	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No limitation	86.3	56.4	56.5	56.3	39.6	38.0	34.0
Limitation	13.7	43.6	43.4	43.7	60.5	62.0	66.0
Major activity	9.4	30.2	31.7	25.6	42.0	40.0	47.8
Other activities	4.3	13.3	11.7	18.1	18.5	21.7	18.2
Respondent-assessed health status:							
All persons[2]	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Excellent to good	90.0	72.8	77.0	66.5	63.0	49.2	59.7
Fair or poor	10.0	27.2	23.0	33.6	37.0	50.8	40.3
Under 65 years							
Activity limitation:							
All persons	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No limitation	89.4	61.8	61.2	58.6	38.8	*35.5	*25.6
Limitation	10.6	38.2	38.8	41.2	61.4	*64.5	74.4
Major activity	7.7	29.2	29.0	33.5	49.4	*50.0	61.2
Other activities	2.9	9.0	9.8	*7.8	12.0	*14.5	*13.2
Respondent-assessed health status:							
All persons[2]	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Excellent to good	92.7	79.6	81.0	73.5	66.2	*51.6	58.7
Fair or poor	7.3	20.4	19.0	26.7	34.0	*48.4	41.3
65 years and over							
Activity limitation:							
All persons	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No limitation	63.0	48.4	41.1	55.8	40.0	38.4	40.9
Limitation	37.0	51.6	58.9	44.2	60.0	61.6	59.1
Major activity	22.6	31.9	40.7	23.6	37.6	38.7	35.6
Other activities	14.4	19.7	18.3	20.6	22.4	22.9	*23.5
Respondent-assessed health status:							
All persons[2]	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Excellent to good	70.6	62.7	63.7	64.8	61.2	48.9	61.4
Fair or poor	29.4	37.3	36.3	35.2	38.9	51.1	39.4

[1] Includes all types of implants reported, such as artificial joints, fixation devices, artificial heart valves, intraocular lens implants, pacemakers, ear vent tubes, infusion pumps, dental implants, silicone implants, and artificial arteries, ligaments, and veins.
[2] Excludes persons with unknown respondent-assessed health status.

Table 15. Number of persons by selected sociodemographic characteristics: United States, 1988

Characteristic	Number of persons in thousands
Total[1]	240,890
Age	
Under 18 years	63,569
Under 3 years	11,122
3–5 years	10,826
6–17 years	41,621
18–44 years	103,066
45–64 years	45,573
65 years and over	28,683
65–74 years	17,565
75 years and over	11,118
18 years and over	177,320
Under 45 years	166,635
Under 65 years	212,207
Sex	
Male	116,657
Female	124,232
Race	
White	203,256
Black	29,382
Hispanic origin	
Non-Hispanic	221,386
Hispanic	19,504
Family income	
Less than $15,000	47,514
$15,000–$34,999	82,664
$35,000 or more	74,869
Poverty status	
In poverty	26,017
Not in poverty	195,466
Education[2]	
Less than 12 years	39,502
12 years	68,301
13 years or more	67,872
Geographic region	
Northeast	49,271
Midwest	59,543
South	82,278
West	49,797
Place of residence	
MSA	186,222
Central city	74,860
Outside central city	111,362
Not MSA	54,668

[1]Includes all other races, unknown family income, unknown poverty status, and unknown education.
[2]Persons 18 years and over.

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

Technical notes

Source and description of data

This report contains data from the 1988 National Health Interview Survey (NHIS). NHIS is a continuing cross-sectional nationwide survey of the civilian noninstitutionalized population. Each week a probability sample of households in the United States is interviewed by personnel of the U.S. Bureau of the Census. Interviewers obtain information about the health and other characteristics of each household member included in the NHIS sample.

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

The total interviewed sample for 1988 for the basic health questionnaire consisted of 47,485 households containing 122,310 individuals. The total response rate for the basic questionnaire was 95 percent, or 5-percent nonresponse. Although all households in the NHIS sample were eligible to receive the Medical Device Implant (MDI) Survey questionnaire, an additional 3 percent of interviewed households did not complete the MDI Survey questionnaire.

The MDI Survey family-style questions were administered to the NHIS household respondent, and, in most cases, the person with the medical device responded to the detailed questions about each reported implant. The family-style questions on medical device implants were used to identify whether any family members had any of the following implants: artificial joints; surgically inserted pins, screws, nails, wires, rods, or plates; artificial heart valves; intraocular lenses; silicone implants; pacemakers; ear vent tubes; infusion pumps; brain or spinal column shunts; any other type of surgically inserted shunt or catheter; or any other kind of surgically inserted medical device, such as artificial arteries and veins, ligaments, and dental implants.

For each device reported, additional information was obtained, including (but not limited to) date of implantation, reason for implant, status as an original or replacement implant, number of replacements, and any problems or complications experienced with the current implant, such as infection or pain.

The MDI Survey questionnaire underwent a number of major modifications during its development. One of the changes was based on findings from the pretest of the proposed 1988 NHIS questionnaire, conducted in Seattle, Washington, in June 1987. Pretest results showed that a disproportionately large number of fixation devices were being reported for the family-style question about "other" types of medical devices. Although a specific set of questions had not been planned for this type of medical device, following the pretest a separate section for fixation devices was developed.

These and subsequent changes affected the date that the MDI Survey questionnaire was implemented by NHIS. Only the initial MDI Survey family-style questions were finalized in time for their use at the beginning of calendar year 1988. As a result, detailed information about specific medical devices reported in NHIS in January and February was subsequently obtained by followup telephone interview. The complete MDI Survey questionnaire was implemented in March 1988 and remained a part of NHIS throughout the year.

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 NHIS has the effect of making the sampling errors larger than they would be had a simple random sample of equal size been used.

Approximate standard errors of the estimated percents in table 1 of this report 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.

Approximate standard errors of the estimated numbers (x) in tables 2, 3, 14, and 15 (except for age, sex, and race for all persons when the standard error is assumed to be 0.0) may be calculated using the formula

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

Approximate standard errors of the estimated percents in tables 2, 3, and 14 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 of the estimated numbers (X) in tables 4–10 and 13 may be calculated by using the formula

$$SE(X) = X\sqrt{0.0000307 + \frac{3{,}640}{x}}$$

where X is the number of implants and x is the number of persons with the specific type of implant, as found in table 3 (not the actual number of implants, as shown in these tables). For example, it is estimated that 1,625,000 artificial joints have been implanted (table 5). Using this formula, the standard error for the estimated number is

$$1{,}625{,}000\sqrt{0.0000307 + \frac{3{,}640}{1{,}294{,}000}} = 87{,}000$$

(NOTE: The number of implants may be used as the population denominator (x) for those few types of implants for which the estimated number of persons with a device is not provided in this report—for example, dental implants.)

Approximate standard errors of the estimated percents (P) of implants in tables 4–13 may be calculated by 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, which in this case is the total number of persons with that particular type of implant (as found in table 3). For example, it is estimated that 48.6 percent of all artificial joints have been implanted for 5 years or more (table 5). Using this formula, the standard error for the estimated percent is

$$\sqrt{\frac{3{,}640(48.6)(100-48.6)}{1{,}294{,}000}} = 2.65$$

(NOTE: The number of implants may be used as the population denominator (y) for those few types of implants for which the estimated number of persons with a device is not provided in this report—for example, dental implants.)

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.

Definitions of terms

Medical device implant—Defined for the MDI Survey questionnaire as a device that is surgically implanted in the body by a physician or other health care provider to replace a body part or function and cannot be removed by the recipient. Excluded were removable limb protheses; silicone injections; organ transplants, such as corneal transplants; natural bone, artery, and vein transplants; intrauterine devices (IUD's); and regular dentures, bridges, fillings, sealants, and other forms of dental work.

Artificial joint—A mechanical substitute for a diseased or painful joint in the body.

Fixation device—A medical device that is surgically placed in the body to hold or fasten a body part in a fixed position, such as screws, pins, nails, plates, clips, or wires.

Intraocular lens implant—An artificial lens that is surgically implanted in the eye.

Pacemaker—A medical device that is implanted in the body to regulate heart rhythm.

Artificial heart valve—A substitute valve that controls the flow of blood through the heart and/or aorta.

Ear vent tube—A tube that is placed in the ear drum (tympanic membrane) to create a passageway between the middle and outer ear.

Silicone implant—An implant of material used to enhance form or function of selected body sites; for example, breast or chin enlargements. Silicone injections are not included.

Catheter or shunt—A flexible tube implanted in the body for the introduction or withdrawal of fluids.

Dental implant—An artificial device or material used to promote bone regeneration around the teeth and jaws or to support a dental prosthesis. Root canals, sealants, fillings, crowns, and bridges are not considered dental implants.

Other types of medical devices—Include artificial blood vessels (manmade tubes or ducts used to carry blood in the body), artificial ligaments (substitutes used to connect bones and strengthen joints), artificial urinary sphincters (substitutes that aid the control of urine flow), and infusion pumps (mechanical pumps, fully or partially implanted, that introduce chemotherapeutic fluids into the body).

Related documentation

More detailed discussion of the sample design, 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, nos. 160 and 173; Series 1, no. 18; and Series 2, no. 110 (20, 17, 21, and 22, respectively).

A public use data file based on the 1988 MDI Survey questionnaire was released in April 1990. Information regarding the purchase of the public use tape may be obtained by writing the Division of Health Interview Statistics, National Center for Health Statistics, 6525 Belcrest Road, Hyattsville, Maryland 20782.

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Advance Data

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

Fecundity and Infertility in the United States, 1965–88

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

Introduction

In 1988, about 4.9 million women 15–44 years of age had an impaired ability to have children. These women comprised 8.4 percent, or about 1 in 12, of the 57.9 million women 15–44 years of age. Of the 4.9 million, about 2.2 million had no births; the other 2.7 million had one birth or more before their fecundity impairment. The percent of women with impaired fecundity in 1982 was the same—8.4 percent, or 1 in 12. However, the number of childless women 25–44 years of age with impaired fecundity has increased because of delayed childbearing and the entry of the Baby Boom cohorts into the age range 25–44 years.

Physicians providing infertility services define infertility as the inability to conceive after 12 months or more of intercourse without contraception. Using this definition, infertility can be measured for married couples since 1965. About 2.3 million married couples with wives ages 15–44 years were infertile in 1988—7.9 percent, or slightly less than 1 in 12. These figures were not significantly different from the findings in 1982; however, there appears to have been an increase in the number of women who used infertility services in the 12 months before the survey.

In some popular descriptions of infertility, it has been suggested that there are 9 or 10 million infertile couples, that 1 in 6 couples is infertile, that infertility is increasing rapidly, or that there is an "epidemic" of infertility in the United States. (See, for example, (1–4).) The findings of this report indicate that these perceptions are inaccurate, but the increased use of infertility services, the increased number of childless older women with impaired fecundity, and other factors (cited later) may help to account for the perception that infertility is increasing or that it is more common than it actually is.

These are some of the highlights of this report, which presents the first national estimates of trends in the fecundity status of all women of reproductive age in the United States, regardless of marital status, and trends in the use of infertility services. This report also updates earlier publications describing trends in fecundity and infertility among married couples (5–7). The data for 1976, 1982, and 1988 are from Cycles II, III, and IV of the National Survey of Family Growth (NSFG), conducted by the National Center for Health Statistics. The data for 1965 are from the National Fertility Study, conducted by Princeton University.

The 1988 NSFG was based on personal interviews with a national sample of 8,450 women 15–44 years of age in the civilian noninstitutionalized population of the United States. From January through August 1988, interviews were conducted with 8,450 women—2,771 black, 5,354 white, and 325 of other races. The interview focused on the respondent's fecundity (or physical ability to have children); past and current use of contraception; dates and outcomes of pregnancies, if any; marriages; use of family planning and infertility services; and a wide range of social, economic, and demographic characteristics.

The concept of fecundity status

The respondent's physical ability to have children was measured by her answers to a series of questions, not by a medical examination. The purpose of this series of questions

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was to classify women or couples into three major groups: surgically sterile (unable to have a baby because of surgery); having impaired fecundity (sterile for reasons other than surgery, or difficult or dangerous to have a baby); and fecund (no known physical problem). The questions included the following:

- Have you (or your husband . . .) had an operation . . . that would prevent you from conceiving a(nother) baby . . .?
- Some women find it *physically* impossible to have (more) children. As far as you know, is it physically *possible* or *impossible* for you . . . to conceive a(nother) baby, that is, to get pregnant (again)?
- What about your husband . . .? Is it physically possible or impossible for him to father a(nother) child?
- Some people are able to have a baby, but have difficulty getting pregnant or holding onto the baby. As far as you know, is there any problem or difficulty for you (and your husband . . .) to conceive or deliver a(nother) baby?
- Does your husband have any difficulty fathering a child?

In these questions, the words "as far as you know" are important. Many women who have never tried to become pregnant do not know whether they have a fecundity impairment. Some women who reported that they did not know of any physical problems nonetheless had long periods of time in which they did not conceive although they did not use any contraception. A few women may be classified as having fecundity problems because of underreporting of either contraceptive use or pregnancies, but there is no evidence that this underreporting has a significant effect on any of the estimates presented here. (See (6,7).) Finally, although some women with fecundity problems subsequently may have a child, their reduced capacity for childbearing may have an impact on the Nation's birth rate and on the estimates of couples needing medical services to improve their chances of childbearing.

The category "surgically sterile" is divided into two parts: "contraceptively sterile" and "noncontraceptively sterile." The category "noncontraceptively sterile" includes women who had surgery to correct medical problems with their reproductive organs, such as hysterectomies for fibroid tumors or endometriosis. The category "contraceptively sterile" includes women with all other sterilizing operations, including most tubal operations (and vasectomies performed on their husbands, if they are married), that were performed to prevent pregnancy. The motives for preventing pregnancy may have been to control family size, to reduce the health risks of pregnancy or other contraceptive methods, or a combination of these (8).

This classification of sterilization operations differs from that used in reports based on the 1976 and 1982 surveys. Therefore, the 1982 data for the categories "contraceptively sterile" and "surgically sterile for noncontraceptive reasons" presented here differ from 1982 data presented in previous reports, but they are intended to be as comparable as possible with the 1988 data. In 1988, 23 percent of all women 15–44 years of age (or their husbands, if they were married) were contraceptively sterile, including 3 percent of childless women and 39 percent of women with one birth or more (table 1). Another 5 percent of women had been surgically sterilized for noncontraceptive reasons, including about 2 percent of childless women and 7 percent of women with one birth or more (table 1).

Women with "impaired fecundity" include (a) those who said that it was impossible to have a baby for some reason other than a sterilization operation—such as accident, illness, or unexplained inability to conceive; (b) those who said that it was physically difficult for them to conceive or deliver a baby, or that a doctor had told them never to become pregnant again because a pregnancy would pose a danger to the woman, the baby, or both; and (c) women or couples who were continuously married, did not use contraception, and did not become pregnant for 36 months or more. Each of these subcategories suggests that the woman or couple has a reduced, or "impaired," capacity for childbearing. Such conditions may be treatable, however, and do not imply that the woman or couple is necessarily sterile.

About 4.9 million women had impaired fecundity in 1988; this was 8.4 percent, as in 1982, or about 1 in 12 women. About 2.2 million childless women had impaired fecundity in 1988, along with about 2.7 million women with one birth or more. In 1982, these figures were 1.9 million and 2.6 million, respectively.

"Fecund" is a residual category consisting of women who were not surgically sterile and did not have impaired fecundity, and whose husbands were not surgically sterile and did not have impaired fecundity. As shown in table 1, about 64 percent, or nearly two out of three, women were classified as fecund, including 87 percent of childless women and only 46 percent of those with one birth or more. There are two main reasons for this large difference between childless women and those with one birth or more: Childless women are younger on average than women with one birth or more, and many childless women have never tried to become pregnant. As a result, childless women are much less likely to be surgically sterilized than women with children and have had fewer chances to discover or develop any fecundity problems.

The percent with impaired fecundity did not change significantly from 1982 to 1988 in any of the 12 categories shown in table 1. The percent contraceptively sterilized did increase significantly overall (from 19 to 23 percent) and among women with children (from 31 to 39 percent). The percent sterilized for noncontraceptive reasons showed

Table 1. Number of women 15–44 years of age and percent distribution by fecundity status, according to parity and age: United States, 1982 and 1988

[Statistics are based on samples of the female population of the United States. See technical notes for estimates of sampling variability and definitions of terms]

Parity and age	All women		Total	Surgically sterile				Impaired fecundity		Fecund	
				Contraceptive		Noncontraceptive					
	1988	1982		1988	1982	1988	1982	1988	1982	1988	1982
All parities	Number in thousands		Percent distribution								
15–44 years	57,900	54,099	100.0	23.3	18.6	4.7	6.6	8.4	8.4	63.6	66.3
15–24 years	18,592	20,150	100.0	2.0	2.1	*0.2	*0.2	4.8	4.3	93.0	93.4
25–34 years	21,726	19,644	100.0	22.9	21.0	2.7	4.9	9.6	10.0	64.7	64.2
35–44 years	17,582	14,305	100.0	46.3	38.7	12.0	18.3	10.6	12.1	31.0	31.0
Parity 0											
15–44 years	25,129	22,941	100.0	2.8	1.7	1.5	1.4	8.8	8.4	86.9	88.5
15–24 years	14,978	15,547	100.0	*0.2	*0.1	0.0	0.0	4.1	4.1	95.7	95.8
25–34 years	7,252	5,628	100.0	3.1	*3.3	*1.6	*1.8	13.4	14.7	82.0	80.2
35–44 years	2,899	1,766	100.0	15.8	*10.3	9.2	12.7	21.4	25.7	53.6	51.3
Parity 1 or more											
15–44 years	32,771	31,158	100.0	39.0	31.2	7.1	10.5	8.1	8.5	45.8	49.9
15–24 years	3,614	4,603	100.0	9.8	9.0	*0.7	*0.6	7.7	5.2	81.8	85.2
25–34 years	14,474	14,016	100.0	32.8	28.1	3.3	6.1	7.8	8.1	56.1	57.8
35–44 years	14,683	12,539	100.0	52.3	42.7	12.5	19.0	8.5	10.1	26.7	28.1

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

a small but significant decrease, from 7 to 5 percent. The percent fecund decreased significantly overall, from 66 to 64 percent, and among women with children, from 50 to 46 percent. However, none of the other changes in the percent fecund shown in table 1 was statistically significant.

Looking at the data in table 1 by age and parity, it can be seem that in 1988 the percent with impaired fecundity increased with age among childless women, from 4 percent at ages 15–24 years to 21 percent at ages 35–44 years. This increase with age among childless women also occurred in 1982. However, among women with children in 1988, there was no significant rise in the percent with impaired fecundity as age increased.

The data in table 1 for childless women shed some light on the issue of delayed childbearing. The number of women who were 35–44 years of age and still childless was 1.766 million in 1982; this group increased to 2.899 million by 1988, an increase of over 1 million. Multiplying these numbers by the percent with impaired fecundity in 1982 and 1988, it can be seen that about 454,000 women ages 35–44 years were childless and had impaired fecundity in 1982, compared with about 620,000 in 1988, an increase of 166,000, or more than one-third. As a fraction of the 57.9 million women of reproductive age, this is not a large increase. However, as a percent increase (166,000/454,000 is about a 37-percent increase), it is large.

A similar situation exists at ages 25–34 years: The number of childless women increased from 5.628 million to 7.252 million. Therefore, the number with impaired fecundity increased from about 827,000 to 972,000, even though the percent with impaired fecundity did not increase. These increases in the number of childless women with impaired fecundity at older ages may help to explain the popular perception that impaired fecundity is increasing rapidly (2–4), despite the lack of increase in the overall percent with impaired fecundity.

Note that the number of women 15–24 years of age decreased from 20.2 million in 1982 to about 18.6 million in 1988, but the number ages 25–34 years increased by about 2 million, and the number ages 35–44 years increased by more than 3 million. In sum, a look at table 1 shows several important facts about delayed childbearing and impaired fecundity. First, the number of women ages 25–44 years who have had no births is increasing, partly because the Baby Boom generation (born 1946–64) is in that age range. Second, the percent with impaired fecundity dropped among childless women ages 25–34 and 35–44 years. Third, the increasing number of childless women in the age range 25–44 years has increased the number of childless women who have impaired fecundity, despite the decline in the percent who have impaired fecundity. Thus, two of the causes of the popular perception that infertility is increasing are the delay in childbearing and the aging of the Baby Boom generation—not any increase in the percents with impaired fecundity at given ages. This perception that infertility is increasing is also due in part to a number of social and medical changes, which will be discussed later in this report.

Trends among married couples, 1976–88

Data on fecundity status for married couples with wives 15–44 years of age are available from the 1976 NSFG and have been published previously (5,9). However, the 1976

data on whether sterilization operations were for contraceptive or noncontraceptive reasons are not comparable to the data for 1982 and 1988, so they are shown as a combined "surgically sterile" category in table 2. This combined "surgically sterile" category is comparable over time. A married couple is classified as surgically sterile if either the husband or wife is surgically sterile as a result of a vasectomy, hysterectomy, tubal sterilization, or other sterilization operation, regardless of the reasons for the operation.

In 1988, as in 1976 and 1982, the percent of couples surgically sterilized increased with age and was greater among couples with children (parity 1 or more) than among childless couples (parity 0). In 1988, one-half (50 percent) of all married couples with one child or more were surgically sterilized; among couples with one child or more in which the wife was 35–44 years of age, the proportion sterilized was about two-thirds (68 percent).

In 1988, about 1.1 million currently married couples were childless and had impaired fecundity—about 21 percent of the 5.5 million childless married couples in 1988 (table 2) but only about 3.9 percent of the 29.1 million married couples with wives 15–44 years of age in 1988. This figure was about the same as in 1982: In that year about 1.1 million couples were childless and had impaired fecundity—about 22 percent of the childless couples but only about 3.9 percent of all married couples (table 2).

In 1988 as well as in 1976 and 1982, the percent of married couples with impaired fecundity was higher among childless women (21 percent for parity 0) than among women with one birth or more (8 percent for parity 1 or more). The percent with impaired fecundity also increased with age, especially among childless couples: In 1988, the percent of childless couples with impaired fecundity increased from 8 percent at ages 15–24 years to 36 percent at ages 35–44 years.

In 1982 and 1988, the proportion of all couples with impaired fecundity was about the same (11 percent in both years). There was no significant change in the percent of childless couples who had impaired fecundity (22 percent in 1982 and 21 percent in 1988). Similarly, there was no change from 1982 to 1988 in the percent of couples with children (parity 1 or more) who had impaired fecundity—8 percent in both years. In fact, none of the changes in the percent with impaired fecundity from 1982 to 1988 in any of the 12 age-parity categories in table 2 was significant.

From 1976 to 1988, there were some significant decreases in the percent with impaired fecundity, especially among couples with children. In contrast, the percent of childless couples with impaired fecundity did not change significantly from 1976 to 1988 (21 percent in both years). However, the percent of childless couples with impaired fecundity did drop significantly at ages 25–34 years, from 27 percent in 1976 to 20 percent in 1988, and at ages 35–44 years, from 54 percent in 1976 to 36 percent in 1988.

One category in table 2 is noteworthy: Childless (parity 0) couples with wives ages 35–44 years. The number of women in that category increased from 565,000 in 1976 to 1,149,000 in 1988, a finding that supports the perception that delayed childbearing has increased among married couples. Note, however, that the percent of that group having impaired fecundity decreased sharply, from 54 percent in 1976 to 36 percent in 1988. Finally, multiply the number of childless women 35–44 years of age by the

Table 2. Number of currently married women 15–44 years of age and percent distribution by fecundity status, according to parity and age: United States, 1976, 1982, and 1988

[Statistics are based on samples of the female population of the United States. See technical notes for estimates of sampling variability and definitions of terms]

Parity and age	All married women			Surgically sterile			Impaired fecundity			Fecund		
	1988	1982	1976	Total	1988	1982	1976	1988	1982	1976	1988	1982	1976
All parities	Number in thousands			Percent distribution									
15–44 years	29,147	28,231	27,488	100.0	42.4	38.9	28.1	10.7	10.8	15.7	46.9	50.3	56.1
15–24 years	3,337	4,741	6,020	100.0	6.0	*7.2	3.9	7.6	8.8	10.8	86.4	84.0	85.3
25–34 years	13,646	12,924	12,179	100.0	31.1	31.6	25.9	10.9	9.7	15.5	58.0	58.6	58.6
35–44 years	12,163	10,566	9,288	100.0	65.1	62.0	47.0	11.4	13.1	19.1	23.5	24.9	33.9
Parity 0													
15–44 years	5,533	5,098	5,235	100.0	11.5	9.9	5.6	20.5	21.7	21.4	68.0	68.4	73.0
15–24 years	1,404	1,989	2,738	100.0	0.0	*0.1	*0.2	8.4	*11.1	10.6	91.6	88.8	89.3
25–34 years	2,979	2,256	1,931	100.0	8.0	*9.7	6.3	20.0	21.1	27.3	72.0	69.2	66.4
35–44 years	1,149	853	565	100.0	34.5	*33.3	28.8	36.4	47.8	53.9	29.1	*18.9	17.2
Parity 1 or more													
15–44 years	23,614	23,134	22,254	100.0	49.7	45.3	33.6	8.4	8.4	14.3	41.9	46.3	52.2
15–24 years	1,932	2,752	3,282	100.0	10.3	*12.3	7.0	7.1	*7.2	11.1	82.6	80.6	82.0
25–34 years	10,668	10,668	10,248	100.0	37.6	36.3	29.5	8.3	7.3	13.2	54.1	56.4	57.3
35–44 years	11,014	9,713	8,723	100.0	68.3	64.5	48.2	8.8	10.0	16.8	22.9	25.5	34.9

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

percent with impaired fecundity to obtain the number with impaired fecundity: 305,000 in 1976, 408,000 in 1982, and 418,000 in 1988. As a percent of the 57.9 million women ages 15–44 years, or even as a percent of all 29.1 million married couples, this increase of 0.1 million is not a large increase. However, as a percent of childless women ages 35–44 years with impaired fecundity in 1976 (0.3 million), it is a large increase, and it is this increase that people involved in infertility services perceive.

Infertility among married couples

Many physicians define infertility as an inability to conceive after 12 months or more of intercourse without use of contraception. This concept is used as a screening device to decide when couples should begin to receive treatment, not to determine sterility (5–7). This measure has been criticized on the grounds that some couples may take longer than 12 months to conceive but nevertheless will conceive without medical treatment (10). However, it is used here for two reasons. First, data on this measure are widely used and frequently requested. Second, because data are available (for married couples only) since 1965, this concept can be used to measure trends over this 23-year period—a much longer time trend than for the impaired fecundity measure.

Infertility differs from impaired fecundity in two ways: First, infertility is a measure of difficulty in conceiving only; impaired fecundity is a measure of both difficulty in conceiving and difficulty (or danger) in carrying to term. Therefore, the percents of married couples who are infertile are usually lower than the percent with impaired fecundity. Second, infertility was measured in these national surveys only for married couples, because the concept assumes continuous exposure to intercourse and no underreporting of pregnancies, which can be assumed only of currently married women (7). Impaired fecundity could be determined for both married couples and for unmarried women (11,12).

Table 3 contains data on married couples with wives 15–44 years of age by whether they had no births (parity 0) or one birth or more in 1965, 1982, and 1988. (Data on infertility in 1976 have been published previously (13).) From 1965 to 1982, the percent surgically sterile more than doubled, from 16 to 42 percent. Among couples with children, it nearly tripled, from 17 to 50 percent. But among childless couples, the increase was only about 4 percentage points—from 7.3 to 11.5 percent.

The overall percent infertile decreased from 11.2 percent in 1965 to 8.5 percent in 1982 and 7.9 percent in 1988. The percent infertile did not change significantly from 1982 to 1988, either overall or among childless couples and those with one birth or more (table 3). However, the trends since 1965 were different for childless couples (primary infertility) than for couples with one birth or more (secondary infertility). Multiplying the percents infertile by the population (table 3) to obtain the numbers infertile produces the results shown in table 4.

Table 4. Number of currently married women 15–44 years of age who were infertile, by parity: United States, 1965, 1982, and 1988

Parity	1988	1982	1965
	Number of women in millions		
All parities	2.3	2.4	3.0
Parity 0	1.0	1.0	0.5
Parity 1 or more	1.3	1.4	2.5

SOURCE: Calculated from table 3.

Thus, the number of couples with secondary infertility has declined since 1965, from 2.5 million in 1965 to 1.4 million in 1982 and 1.3 million in 1988. The number with primary infertility increased from 0.5 million in 1965 to 1.0 million in 1982 and remained at about 1.0 million in 1988. Overall, from 1982 to 1988, there was virtually no change in the number of couples who were infertile (2.4 million in 1982 and 2.3 million in 1988).

Use of infertility services

As shown in the first three tables of this report, the percents of all women with infertility and impaired fecundity are not increasing. The perception of increasing infertility has been discussed in detail elsewhere (10,12,14). Briefly, however, this perception is the result of the following changes (10,12,14):

- Delayed childbearing and the aging of the Baby Boom generation, which has increased the number of childless women 25–44 years of age (as discussed previously and shown in tables 1 and 2).

Table 3. Number of currently married women 15–44 years of age and percent distribution by infertility status, according to parity: United States, 1965, 1982, and 1988

[Statistics are based on samples of the female population of the United States. See technical notes for estimates of sampling variability and definitions of terms]

	All married women			Surgically sterile			Infertile			Fecund		
Parity	1988	1982	1965	Total	1988	1982	1965	1988	1982	1965	1988	1982	1965
All parities	Number in thousands			Percent distribution									
All parities	29,147	28,231	26,454	100.0	42.4	38.9	15.8	7.9	8.5	11.2	49.7	52.6	73.0
Parity 0	5,533	5,098	3,492	100.0	11.5	9.9	7.3	18.5	19.6	14.5	70.0	70.5	78.2
Parity 1 or more	23,614	23,134	22,962	100.0	49.7	45.3	16.9	5.4	6.0	10.8	45.0	48.7	72.3

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

- The many new drugs and techniques for treating infertility, including the new reproductive technologies of in vitro fertilization, artificial insemination, and surrogate motherhood, and news coverage of those techniques.
- An increase in the number of physicians trained to treat infertility.
- An increase in the number of visits to physicians for infertility.

There are some data from the 1982 and 1988 surveys on use of medical services for infertility. In both surveys women were asked—

- Have you (or your husband) ever been to a doctor or clinic to talk about ways to help you become pregnant?
- (Not counting routine care or advice about a pregnancy), have you (or your husband) ever been to a doctor or clinic to talk about ways to help you prevent a miscarriage?

Women who answered "yes" to either of these questions were classified as having used infertility services. These women were asked the date (month and year) of their most recent visit for these medical services. From this date it was possible to determine the number of women who used services in the 12 months, 3 years, or 5 years before they were interviewed. These statistics are shown in table 5. Note that the number who used services in the 12 months before the survey increased from 1.08 million in 1982 to 1.35 million in 1988, an increase of about one-quarter of a million women. An increase of about the same magnitude is shown in the number who had one visit or more in the last 3 or 5 years. Note that only about 2 percent of women of reproductive age had one visit or more for infertility in the last 12 months. The percent of women who had one infertility visit or more in the last 12 months, 3 years, and 5 years appeared to increase from 1982 to 1988, but none of the increases was statistically significant.

Table 5. Number and percent of women who had 1 visit or more to a doctor or clinic for advice or treatment to help them become pregnant or carry a pregnancy to term, by when the most recent visit occurred: United States, 1982 and 1988

Date of most recent infertility visit	*1988*	*1982*	*Increase*	*1988*	*1982*
	Number in thousands			Percent	
In the last year	1,346	1,082	264	2.3	2.0
In the last 3 years	2,392	2,056	336	4.1	3.8
In the last 5 years	3,123	2,867	256	5.4	5.3

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

It is also possible that the number of visits per woman (or couple) increased because more drugs and procedures can be offered for infertility than in past years. However, data were not collected on the number of visits each woman made for infertility. Data on the number of visits for infertility in the past year would be a worthwhile addition to future surveys.

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Technical notes

The National Survey of Family Growth (NSFG) is a periodic survey conducted by the National Center for Health Statistics (NCHS) to collect data on factors affecting childbearing, contraception, infertility, and related aspects of maternal and infant health. The survey is jointly planned and funded by NCHS, the National Institute of Child Health and Human Development, and the Office of Population Affairs, all of the U.S. Department of Health and Human Services. Fieldwork was conducted under contract by Westat, Inc., in 1982 and 1988.

For the 1988 survey (Cycle IV), personal interviews were conducted with a national sample of women who were 15–44 years of age on March 15, 1988. In 1982, the population covered was women 15–44 years of age living in the civilian noninstitutionalized population of the conterminous United States. In 1988, Alaska and Hawaii were included, so the population covered was the civilian noninstitutionalized population of the entire United States. Interviews were completed with 7,969 women in 1982 and 8,450 women in 1988. Further details on the sample design and procedures of the 1982 survey have been published (6).

Interviews for Cycle IV of the survey were conducted from January through August 1988 for households that had been interviewed in the National Health Interview Survey from October 1985 through March 1987. The National Health Interview Survey is also conducted by NCHS. As in previous cycles of the NSFG, black women were oversampled. Interviews were conducted in person in the respondent women's homes by trained female interviewers and lasted an average of about 70 minutes. The interview focused on the woman's pregnancy history; past and current use of contraception; ability to bear children (fecundity and infertility); use of medical services for family planning, infertility, and prenatal care; marital history; occupation and labor force participation; and a wide range of social, economic, and demographic characteristics.

Reliability of estimates

Because the statistics presented in this report are based on a sample, they may differ from the statistics that would result if all 57.9 million women represented by the NSFG had been interviewed. The standard error of an estimate is a measure of such differences. The standard error of an estimated number or percent is calculated by using the appropriate values of A and B from table I in the equations,

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

and

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

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

The parameters shown in table I were used to generate table II, which shows preliminary estimates of standard errors for percents of total or white women. A similar table for the Cycle III (1982) survey has been published (6).

Table I. Preliminary estimates of parameters A and B for estimating standard errors for women, by race

Race	Parameter A	Parameter B
Total or white	−0.00018	10,738
Black	−0.000626	5,181

The chances are about 68 in 100 (about 2 in 3) that a sample estimate would fall within one standard error of a statistic based on a complete count of the population represented by the NSFG. The chances are about 95 in 100 that a sample estimate would fall within two standard errors of the same measure obtained if all people in the population were interviewed. Differences between percents discussed in this report were found to be statistically significant at the 5-percent level using a two-tailed normal deviate test. This means that in repeated samples of the same type and size, a difference as large as the one observed would occur in only 5 percent of samples if there were, in fact, no difference between the percents in the population.

In the text, terms such as "greater," "less," "increase," or "decrease" indicate that the observed differences were statistically significant at the 0.05 level using a two-tailed normal deviate test. Statements using the phrase "the data suggest" indicate that the difference was significant at the 0.10 (10-percent) level but not the 0.05 (5-percent) level. Lack of comment in the text about any two statistics does not mean that the difference was tested and found not to be significant.

The relative standard error (or coefficient of variation) of a statistic is the ratio of the standard error to the statistic and usually is expressed as a percent of the estimate. In this report, statistics with a relative standard error of 30 percent or more

Table II. Preliminary estimates of standard errors for estimated percents of total women: 1988 National Survey of Family Growth

Base of percent	Estimated percent: 2 or 98	5 or 95	10 or 90	20 or 80	30 or 70	40 or 60	50
	Standard error in percentage points						
100,000	4.6	7.1	9.8	13.1	15.0	16.1	16.4
500,000	2.1	3.2	4.4	5.9	6.7	7.2	7.3
1,000,000	1.5	2.3	3.1	4.1	4.7	5.1	5.2
5,000,000	0.6	1.0	1.4	1.9	2.1	2.3	2.3
10,000,000	0.5	0.7	1.0	1.3	1.5	1.6	1.6
30,000,000	0.3	0.4	0.6	0.8	0.9	0.9	0.9
50,000,000	0.2	0.3	0.4	0.6	0.7	0.7	0.7
58,000,000	0.2	0.3	0.4	0.5	0.6	0.7	0.7

are indicated with an asterisk (*). These estimates may be viewed as unreliable by themselves, but they may be combined with other estimates to make comparisons of greater precision.

Statistics in this report also may be subject to nonsampling error, that is, errors or omissions in responding to the interview, recording answers, and processing data. The data have been adjusted for nonresponse by means of adjustments to the sample weights assigned to each case. Other types of nonsampling error were minimized by a series of quality control measures described in reports on Cycle III (such as (6)).

The 1965 National Fertility Study

The figures on infertility status for 1965 were computed from the 1965 National Fertility Study. Some were published previously (5,7,9,13). Descriptions of the 1965 survey design and procedures have been published (9,13).

Unlike the NSFG, the 1965 National Fertility Study did not include procedures to obtain weighted numbers; therefore, approximate numbers of currently married women for 1965 were obtained from population estimates published by the U.S. Bureau of the Census. The weighted numbers shown in table 3 differ from those shown for 1982 and 1988 in the following ways: Alaska and Hawaii are included in 1965 and 1988, but not in 1982, and the age range in 1965 includes currently married women 14 years of age. The sources of the population estimates have been published (5).

Definitions of terms

Fecundity status—Fecundity is the physical ability of a woman or couple to presently have children and refers to women or couples with any number of children (unless classified by parity). It is determined by responses to questions asked in the NSFG interview, not by a medical examination. Fecundity status, as shown in tables 1 and 2 of this report, has three main categories: surgically sterilized, impaired fecundity, and fecund. Women were classified as surgically sterile if they (or their current husband or partner) had had a sterilizing operation (for example, a vasectomy, hysterectomy, or tubal ligation). Surgically sterile is divided (in table 1) into two subcategories: contraceptive and noncontraceptive. Impaired fecundity includes women who reported that (a) it was impossible for them to have a baby for any reason other than a sterilizing operation, (b) it was difficult to conceive or difficult or dangerous to carry a pregnancy to term, or (c) they had been continuously married or cohabiting, had not used contraception, and had not had a pregnancy for 3 years or more. In tables 1 and 2, "fecund" is a residual category and means that the woman (or couple) was not surgically sterile and did not have impaired fecundity. The percent of currently married couples with impaired fecundity is higher than the percent infertile because impaired fecundity includes difficulty or danger carrying to term as well as difficulty conceiving, whereas infertility includes only difficulty in conceiving. For a more detailed discussion of the concept of fecundity status, see the text of this report and a previously published report (6).

Infertility status—Infertility is a medical concept; it is used by physicians to identify couples who may need to be evaluated to see whether they need medical services to help them have a baby. It is computed for married couples only in the NSFG. When neither spouse is surgically sterilized, a couple is considered infertile if, during the previous 12 months or longer, they were continously married, had not used contraception, and had not conceived. Infertility status, as shown in table 3, refers to the categories surgically sterile, infertile, and fecund, where fecund means "not surgically sterile and not infertile."

Use of infertility services—A woman was classified as having used infertility services if she answered "yes" to either of the following two questions:

- Have you (or your husband) ever been to a doctor or clinic to talk about ways to help you become pregnant?
- (Not counting routine care or advice about a pregnancy), have you (or your husband) ever been to a doctor or clinic to talk about ways to help you prevent a miscarriage?

Women or couples who have had infertility services may not be currently infertile if the treatment or advice was successful.

Age—Age was classified by the age of the respondent in completed years as of March 15, 1988, the approximate midpoint of interviewing.

Marital status—Women were classified as currently married, widowed, divorced, separated, or never married. In Cycles III (1982) and IV (1988), to improve the comparability of NSFG data on marital status over time and with other sources of data, informally married, or cohabiting, women (who reported that they were not married but were living with their sexual partner) were classified by their legal marital status. In all NSFG surveys, a woman who was married but separated from her spouse was classified as separated if the reason for the separation was marital discord and as currently married otherwise.

Parity—Parity refers to the number of live births the woman has had. For example, a woman classified as "parity 0" has never had a live birth. "Parity 1 or more" means that she has had one live birth or more.

Cooperating agencies

Cycle IV of the National Survey of Family Growth was supported in part by the National Institute of Child Health and Human Development, National Institutes of Health, and the Office of Population Affairs, Office of the Assistant Secretary of Health. These agencies also participated in the design of the questionnaire.

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Advance Data

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

AIDS Knowledge and Attitudes for January–March 1990

Provisional Data From the National Health Interview Survey

by Deborah A. Dawson, Ph.D., Division of Health Interview Statistics

Introduction

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

The first AIDS Knowledge and Attitudes survey was in the field from August–December 1987. Provisional results of that survey were published monthly in *Advance Data From Vital and Health Statistics* (Nos. 146, 148, 150, 151, and 153). During the first 4 months of 1988, the NHIS questionnaire was revised to meet program needs at that time. The revised AIDS Knowledge and Attitudes Survey entered the field in May 1988. Provisional findings for the remainder of 1988 were published periodically (*Advance Data From Vital and Health Statistics* Nos. 160, 161, 163, 164, 167, and 175); in addition, two special reports with a focus on minority populations were published from the 1988 data (*Advance Data From Vital and Health Statistics* Nos. 165 and 166).

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

The NHIS AIDS questionnaires were developed by the National Center for Health Statistics and interagency working groups established by the Information, Education, and Risk Factor Reduction Subcommittee of the Public Health Service Executive Task Force on AIDS. The working groups included representatives from the Centers for Disease Control; the National Institutes of Health; the Alcohol, Drug Abuse and Mental Health Administration; and the Health Resources and Services Administration.

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

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knowledge and behavior. The NHIS AIDS data bases permit more complex analyses than those presented in this series of *Advance Data* reports, and further exploration of the data is encouraged. Public use data tapes of the 1987 and 1988 AIDS Knowledge and Attitudes Surveys are available at this time, and the data tape for 1989 will be released by the end of this year.

This report presents provisional data for January–March 1990 for most items included in the NHIS AIDS questionnaire. Table 1 displays percent distributions of persons 18 years of age and over by response categories, according to age, sex, race/ethnicity, and education. In most cases, the actual questions asked of the respondents are reproduced verbatim in table 1 along with the coded response categories. In a few cases, questions or response categories have been rephrased or combined for clearer or more concise presentation or results. Refusals and other nonresponse categories (generally less than 1 percent of total responses) are excluded from the denominator in the calculation of estimates, but responses of "don't know" are included. The NHIS AIDS questionnaire uses the phrase "the AIDS virus" rather than "HIV," because it is felt to be more widely recognized and understood. In this report the two terms are used synonymously.

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

Selected findings

The following highlights describe survey results of the NHIS AIDS Knowlege and Attitudes Survey for the period January–March 1990. Unless otherwise noted in the text, all measures described remained stable over the 3-month period. All differences cited in the text are statistically significant at the .05 level. Table II shows provisional estimates of the standard errors associated with these results.

General AIDS knowledge— General knowledge about AIDS and HIV was ascertained through a series of statements about the general characteristics of the disease and how it is transmitted. Respondents were asked to classify each statement as definitely true, probably true, probably false, or definitely false. As shown in figure 1, most measures of general knowledge about AIDS and HIV improved between the last quarter of 1989 and the first quarter of 1990. For the most part, the changes observed between these two quarters were larger than those occurring throughout the entire year of 1989.

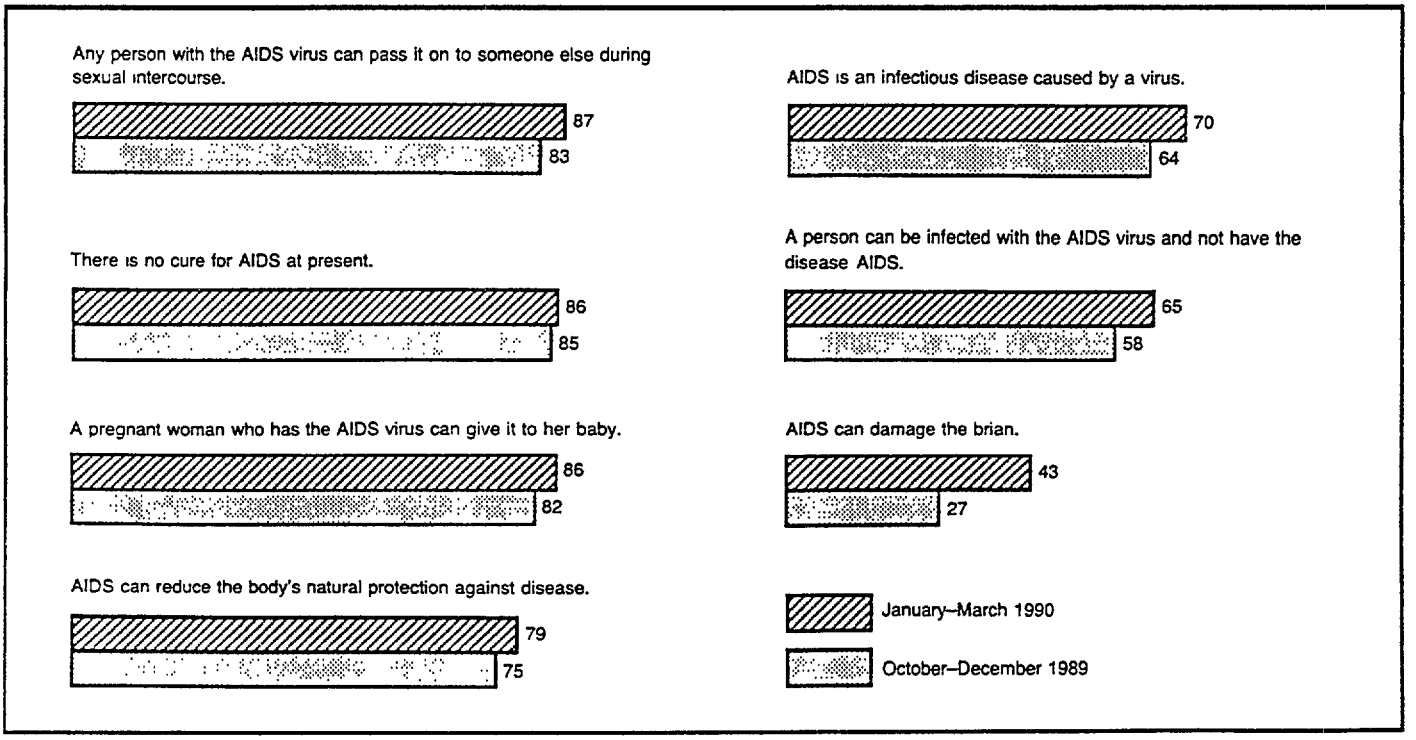

Figure 1. Provisional estimates of percent of adults reporting that selected statements are definitely true: United States, January–March 1990

The largest increases were in the areas where general knowledge was lowest. For example, the percent of adults who stated that it is definitely true that AIDS can damage the brain rose from 27 to 43 percent, and the percent who thought it definitely true that a person can be infected with the AIDS virus and not have AIDS rose from 58 to 65 percent. Knowledge about the main modes of HIV transmission improved as well, despite a high baseline level. The proportions of adults who thought it definitely true that HIV can be transmitted via sexual intercourse and from a pregnant woman to her child each increased by 4 percentage points to 87 and 86 percent, respectively. The proportion of adults who thought it very likely that HIV can be transmitted by sharing needles for drug use remained stable at 96 percent. (Knowledge about HIV transmission via needle sharing was asked in a separate series of questions with different response categories.)

Despite the overall improvement in knowledge, there was a decrease in one area. In October–December 1989, 75 percent of U.S. adults 18 years of age and over realized that it is definitely false that there is a vaccine for the AIDS virus; for January–March 1990, this proportion was 68 percent. This change may reflect failure to distinguish between a vaccine and drugs that are used in treatment of AIDS/HIV, e.g., zidovudane (AZT), or it may result from publicity concerning progress towards development of a vaccine.

Although most objective measures of general AIDS knowledge registered gains between the last quarter of 1989 and the first quarter of 1990, self-assessed knowledge about AIDS decreased. In October–December 1989, 24 percent of adults stated that they knew a lot about AIDS; in January–March 1990, this proportion declined to 18 percent. Between the same two periods, the proportion of adults claiming to know nothing about AIDS increased from 7 to 11 percent. It is impossible to determine whether this shift in self-assessed knowledge reflects a sense of information overload associated with the constantly increasing amount of information available about development of a vaccine for HIV, modes of transmission, and forms of treatment, or if it is solely an effect of questionnaire design changes. Although this question is worded the same in 1990 as in preceding years, its location has changed so that it is now the first question asked.

During the first quarter of 1990, as in all previous quarters, general knowledge about AIDS varied by demographic and socioeconomic characteristics. Persons aged 50 years and over were less knowledgable than younger persons. Knowlege increased directly with number of years of school completed. For 5 out of the 9 measures of general AIDS knowledge examined, non-Hispanic white adults were more likely than non-Hispanic black or Hispanic adults to respond correctly. For 3 of the remaining 4 measures, knowledge did not vary by race/ethnicity; for one measure (awareness that AIDS can damage the brain), non-Hispanic black adults were the most knowledgable. There was no consistent difference by gender in general AIDS knowledge. These differentials in objective measures of knowledge were generally consistent with those in self-assessed knowledge about AIDS. The population subgroups most likely to state that they know a lot about AIDS were persons below 50 years of age and those with more than 12 years of school.

Two new items regarding general AIDS knowledge were added to the 1990 NHIS AIDS survey. One of these is a question asking whether the respondent had ever heard the AIDS virus referred to as "HIV." Two-thirds of adults were familiar with this term as of January–March 1990, but this proportion was much lower for persons 50 years of age and over (54 percent), with less than 12 years of school (42 percent), or who were of Hispanic origin (48 percent). The second new item was a statement that there are drugs available to extend the life of a person infected with HIV. Slightly less than half of all adults (46 percent) categorized this statement as definitely true; an additional 27 percent stated that it is probably true.

Misinformation about HIV transmission—The NHIS AIDS questionnaire asked respondents to estimate the risk of HIV transmission associated with several forms of casual contact with infected or potentially infected individuals, e.g., working with someone with AIDS, using public toilets, and so forth. Respondents were offered five response options for the likelihood of transmission: very likely, somewhat likely, somewhat unlikely, very unlikely, and definitely not possible. Both "very unlikely" and "definitely not possible" were interpreted as correct responses, even for forms of contact where our current understanding of the virus indicates that there definitely is no possibility of transmission. The decision to accept "very unlikely" as correct was based on the large numbers of respondents who chose that option, seemingly unwilling to commit themselves to the concept of a zero probability.

As has been true since 1987, the results for January–March 1990 indicated that many misperceptions about HIV transmission remain. The proportion of adults who assessed the risk of transmission as "very unlikely" or "definitely not possible" varied from less than half for transmission via insect bites or contact with the saliva of an infected individual (sharing eating utensils, being sneezed/coughed on) to about three-fourths for working near or attending school with someone with HIV. Most of these measures did not change between October–December 1989 and January–March 1990, but the proportion of adults who thought it very unlikely or definitely not possible to become infected by working with an infected individual rose from 71 to 76 percent. In contrast, the proportion who thought it unlikely or definitely not possible to transmit HIV by sharing eating utensils decreased from 49 to 46 percent.

As with general AIDS knowledge, there were demographic and

socioeconomic differentials in misperceptions about HIV transmission. Adults 50 years of age and over were more likely than younger adults to be misinformed, and non-Hispanic black and Hispanic individuals generally had more misperceptions than did non-Hispanic white individuals. The level of misinformation decreased with increasing educational attainment. Again, there was no consistent differential by gender.

Information and communication about AIDS—From October–December 1989 to January–March 1990, the proportion of adults who reported discussing AIDS with their children aged 10–17 years rose from 62 to 68 percent, and the proportion who reported that their children had received instruction in school about AIDS rose from 63 to 73 percent. Ninety-one percent of adults stated that they had received information about AIDS/HIV in the month preceding the NHIS AIDS survey. The most commonly reported sources of information were television (cited by 80 percent of adults), newspapers and magazines (57 and 46 percent, respectively), and radio (34 percent).

Sources of AIDS information differed by race and ethnicity. Radio was cited more frequently by Hispanic and non-Hospanic black adults than by non-Hispanic white adults; the opposite was true for newspapers which were reported most often by non-Hispanic white individuals. There were three sources of information that were reported more often by Hispanic than non-Hispanic individuals: street signs and billboards, store displays, and mass transit displays (signs in buses and subways).

Blood donation and testing—There was no change in blood donation experience between October–December 1989 and January–March 1990. Data for the first quarter of 1990 indicated that 39 percent of adults had ever donated blood, 16 percent had donated blood since March 1985 (when blood donations were first routinely tested for HIV), and 7 percent had donated blood in the preceding year. Multiple donations were common among those who had donated blood. Of the 16 percent of adults who had donated blood since March 1985, half (8 percent) donated blood 3 or more times. In the year preceding interview, 4 percent of adults had donated blood once, 1 percent had donated blood twice, and 2 percent had donated blood 3 or more times.

Seventy-eight percent of U.S. adults had heard of the blood test to detect HIV antibodies, up from 74 percent in the last quarter of 1989. Sixty-eight percent, seven-eighths of those familiar with the blood test, knew blood donations are routinely tested for HIV. Three percent of the persons who had donated blood since March 1985—an estimated 700,000 individuals—reportedly did so at least in part to be tested for HIV. Use of blood donation as a means of being tested for HIV was reported more often by men than women and was far more common for non-Hispanic black adults than other adults.

Not counting testing performed in conjunction with blood donation, 10 percent of U.S. adults are reported to have had their blood tested for HIV antibodies, including 7 percent tested only once and 3 percent with multiple tests. Including the 16 percent of adults who were tested as a part of blood donation since 1985, an estimated 26 percent of the adult population has been tested. This is a substantial increase over the estimate of 21 percent from October–December 1989, but the difference may partly reflect questionnaire changes. In 1988–89, the NHIS AIDS questionnaire asked if respondents had had the AIDS blood test; if they did not respond positively but had donated blood since March 1985, they were included in the estimate of persons tested. In this year's survey, respondents are asked separately about blood donations and testing exclusive of blood donations; then the two estimates are summed.

The proportion of adults who had been tested exclusive of blood donations declined sharply with age, from 16 percent of persons 18–29 years of age to 12 and 3 percent, respectively, of those 30–49 years of age and 50 years of age and over. Men were slightly more likely than women to have been tested exclusive of blood donations, 12 compared with 9 percent. Hispanic and non-Hispanic black adults were more likely than non-Hispanic white adults to have been tested outside of blood donations, 15 and 14 percent compared with 9 percent. The probability of having been tested also increased with education, from 7 percent of persons with less than 12 years of school to 13 percent of those with more than 12 years of school.

Of persons tested exclusive of blood donations, 51 percent stated that all their tests were required, i.e., conducted as a part of an activity that includes mandatory blood testing. For 45 percent their tests were voluntary. Three percent had both required and voluntary tests. The most commonly cited reasons for required tests were hospitalization or surgery (reported by 12 percent of persons tested outside of blood donations) and military induction or service (11 percent). In addition, 9 percent were tested as a requirement of employment, 6 percent for life insurance, 5 percent for immigration (cited by 35 percent of Hispanic adults who were tested exclusive of blood donations), 3 percent for health insurance, and 12 percent for other reasons. Individuals may have cited more than one reason for a single test (e.g., for both employment and health insurance) or may have had more than one required test; thus, the sum of the individual reasons exceeds the proportion of persons with at least one required blood test.

One-third of persons tested for HIV antibodies exclusive of blood donations—including both voluntary and required testing—had their last blood test at a doctor's office or HMO, and about one-fourth (26 percent) were tested at a hospital clinic or emergency room. Eleven percent were tested at military induction or service sites. Only 3 percent were tested at designated

AIDS clinic, counseling, or testing sites. Just 38 percent were counseled about AIDS and HIV before the test was administered. Three-fourths (77 percent) received their test results; of those that did not, one-third reportedly wanted the results of their tests. Of those persons who received their test results, 27 percent were given counseling about prevention of HIV transmission at the time the results were provided. Sixty-two percent got their test results in person, compared with smaller proportions who received their test results by mail (17 percent), telephone (15 percent), or in some other way (5 percent). The vast majority (92 percent) of persons tested for HIV felt that their tests were handled properly in terms of confidentiality of test results.

Seven percent of U.S. adults reportedly plan to be tested for HIV antibodies in the next 12 months, according to the NHIS AIDS data for January–March 1990. The proportion of these persons who had been tested previously has not yet been determined, but it is likely that some are repeaters. This figure, which has remained fairly stable over the past year, was two to three times higher for minorities than for non-Hispanic white adults. Sixteen percent of non-Hispanic black adults reported plans to be tested, compared with 11 percent of Hispanic adults and 5 percent of non-Hispanic white adults.

Of persons who plan to be tested, two-thirds stated that they would be tested voluntarily, because they personally wanted to know if they are infected. Twenty-six percent plan to be tested as part of blood donation, and 16 percent cited the need for testing as a requirement for a job. Some individuals reported more than one reason for anticipated testing. The locations at which persons plan to be tested are similar to those reported for tests already conducted, with private doctors or HMO's, and hospital emergency rooms or clinics accounting for over half (36 and 22 percent, respectively).

Risk of HIV infection—The first-quarter 1990 NHIS AIDS survey results indicated that 5 percent of U.S. adults, an estimated 9 million persons, received blood transfusions between 1977 and 1985. This is the period when HIV is thought to have entered the United States and when routine screening of blood donations began. Half of the nation's adults think the blood supply is now safe for transfusions.

The 1990 AIDS survey revealed increasing uncertainty about the efficacy of condom use in preventing HIV transmission. The proportion of adults who think condoms are very effective in preventing transmission of the virus declined from 33 percent in October–December 1989 to 27 percent in January–March 1990, while the proportion who did not know rose from 7 to 12 percent. Although these shifts occurred in all population subgroups, the increase in uncertainty was especially evident among non-Hispanic black adults. For this group, the proportion who did not know how effective condoms are in preventing HIV transmission rose from 10 percent in the last quarter of 1989 to 20 percent in January–March 1990.

Eighty-one percent of adults felt there was no chance of their having been infected with HIV, and 15 percent said there was a low chance. The proportions who thought there was a medium or high chance of already being infected were 2 percent and less than 1 percent, respectively. Between the last quarter of 1989 and the first quarter of 1990, the proportion of persons who thought there was no chance of their becoming infected with HIV in the future dropped from 77 to 73 percent, reversing a long-term increase in this area. As of January–March 1990, 21 percent believed that they had a low chance of becoming infected; three and less than 1 percent, respectively, cited a medium or high chance. Only 2 percent of adults reported being in any of the categories associated with a high risk of HIV infection. This proportion has remained stable since the risk behavior question was added to the NHIS AIDS questionnaire in 1988.

As of January–March 1990, one out of every seven adults (14 percent) knew someone with AIDS or HIV, the same figure as in the last quarter of 1989. This proportion was higher for persons under 50 years of age than for those age 50 years and over but did not vary by sex or race/ethnicity. The proportion of adults who reported knowing someone with AIDS or HIV increased sharply with number of years of school, from 7 percent of persons with less than 12 years of school to 21 percent of those with more than 12 years of school.

Suggested citation

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Symbols

–	Quantity zero
0	Quantity more than zero but less than 0.05

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

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

AIDS knowledge or attitude	Total	Age			Sex		Race/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	18	21	21	12	18	18	19	14	17	8	14	28
Some	47	56	52	33	46	47	48	39	41	29	49	54
A little	24	20	21	31	24	24	24	27	28	32	28	16
Nothing	11	2	5	25	11	11	10	19	13	30	8	3
Don't know	0	0	0	0	0	0	0	0	1	0	0	0
2. In the past month, have you received information about AIDS from any of these sources?[1]												
Television	80	81	80	78	81	79	81	78	77	76	80	82
Radio	34	41	36	25	38	29	33	35	36	25	32	40
Magazines	46	51	49	39	44	48	46	44	44	28	45	57
Newspapers	57	53	60	55	59	54	58	48	48	41	55	67
Street signs/billboards	13	21	14	7	15	12	12	21	18	10	13	16
Store displays/store distributed brochures	8	13	8	4	9	7	7	14	9	7	9	8
Bus/streetcar/subway displays	5	8	5	3	6	5	4	13	8	4	5	6
Health department brochures	19	29	20	11	17	21	18	24	21	14	19	22
Workplace distributed brochures	13	13	17	7	12	13	12	15	13	5	12	17
School distributed brochures	9	16	11	3	8	11	8	12	13	8	8	12
Church distributed brochures	5	5	5	5	5	5	4	9	8	4	5	6
Community organization	5	6	6	4	5	5	5	9	7	3	5	7
Friend/acquaintance	13	20	14	7	13	14	13	18	13	11	12	15
Other	4	5	4	3	3	4	4	3	2	2	3	5
Don't know	1	0	1	1	1	0	1	1	0	1	1	0
Received no AIDS information in past month	9	7	8	11	8	10	9	10	11	14	9	6
3. Have you heard the AIDS virus called HIV?												
Yes	67	73	74	54	65	68	69	64	48	42	65	82
No	31	26	25	42	33	29	28	33	49	54	32	16
Don't know	2	1	2	4	2	3	2	4	3	4	3	1
4a. AIDS can reduce the body's natural protection against disease.												
Definitely true	79	82	85	68	80	78	82	65	65	55	80	91
Probably true	9	9	7	11	8	9	8	10	14	14	9	5
Probably false	1	1	1	2	1	2	1	4	3	3	1	1
Definitely false	2	3	2	2	2	2	2	5	2	4	2	1
Don't know	9	5	5	17	9	10	7	17	16	24	7	2
4b. AIDS can damage the brain.												
Definitely true	43	40	45	42	44	41	42	47	43	40	44	44
Probably true	26	27	25	26	26	26	27	25	23	27	27	25
Probably false	7	10	8	4	7	7	7	3	10	4	6	10
Definitely false	4	6	5	2	5	4	5	3	5	3	4	6
Don't know	20	16	17	26	19	21	20	22	19	26	20	16
4c. AIDS is an infectious disease caused by a virus.												
Definitely true	70	80	76	56	74	67	70	71	71	56	70	78
Probably true	14	11	13	18	13	15	14	12	17	17	15	12
Probably false	2	2	1	2	1	2	2	2	1	2	3	1
Definitely false	3	2	3	3	3	3	3	2	2	3	3	3
Don't know	11	4	7	20	10	12	10	14	10	22	10	6
4d. A person can be infected with the AIDS virus and not have the disease AIDS.												
Definitely true	65	71	72	53	64	66	68	58	55	46	64	77
Probably true	16	13	15	19	17	15	16	16	16	19	16	14
Probably false	3	3	2	3	3	2	2	3	4	4	3	2
Definitely false	3	5	3	2	3	3	3	5	4	4	4	2
Don't know	13	8	9	22	13	14	11	18	22	28	13	6
4e. ANY person with the AIDS virus can pass it on to someone else through sexual intercourse.												
Definitely true	87	92	89	82	86	88	88	85	86	82	89	89
Probably true	9	6	8	11	9	8	8	9	9	10	8	8
Probably false	1	1	1	1	1	1	1	1	1	1	0	1
Definitely false	0	1	0	0	1	0	1	0	0	0	0	1
Don't know	3	1	2	6	3	3	3	5	3	7	2	1
4f. A pregnant women who has the AIDS virus can give it to her baby.												
Definitely true	86	90	88	81	84	88	87	85	84	78	87	90
Probably true	10	7	9	12	11	8	10	8	9	13	10	8
Probably false	0	0	0	0	0	0	0	0	1	0	0	0
Definitely false	0	0	0	0	0	0	0	0	1	0	0	–
Don't know	4	2	2	7	4	4	3	6	5	9	3	2

See footnotes at end of table.

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

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

AIDS knowledge or attitude	Total	Age			Sex		Race/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											
4g. There are drugs available to treat AIDS or the AIDS virus which can lengthen the life of an infected person.												
Definitely true	46	46	52	39	47	45	49	39	32	33	44	56
Probably true	27	27	25	28	26	27	27	23	25	25	28	26
Probably false	6	6	6	5	6	5	5	7	8	6	6	5
Definitely false	6	9	5	5	6	5	5	10	12	7	6	5
Don't know	16	12	11	23	15	17	14	21	23	30	15	8
4h. There is a vaccine available to the public that protects a person from getting the AIDS virus.												
Definitely true	3	3	3	3	3	3	2	5	5	4	3	2
Probably true	4	4	3	4	3	4	3	6	9	6	4	2
Probably false	11	11	10	11	10	11	11	10	12	10	11	10
Definitely false	68	71	74	58	69	66	71	56	52	50	67	78
Don't know	15	11	10	25	14	16	14	23	23	30	15	8
4i. There is no cure for AIDS at present.												
Definitely true	86	88	88	81	86	86	87	79	81	77	86	90
Probably true	6	5	5	7	6	5	6	6	5	7	6	5
Probably false	1	1	1	1	1	1	1	3	1	1	1	1
Definitely false	2	3	2	2	2	2	2	3	4	3	2	2
Don't know	5	3	3	9	4	6	4	9	9	11	5	2
5. How likely do you think it is that a person will get AIDS or the AIDS virus infection from—												
5a. Working near someone with the AIDS virus?												
Very likely	3	2	3	3	3	3	2	6	5	5	3	2
Somewhat likely	6	5	6	7	6	6	5	8	11	8	7	5
Somewhat unlikely	9	10	10	9	10	9	9	9	12	8	10	10
Very unlikely	40	38	41	40	42	38	42	36	25	34	40	42
Definitely not possible	36	42	36	30	34	38	36	31	37	30	35	39
Don't know	6	3	4	11	6	6	5	10	9	15	6	2
5b. Eating in a restaurant where the cook has the AIDS virus?												
Very likely	6	5	5	7	6	5	5	10	7	8	7	3
Somewhat likely	18	19	17	19	19	18	18	18	21	22	19	15
Somewhat unlikely	13	15	14	11	14	13	13	12	12	10	14	14
Very unlikely	32	33	34	30	33	32	34	26	25	24	31	38
Definitely not possible	21	24	22	17	20	21	21	20	23	17	19	24
Don't know	10	5	7	17	9	11	9	14	12	18	10	5
5c. Sharing plates, forks, or glasses with someone who has the AIDS virus?												
Very likely	11	9	11	12	11	11	10	15	10	14	12	8
Somewhat likely	21	19	21	22	22	20	21	21	19	22	21	19
Somewhat unlikely	14	16	15	12	14	14	14	13	11	10	14	16
Very unlikely	28	30	29	26	29	28	29	23	24	21	28	33
Definitely not possible	18	22	18	14	17	18	17	16	23	15	17	20
Don't know	9	4	7	15	8	10	8	12	13	18	8	4
5d. Using public toilets?												
Very likely	6	5	6	7	6	6	5	10	9	10	7	3
Somewhat likely	14	13	12	16	14	14	13	15	16	19	15	10
Somewhat unlikely	12	13	13	10	11	12	12	11	11	9	13	13
Very unlikely	35	35	36	32	37	33	36	29	26	26	34	40
Definitely not possible	25	29	28	19	25	26	26	21	25	19	24	30
Don't know	9	5	5	15	8	9	7	14	13	18	8	4
5e. Sharing needles for drug use with someone who has the AIDS virus?												
Very likely	96	98	97	93	96	96	97	93	95	91	96	98
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	0	0	0	0	0	0	–	0	0	0
Definitely not possible	0	0	0	0	0	0	0	0	1	0	0	0
Don't know	2	1	1	4	2	2	1	3	3	6	1	0
5f. Being coughed or sneezed on by someone who has the AIDS virus?												
Very likely	8	5	8	11	9	8	8	11	10	12	9	6
Somewhat likely	19	17	19	21	20	19	19	19	17	19	21	17
Somewhat unlikely	15	17	16	13	15	15	16	14	16	12	14	18
Very unlikely	30	34	32	24	31	29	31	27	22	21	29	36
Definitely not possible	17	21	18	13	17	17	17	16	21	16	17	18
Don't know	11	6	8	17	9	12	10	13	15	20	11	5

See footnotes at end of table.

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

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AIDS knowledge or attitude	Total	Age			Sex		Race/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											
5g. Attending school with a child who has the AIDS virus?												
Very likely	2	1	2	3	2	2	2	4	2	4	2	1
Somewhat likely	6	5	6	7	7	5	5	7	8	8	6	4
Somewhat unlikely	10	9	10	9	10	10	10	9	9	9	10	9
Very unlikely	41	40	44	39	41	41	43	39	34	35	41	45
Definitely not possible	35	42	35	29	34	35	35	31	39	29	35	37
Don't know	7	2	4	13	6	7	6	10	8	15	6	2
5h. Mosquitoes or other insects?												
Very likely	11	13	11	10	12	10	10	16	16	15	11	8
Somewhat likely	20	23	18	19	20	19	19	22	21	21	22	17
Somewhat unlikely	9	10	10	7	8	9	9	7	8	6	8	11
Very unlikely	24	24	25	23	25	24	25	20	20	19	22	30
Definitely not possible	19	18	21	17	18	20	19	16	16	14	18	22
Don't know	18	12	16	25	17	19	18	20	19	25	19	13
8. Have you ever discussed AIDS with any of your children aged 10–17?[2]												
Yes	68	58	69	58	56	78	68	72	59	54	65	76
No	32	42	31	42	44	21	32	28	41	46	34	24
Don't know	-0	–	0	–	0	0	0	0	–	–	0	0
9. Have any or all of your children aged 10–17 had instruction at school about AIDS?[2]												
Yes	73	51	73	78	71	75	73	69	73	66	73	76
No	9	20	9	4	7	11	8	9	11	9	8	9
Don't know	18	29	18	18	22	15	18	22	17	24	19	15
10. Have you ever donated blood?												
Yes	39	34	41	42	51	29	42	33	24	27	37	49
No	60	66	59	58	49	71	58	66	76	72	63	51
Don't know	0	0	0	0	0	0	0	0	0	1	0	0
11a. Have you donated blood since March 1985?												
Yes	16	23	18	8	20	12	17	12	11	7	14	22
No	84	77	82	92	80	88	83	87	89	92	86	77
Don't know	1	0	1	1	1	0	1	1	0	1	0	0
11b. Have you donated blood in the past 12 months?												
Yes	7	9	8	3	8	5	7	4	5	3	6	10
No	93	91	91	96	91	94	92	95	95	96	94	90
Don't know	1	0	1	1	1	0	1	1	1	1	1	1
12. How many times have you donated blood since March 1985?												
Once	5	9	4	2	5	4	5	4	5	3	4	6
Twice	3	5	3	1	4	2	3	4	2	1	3	4
Three times or more	8	9	10	4	10	5	9	4	4	3	7	11
Don't know	0	0	0	0	0	0	0	0	–	–	0	0
Did not donate blood since March 1985[3]	84	77	82	92	80	88	83	88	89	93	86	78
13. How many times have you donated blood in the past 12 months?												
Once	4	6	4	2	4	3	4	3	3	2	3	5
Twice	1	1	2	1	2	1	2	1	0	0	1	2
Three times or more	2	2	2	1	2	1	2	1	1	1	1	2
Don't know	0	0	0	0	0	0	0	–	0	0	0	0
Did not donate blood in the past 12 months[4]	93	91	92	97	91	95	93	96	95	97	94	90
14. Have you ever heard of a blood test that can detect the AIDS virus infection?												
Yes	78	84	85	64	79	76	80	65	67	59	78	88
No	20	15	13	31	19	21	17	33	31	37	20	10
Don't know	3	1	2	5	2	3	3	2	2	4	3	2
15. To the best of your knowledge, are blood donations routinely tested for the AIDS virus infection?												
Yes	68	76	76	54	69	67	72	53	57	49	68	79
No	4	3	4	3	4	3	3	5	4	3	4	4
Don't know	6	5	5	8	6	6	5	8	7	7	6	5
Never heard of test[5]	22	16	15	36	21	24	20	35	33	41	22	12
16. Was one of your reasons for donating blood because you wanted to be tested for the AIDS virus infection?[6]												
Yes	3	4	2	1	4	1	1	15	3	3	3	2
No	83	83	85	77	80	86	85	58	76	77	78	86
Don't know	0	–	0	–	–	0	0	–	–	–	–	0
Never heard of test[5]	9	8	7	17	9	8	8	13	10	18	12	5
17. Except for blood donations since 1985, have you had your blood tested for the AIDS virus infection?												
Yes	10	16	12	3	12	9	9	14	15	7	9	13
No	65	66	71	59	66	65	69	49	48	50	67	73
Don't know	2	2	2	2	2	2	2	1	3	2	2	2
Never heard of test[5]	22	16	15	36	21	24	20	35	33	41	22	12

See footnotes at end of table.

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

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AIDS knowledge or attitude	Total	Age			Sex		Race/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					
18. How many times have you had your blood tested for the AIDS virus infection, not including blood donations?												
Once	7	10	8	2	7	6	6	10	11	5	6	9
Twice	2	3	2	1	2	1	1	2	2	1	1	2
Three times or more	1	3	2	0	2	1	1	2	2	1	2	2
Don't know	0	0	0	0	0	0	0	0	–	0	0	0
Never heard of/had test[7]	90	84	88	97	88	91	91	86	85	93	91	87
19. How many times in the past 12 months have you had your blood tested for the AIDS virus infection, not including blood donations?												
None	4	6	6	1	5	4	4	5	6	3	4	6
Once	5	8	6	2	6	4	4	7	8	3	4	6
Twice	1	1	1	0	1	0	1	1	1	1	0	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
Never heard of/had test[7]	90	84	88	97	88	91	91	86	85	93	91	87
20a. Were the blood tests, including those you had before the past 12 months, required or did you go for them voluntarily, or were there some of each?[8]												
All required	51	55	49	43	52	50	50	46	64	59	54	46
All volunteered	45	41	46	54	44	46	45	50	34	40	40	49
Some of each	3	4	4	1	4	2	4	2	2	1	5	4
Don't know	1	1	1	1	0	1	1	0	–	–	1	1
20b. Were any of the blood tests required for:[8]												
Hospitalization or a surgical procedure?	12	12	10	19	7	18	15	8	3	19	13	9
Health insurance?	3	2	5	2	4	2	4	1	3	1	2	5
Life insurance?	6	4	9	4	8	4	8	2	2	1	4	9
Employment?	9	9	9	8	8	9	8	11	10	7	9	9
Military induction or military service?	11	18	8	2	19	2	12	15	6	2	16	11
Immigration?	5	6	6	–	6	5	1	1	35	16	6	2
Other	12	14	9	14	8	17	11	15	12	17	14	9
Don't know	–	–	–	–	–	–	–	–	–	–	–	–
21. When was your last blood test for the AIDS virus infection?[8]												
1990	8	8	8	11	9	8	8	9	7	8	9	8
1989	53	57	50	56	55	52	52	57	60	55	52	53
1988	19	18	20	17	16	22	19	19	13	16	18	20
1987	10	9	10	8	11	8	10	9	7	9	10	9
1986	3	4	3	4	3	3	4	3	4	3	6	2
1985	2	1	3	1	3	1	2	1	6	2	1	3
Don't know	3	2	3	2	2	3	3	1	–	3	1	3
22a. Was your last test required or did you go for it voluntarily?[8]												
Required	52	57	50	47	53	51	52	47	62	57	57	48
Voluntary	47	43	48	53	46	47	47	52	37	42	42	50
Don't know	1	0	1	1	1	1	1	0	–	–	1	1
22b. Was the test required for:[8]												
Hospitalization or a surgical procedure?	12	12	9	20	6	18	14	8	2	18	13	8
Health insurance?	3	2	4	2	4	2	4	0	4	1	3	4
Life insurance?	6	4	8	3	8	4	8	2	2	1	4	9
Employment?	7	7	8	8	7	8	7	10	8	5	8	8
Military induction or military service?	10	16	7	2	17	1	10	14	6	2	15	10
Immigration?	5	6	6	–	6	5	1	1	35	16	6	2
Other	10	12	8	14	7	14	9	14	11	16	11	8
Don't know	–	–	–	–	–	–	–	–	–	–	–	–
23. Not including a blood donation, where was your last blood test for the AIDS virus done?[8]												
AIDS clinic/counseling/testing site	3	2	5	1	3	3	3	5	4	1	3	4
Clinic run by employer	4	3	5	5	4	4	4	5	5	2	4	4
Doctor/HMO	33	30	34	38	32	34	31	29	47	39	26	35
Public health department	6	7	6	4	6	5	5	5	7	6	6	5
Hospital/emergency room/outpatient clinic	26	24	25	37	20	33	28	27	14	31	29	22
STD clinic	0	1	1	–	0	1	0	0	2	–	1	0
Family planning clinic	0	1	0	–	0	1	0	0	1	1	0	0
Prenatal clinic	1	1	0	–	0	1	1	1	–	2	1	–
Tuberculosis clinic	–	–	–	–	–	–	–	–	–	–	–	–
Other clinic	6	6	6	4	5	7	5	5	5	7	4	6
Drug treatment facility	0	0	–	–	0	–	0	–	–	–	–	0
Military induction/service site	11	17	8	2	18	2	11	13	9	2	15	10
Immigration site	1	1	1	–	1	1	0	–	5	2	1	0
Other	9	8	9	10	10	8	11	7	1	6	7	12
Don't know	–	–	–	–	–	–	–	–	–	–	–	–

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AIDS knowledge or attitude	Total	Age			Sex		Race/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											
24. Before your last blood test for the AIDS virus infection, were you counseled about the AIDS virus and the meaning of the test?[8]												
Yes	38	39	39	28	42	32	35	54	35	35	35	40
No	61	60	60	72	57	67	64	44	64	64	64	59
Don't know	0	0	0	1	0	0	0	0	–	0	0	0
25. Did you get the results of your last test?[8]												
Yes	77	78	76	77	77	76	75	82	80	80	77	76
No	22	22	22	22	22	22	24	16	17	17	22	23
Don't know	1	0	1	2	0	1	1	1	2	2	1	1
26. Did you want the results of your last test?[9]												
Yes	33	33	37	21	33	34	32	48	26	26	25	39
No	62	60	59	79	62	61	64	37	74	72	68	56
Don't know	5	7	4	–	5	5	4	15	–	2	7	5
27. When you received the results of your last test, did you receive counseling or talk with a health professional about how to lower your chances of becoming infected with the AIDS virus or how to avoid passing it on to another person?[10]												
Yes	27	30	25	22	26	27	21	41	40	30	28	24
No	73	70	75	78	74	73	79	59	60	70	72	75
Don't know	0	–	0	–	0	0	0	–	–	–	0	0
28. Were the results given in person, by telephone, by mail or in some other way?[10]												
In person	62	65	59	65	63	61	59	62	87	80	65	55
By telephone	15	12	18	15	13	18	18	10	7	9	13	19
By mail	17	17	19	11	16	18	18	23	5	8	17	20
Other	5	7	3	5	6	3	5	5	1	3	4	6
Don't know	1	–	0	4	1	0	1	–	–	1	1	1
29. Do you feel your last test for the AIDS virus infection was handled properly in terms of the confidentiality of your test results?[8]												
Yes	92	95	90	93	92	93	93	90	90	89	93	93
No	3	2	4	3	4	3	3	4	5	6	3	3
Don't know	4	3	5	4	4	3	3	5	5	5	3	4
30. Do you expect to have a blood test for the AIDS virus infection in the next 12 months?												
Yes	7	14	7	2	8	6	5	16	11	6	7	7
No	67	66	75	60	67	68	72	44	50	49	67	78
Don't know	3	5	4	2	4	3	3	6	7	3	3	3
Never heard of test[5]	22	16	15	36	21	24	20	35	33	41	22	12
31. Tell me which of these statements explain why you will have the blood test:[11]												
Voluntarily, because you personally want to know if you are infected	66	70	64	50	63	69	60	80	71	74	67	60
As part of a blood donation	26	24	28	28	28	24	32	16	23	24	26	28
As part of a hospitalization or surgical procedure	10	9	9	14	8	12	9	12	12	8	13	8
As a requirement for health insurance	11	12	11	10	11	11	8	15	19	15	11	9
As a requirement for life insurance	9	10	5	13	9	8	7	14	6	11	8	8
As a requirement for a job, other than military	16	16	17	14	16	16	14	19	29	18	17	14
As a requirement for the military	10	13	9	2	15	4	10	15	6	7	12	11
As a requirement for immigration	4	3	4	2	3	4	2	5	9	6	4	2
As a required part of some other activity that includes a blood sample and automatic AIDS testing	15	18	12	11	15	15	15	16	10	15	13	16
32. Where will you go to have a blood test for the AIDS virus infection?[11]												
AIDS clinic/counseling/testing site	2	2	2	–	2	1	1	3	2	–	3	1
Clinic run by employer	4	4	4	8	4	5	3	6	10	2	7	3
Doctor/HMO	36	37	35	42	37	36	38	32	43	42	38	33
Hospital/emergency room/outpatient clinic	22	22	21	24	22	23	22	22	15	25	22	21
Other clinic	7	8	7	1	4	10	5	9	17	10	5	8
Public health department	8	8	8	4	7	9	7	12	4	11	7	7
Red Cross/blood bank	9	4	12	14	9	7	12	1	3	2	7	13
Other	8	10	8	4	11	5	9	11	6	2	9	12
Don't know	3	4	3	2	3	4	4	3	0	4	3	3

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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											
33. Did you have a blood transfusion at any time between 1977 and 1985?												
Yes	5	2	5	7	4	6	5	5	3	6	5	5
No	94	97	94	91	95	93	94	94	96	93	94	94
Don't know	1	1	1	2	1	1	1	1	1	2	1	1
34. Do you think the present supply of blood is safe for tranfusions?												
Yes	50	56	52	42	56	44	53	37	39	36	50	57
No	29	28	28	30	24	32	26	36	38	34	29	25
Don't know	22	16	19	29	20	23	21	26	23	30	21	18
35. How effective do you think the use of a condom is to prevent getting the AIDS virus through sexual activity?												
Very effective	27	32	30	21	31	24	28	30	24	20	26	33
Somewhat effective	53	54	55	48	52	53	54	41	53	44	54	56
Not at all effective	4	4	4	4	3	5	4	5	4	6	4	3
Don't know how effective	12	8	8	21	10	14	11	20	12	22	12	7
Don't know method	4	2	2	6	3	4	3	5	7	8	3	2
36. What are your chances of having the AIDS virus?												
High	0	1	1	0	1	0	0	1	1	0	1	0
Medium	2	3	2	1	3	1	2	3	3	3	1	2
Low	15	22	17	7	16	14	16	16	10	8	14	20
None	81	73	78	89	79	82	81	77	81	84	83	77
Don't know	2	1	2	2	2	2	1	4	4	5	1	1
37. What are your chances of getting the AIDS virus?												
High	0	1	1	0	1	0	0	1	0	0	0	1
Medium	3	4	3	2	4	2	3	4	4	4	3	3
Low	21	28	23	12	22	19	22	18	13	11	18	28
None	73	65	70	84	71	76	73	72	77	80	76	67
Don't know	2	2	2	3	2	2	2	4	4	5	2	1
N/A—High chance of already having the AIDS virus	0	1	1	0	1	0	0	1	1	0	1	0
38. Have you ever personally known anyone with AIDS or the AIDS virus?												
Yes	14	14	18	11	13	15	14	16	15	7	12	21
No	84	85	80	88	85	83	84	83	84	92	87	78
Don't know	1	1	1	1	1	1	1	2	1	1	1	2
39. Is any of these statements true for you?												
a. You have hemophilia and have received clotting factor concentrates since 1977.												
b. You are a native of Haiti or Central or East Africa who has entered the United States since 1977.												
c. You are a man who has had sex with another man at some time since 1977, even 1 time.												
d. You have taken illegal drugs by needle at any time since 1977.												
e. Since 1977, you are or have been the sex partner of any person who would answer yes to any of the items above (39 a-d).												
f. You have had sex for money or drugs at any time since 1977.												
Yes to at least 1 statement	2	4	3	1	3	2	2	4	3	2	2	3
No to all statements	97	96	97	99	97	98	98	96	97	97	98	97
Don't know	0	0	0	0	0	0	0	1	0	1	0	0

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

Technical notes

The National Health Interview Survey (NHIS) is a continuous, cross-sectional household interview survey. Each week, a probability sample of the civilian noninstitutionalized population is interviewed by personnel of the U.S. Bureau of the Census to obtain information on the health and other characteristics of each member of the household. Information on special health topics is collected for all or a sample of household members. The 1990 National Health Interview Survey of AIDS Knowledge and Attitudes is asked of one randomly chosen adult 18 years of age or over in each family. The estimates in this report are based on completed interviews with 9,379 persons, or about 87 percent of eligible respondents.

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

Table I. Sample sizes for the 1989 National Health Interview Survey of AIDS Knowledge and Attitudes and estimated adult population 18 years of age and over, by selected characteristics: United States, January–March 1990

Characteristics	Sample size	Estimated population in thousands
All adults	9,379	179,518
Age		
18–29 years	2,238	46,512
30–49 years	3,751	71,074
50 years and over	3,390	61,932
Sex		
Male	3,887	85,252
Female	5,492	94,266
Race/ethnicity		
Non-Hispanic white	7,372	140,498
Non-Hispanic black	1,150	19,438
Hispanic	520	14,162
Education		
Less than 12 years	2,074	39,807
12 years	3,434	68,559
More than 12 years	3,778	69,365

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

		Age			Sex		Race/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	0.3	0.6	0.5	0.5	0.4	0.4	0.3	0.8	1.2	0.6	0.5	0.5
10 or 90	0.4	0.8	0.6	0.7	0.6	0.5	0.4	1.1	1.7	0.8	0.7	0.6
15 or 85	0.5	1.0	0.8	0.8	0.7	0.6	0.5	1.4	2.0	1.0	0.8	0.7
20 or 80	0.5	1.1	0.8	0.9	0.8	0.7	0.6	1.5	2.3	1.1	0.9	0.8
25 or 75	0.6	1.2	0.9	1.0	0.9	0.8	0.6	1.6	2.4	1.2	1.0	0.9
30 or 70	0.6	1.2	1.0	1.0	0.9	0.8	0.7	1.7	2.6	1.3	1.0	1.0
35 or 65	0.6	1.3	1.0	1.1	1.0	0.8	0.7	1.8	2.7	1.3	1.0	1.0
40 or 60	0.7	1.3	1.0	1.1	1.0	0.9	0.7	1.9	2.8	1.4	1.1	1.0
45 or 55	0.7	1.4	1.0	1.1	1.0	0.9	0.7	1.9	2.8	1.4	1.1	1.0
50	0.7	1.4	1.1	1.1	1.0	0.9	0.7	1.9	2.8	1.4	1.1	1.0

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Advance Data

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

Cohabitation, Marriage, Marital Dissolution, and Remarriage: United States, 1988

Data from the National Survey of Family Growth

by Kathryn A. London, Ph.D., Division of Vital Statistics

Introduction

The living arrangements of women of childbearing age in the United States have been changing dramatically: Cohabitation has become more widely practiced; men and women have been deferring marriage; the U.S. divorce rate, despite having declined in recent years, remains at a very high level; and the rate at which people remarry after divorce or widowhood has fallen.

Data from a recent survey of American women, conducted by the National Center for Health Statistics (NCHS), illustrate these changes. More than a third of women 15–44 years of age in 1988 had lived with a boyfriend or partner at some time without being married to him. Only about 40 percent of women under age 30 years had married. More than a third of first marriages among women 15–44 years of age had already ended in separation, divorce, or widowhood, and among women who had been married for the first time in 1974 or earlier, the proportion of disrupted first marriages approached half. Only 16 percent of women whose first marriages ended in widowhood or divorce in 1980–84 had remarried within a year, compared with more than 33 percent of women whose first marriages ended in 1965–69. These findings are based on data from the 1988 National Survey of Family Growth (NSFG).

The National Survey of Family Growth is conducted periodically by NCHS on topics related to childbearing, contraceptive practice, and other aspects of maternal and child health. Previous cycles of the survey were conducted in 1973, 1976, and 1982. In Cycle IV of the NSFG, conducted in 1988, interviews were completed with 8,450 women 15–44 years of age in the noninstitutionalized population of the United States. Women of all marital statuses were interviewed. At the time of the survey, 50.3 percent were married, 5.2 percent were not married but living with a partner, 2.8 percent were separated, 7.8 percent were divorced, 0.7 percent were widowed, and 33.3 percent had never been married. Further details about the sample design and reliability of the data presented in this report are given in the technical notes.

The changes in family patterns described above, along with the growing proportion of births occurring outside of marriage (1), mean that, compared with earlier decades, adults and children spend more of their lives outside of married-couple households. Both men and women can now expect to spend more than half of their lives unmarried (2,3). Recent estimates of the proportion of children expected to live in a single-parent household at some time before reaching adulthood range from about half to more than 70 percent (4,5). Because these changes in family patterns affect the health and well-being of adults and children, it is important to document

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control
National Center for Health Statistics
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the trends in cohabitation, marriage, divorce, and remarriage.

Cohabitation

Until recently, U.S. data on cohabitation—sharing living quarters with a sexual partner without a formal marriage—were largely unavailable or limited in scope. The NSFG is one of only a few nationally representative surveys to include information on cohabitation. The 1982 NSFG produced some information on cohabitation, and the 1988 NSFG added questions about the respondent's first cohabiting union and up to two additional cohabiting unions that were followed by marriage. See the technical notes for a discussion of the cohabitation questions asked in the 1988 NSFG.

Only about 5 percent of women 15–44 years of age were cohabiting at the time of the NSFG, as noted earlier, but many more women had cohabited at some time. A quarter of the NSFG respondents reported that they had cohabited before first marriage, including women who had cohabited but had not been married (table 1). Women who were 25–29 years of age at the time of the survey were more likely to report that they had cohabited before first marriage than were either younger or older women. That older women were less likely to have cohabited than women 25–29 years of age suggests that cohabitation has become more common over time. Lower rates of cohabitation among the youngest women are to be expected because they have had less time to establish cohabiting relationships.

Some women had not cohabited before first marriage but did cohabit sometime after their first marriage ended, bringing the total of women who had ever cohabited to more than a third (33.5 percent). Of women 25–34 years of age, nearly half had cohabited at some time. The majority of women who had cohabited (except women 40–44 years of age) had done so before marriage. Almost all of the younger women who had cohabited had done so before marriage. More of the older women had cohabited later. This is to be expected, because many of the younger women had not yet married in the first place, and most had not yet dissolved a marriage.

When all first cohabiting unions are considered (either before first marriage or sometime later), the data show that slightly more than half resulted in marriages (some of which subsequently dissolved), 37.2 percent dissolved without marriage, and 10.0 percent were ongoing at the time of the survey (figure 1). Cohabitation was less likely to progress to marriage among black than among white women. More than half (54.4 percent) of white women's first cohabiting unions were followed by marriage, compared with 42.1 percent of black women's.

When only women who had ever been married are considered, it can be seen that more than a quarter of first marriages were preceded by cohabitation (table 2). Broken down by race, about a quarter of white women and nearly a third of black women lived with their first (or only) husband before marriage. A comparison of tables 1 and 2 shows that in general the subset of ever-married women were more likely than average to have ever cohabited, although this was not true for women ages 35 years and over.

Table 1. Number of women 15–44 years of age and percent who cohabited before marriage, ever cohabited, and ever married, by race, age, and Hispanic origin: United States, 1988

[Based on a sample of the noninstitutionalized population. See technical notes for discussion of the survey design and estimates of sampling variability]

Race, age, and Hispanic origin	Number in thousands	Cohabited before first marriage[1]	Ever cohabited	Ever married
		Percent		
Total[2]				
All ages	57,900	25.4	33.5	63.6
15–19 years	9,179	8.2	8.4	3.7
20–24 years	9,413	30.3	32.4	38.6
25–29 years	10,796	39.1	45.1	71.0
30–34 years	10,930	33.3	44.9	84.4
35–39 years	9,583	23.9	38.4	89.5
40–44 years	7,999	12.3	26.3	92.5
White				
All ages	47,077	25.0	33.6	66.8
15–19 years	7,313	9.2	9.3	4.4
20–24 years	7,401	31.6	34.2	42.9
25–29 years	8,672	37.9	44.7	75.5
30–34 years	9,010	32.6	44.9	86.8
35–39 years	7,936	22.4	37.7	91.7
40–44 years	6,745	11.0	25.3	93.7
Black				
All ages	7,679	29.3	35.0	47.1
15–19 years	1,409	*3.7	*3.7	*1.5
20–24 years	1,364	28.6	29.0	23.6
25–29 years	1,459	44.3	47.8	47.7
30–34 years	1,406	42.0	52.1	69.0
35–39 years	1,170	34.3	45.0	75.1
40–44 years	872	19.4	32.8	83.5
Hispanic origin				
Hispanic	5,557	25.5	32.9	62.1
Non-Hispanic	52,343	25.4	33.5	63.8

[1] Includes women who had cohabited but had not married.
[2] Includes white, black, and other races.

NOTES: For definitions of terms see technical notes. Because of rounding of estimates, figures may not add to totals.

Marriage

Although it is possible that cohabitation is a substitute for marriage for some women, most women still marry eventually. Nearly two-thirds of women 15–44 years of age in 1988 had been married at least once (table 1). Naturally, a much smaller proportion of the younger

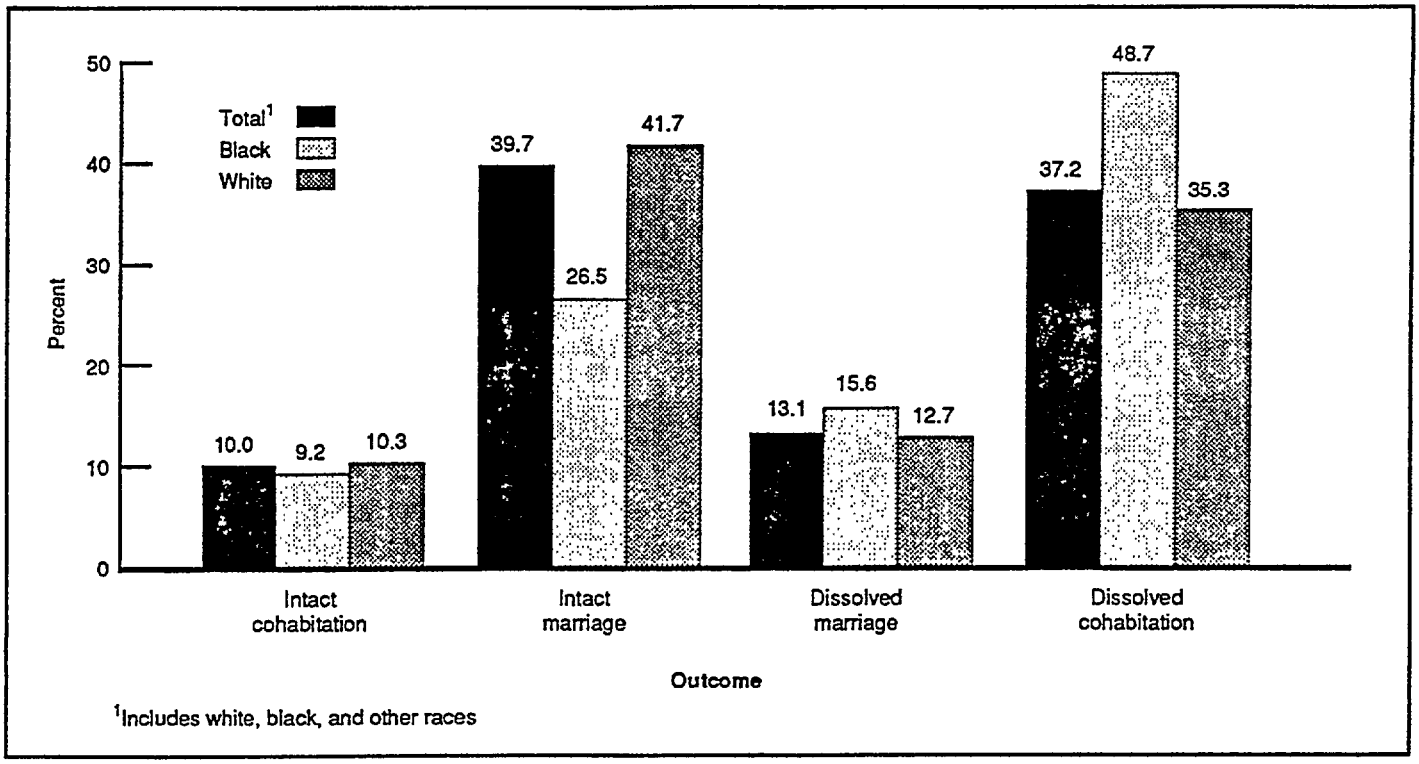

Figure 1. Percent distribution of first cohabitations of women 15–44 years of age by outcome of cohabitation, according to race: United States, 1988

Table 2. Number of ever-married women 15–44 years of age, percent who cohabited with their first husbands before marriage, and percent who ever cohabited, by race, age, and Hispanic origin: United States, 1988

[Based on a sample of the noninstitutionalized population. See technical notes for discussion of the survey design and estimates of sampling variability]

Race, age, and Hispanic origin	Number in thousands	Cohabited with first husband before marriage	Ever cohabited
Total[1]		Percent	
All ages	36,842	25.7	39.9
15–19 years	340	*29.3	*34.3
20–24 years	3,631	36.5	44.0
25–29 years	7,669	36.7	47.3
30–34 years	9,220	29.5	45.4
35–39 years	8,581	20.0	37.9
40–44 years	7,401	10.7	26.1
White			
All ages	31,465	24.9	39.5
15–19 years	319	*28.3	*33.6
20–24 years	3,176	36.2	44.1
25–29 years	6,546	35.5	46.9
30–34 years	7,824	29.0	45.2
35–39 years	7,277	19.1	37.6
40–44 years	6,322	9.7	25.1
Black			
All ages	3,614	31.7	45.6
15–19 years	21	*44.6	*44.6
20–24 years	322	44.0	46.4
25–29 years	695	42.5	52.2
30–34 years	970	36.5	53.9
35–39 years	878	25.9	41.0
40–44 years	728	15.7	33.2
Hispanic origin			
Hispanic	3,452	24.0	37.1
Non-Hispanic	33,390	25.9	40.2

[1]Includes white, black, and other races.

NOTES: For definitions of terms see technical notes. Because of rounding of estimates, figures may not add to totals.

women had been married (less than half of the women ages 20–24 years and almost none of the youngest women), and four-fifths or more of women in the age groups 30 and over had been married.

However, the trend over the last two decades has been toward postponing marriage. U.S. vital statistics data show that the marriage rate for never-married women has fallen by more than 25 percent since 1970. Further, the average age at first marriage has risen steadily since the mid-1970's (6). The NSFG data also reflect the postponement of marriage; only about 40 percent of respondents under age 30 years had ever been married.

The NSFG data show that black women were much less likely than white women to have married (table 1). Two-thirds of white women had married at least once, but fewer than half of black women had. Within each age group, black women were less likely to have married than white women. Looking at women ages 40–44 years gives some indication of the proportion of women who will ever marry, because the majority of women in this age group who will

ever marry already have done so. By this age, 93.7 percent of white women had married, compared with only 83.5 percent of black women.

Hispanic and non-Hispanic women differed very little in the proportion who had married. Slightly more than 60 percent of both Hispanic and non-Hispanic respondents had been married at least once.

Dissolution of first marriage

Marital dissolution was common; more than a third of first marriages had already ended in separation, divorce, or widowhood (table 3), and of course marriages that were intact at the time of the survey will dissolve eventually. Among women who had been married in 1974 or earlier, the proportion of marriages that already had ended approached half.

Note that the proportions of marriages that were dissolved are biased downward in some cohorts (italicized in table 3) because not all of the women in the cohort had completed the indicated number of years since first marriage by the time of the survey. For instance, all women who married for the first time in 1980–84 had been married at least 3 years before the survey date, but the remaining cells are biased downward because only some of the women had been married 4 or 5 years before the survey date.

The longer a marriage had survived, the less likely it was to dissolve. The data for women who were married in 1965–69 illustrate this pattern. All of these women had married at least 18 years before the survey and thus had been exposed to the risk of marital dissolution for the full range of durations shown in table 3. Some 5.9 percent of these marriages ended within a year. An additional 3.9 percent ended in the following year, bringing the total to 9.8 percent dissolved within 2 years. For the most part, the number of additional dissolutions declined with each year after marriage. Yet, even after 15 years, marriages continued to dissolve in substantial numbers. Of course, at very long marital durations, marital dissolution rates should increase rather than decrease over time, because more of the dissolutions are due to widowhood and fewer are due to separation or divorce. However, for women 15–44 years of age, dissolution by widowhood is relatively uncommon (figure 2).

Black women's marriages were more likely to have dissolved than white women's at each duration since first marriage. Among black women, more than half of all first marriages already had ended by the survey date, except among those most recently married (1980–84). However, dissolution was common among white women, too, approaching 50 percent among white women who had married in the periods 1965–69 and 1970–74.

Black women and white women 15–44 years of age were about equally likely to have been widowed in their

Table 3. Number of ever-married women 15–44 years of age and cumulative percent whose first marriage was dissolved by separation, divorce, or death, by years since first marriage, race, year of first marriage, and Hispanic origin: United States, 1988

[Based on a sample of the noninstitutionalized population. See technical notes for discussion of the survey design and estimates of sampling variability]

Race, year of first marriage, and Hispanic origin	Number in thousands	Years since first marriage							
		All years	1	2	3	4	5	10	15
		Cumulative percent dissolved at time of interview							
Total[1]									
All years[2]	36,842	35.6	4.9	9.1	13.1	16.8	20.0	28.8	33.0
1980–84	8,043	23.6	4.9	9.6	13.9	*18.0*	*20.7*	...	...
1975–79	7,777	35.6	4.3	9.0	14.7	18.1	22.1	*33.8*	...
1970–74	7,575	46.7	4.7	8.1	13.1	19.4	23.7	36.7	*44.6*
1965–69	6,561	48.1	5.9	9.8	12.8	15.9	18.5	31.9	41.7
White									
All years[2]	31,465	35.0	4.8	8.9	13.0	16.8	19.7	28.3	32.3
1980–84	6,809	22.9	5.2	9.9	14.1	*18.2*	*20.2*	...	...
1975–79	6,659	34.6	4.2	8.9	15.1	18.2	22.1	*32.9*	...
1970–74	6,523	46.2	4.4	7.7	12.7	19.4	23.8	36.9	*43.8*
1965–69	5,714	47.0	6.1	9.8	12.6	15.8	18.3	30.9	40.5
Black									
All years[2]	3,614	46.9	7.0	12.8	17.5	22.1	26.8	38.5	44.8
1980–84	768	38.1	*5.2	11.9	17.0	*24.0*	*31.2*	...	...
1975–79	674	50.4	*6.8	13.6	18.1	24.3	31.1	*47.3*	...
1970–74	766	55 8	*5.8	11.5	17.3	21.9	27.0	42.1	*54.7*
1965–69	598	61.7	*6.3	10.5	16.5	19.5	23.1	40.6	54.8
Hispanic origin									
Hispanic	3,452	37.0	4.7	8.0	14.0	18.5	21.4	28.5	33.7
Non-Hispanic	33.390	35.5	4.9	9.2	13.1	16.7	19.8	28.9	32.9

[1] Includes white, black, and other races.
[2] Includes first marriages beginning before 1965 and between 1985 and interview.

NOTES: For definitions of terms see technical notes. Because of rounding of estimates, figures may not add to totals. Figures in italics reflect incomplete experience of all or some women in the marriage cohort.

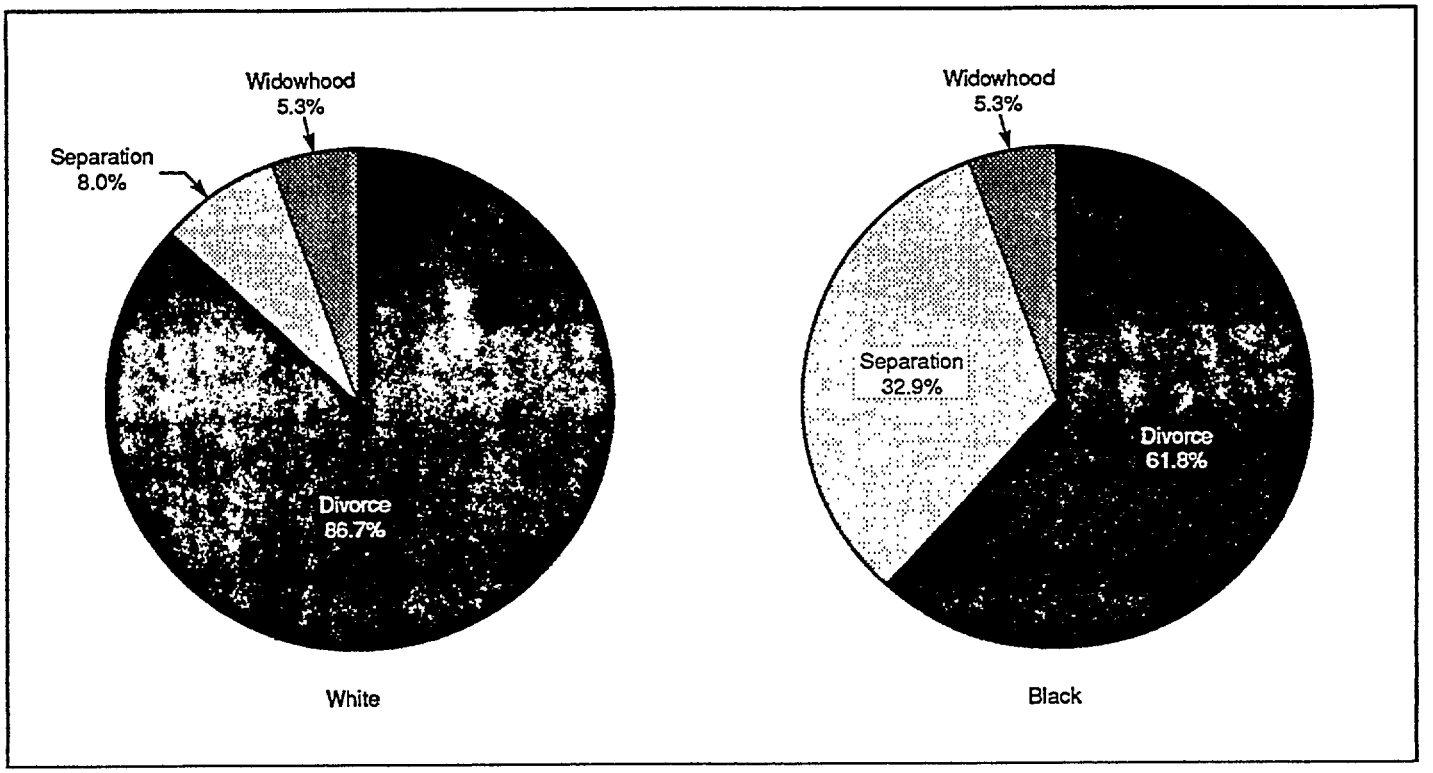

Figure 2. Percent distribution of dissolved first marriages of women 15–44 years of age by type of dissolution, according to race: United States, 1988

first marriages, but black women were much more likely than white women to have been separated rather than divorced (figure 2). Eight percent of white women, compared with nearly 33 percent of black women, reported being separated from their first husbands.

Remarriage

After their first marriages dissolved, most women remarried, and remarried fairly quickly (table 4). Nearly half of all women whose first marriages ended in widowhood or divorce had remarried within 5 years.

In table 4, women whose first marriages were dissolved by divorce or death of a spouse are grouped in dissolution cohorts according to the years in which the marriages were dissolved. Women in earlier dissolution cohorts were more likely to have remarried. More than 80 percent of women whose marriages ended during the periods 1965–69 and 1970–74 had remarried by the interview date. One reason that these women were more likely to have remarried is simply that they had more time in which to remarry. Women whose marriages ended in 1965 had more than 20 years in which to remarry, compared with only 4 years for women whose marriages ended in 1984.

Nevertheless, the probability of remarriage seems to have declined over time. Nearly a third of the women in the dissolution cohort of 1965–69 had remarried within a year, compared with only 16 percent of those in the dissolution cohort of 1980–84. This pattern was consistent across all race categories, taking into account the amount of time the women were eligible to remarry: For each racial group, an increasingly small proportion of each subsequent dissolution cohort had remarried within each of the first 5 years after the marriage ended. As in table 3, the percents having remarried are biased downward in some of the cells, because the cohort had not completed the indicated number of years since dissolution of first marriage at the time of the survey. The affected percents appear in italics in table 4.

Black women were less likely than white women to remarry. Nearly 60 percent of white women had remarried after their first marriage ended, but only 34 percent of black women had remarried. This pattern was evident at every duration after dissolution. Note that table 4 is restricted to women whose first marriages ended in divorce or widowhood. Thus, if all marital dissolutions including separations were considered, then black women would have an even lower remarriage rate compared with white women.

Hispanic women were less likely than non-Hispanic women to remarry. Some 57.9 percent of non-Hispanic women remarried after their first marriage, compared with 44.7 percent of Hispanic women. Within each category of duration since dissolution of the first marriage, Hispanic women were much less likely to have remarried. A larger percentage of Hispanic than of black women had remarried, both within each dissolution category and overall, but the differences between Hispanic and black women were not statistically significant.

Table 4. Number of women 15–44 years of age whose first marriage was dissolved by divorce or death of a spouse and cumulative percent who remarried, by years since dissolution, race, year of dissolution, and Hispanic origin: United States, 1988

[Based on a sample of the noninstitutionalized population. See technical notes for discussion of the survey design and estimates of sampling variability]

Race, year of dissolution, and Hispanic origin	*Number in thousands*	*Years since dissolution of first marriage*					
		All years	*1*	*2*	*3*	*4*	*5*
Total[1]		Cumulative percent remarried at time of interview					
All years[2]	11,577	56.8	20.6	32.8	40.7	46.2	49.7
1980–84	3,504	47.5	16.3	28.1	36.4	*41.1*	*45.4*
1975–79	3,235	65.3	21.9	36.0	44.7	52.7	55.4
1970–74	1,887	83.2	24.9	38.6	47.9	56.4	61.2
1965–69	1,013	89.9	32.6	48.7	60.2	65.0	72.8
White							
All years[2]	10,103	59.9	21.9	35.2	43.5	49.4	53.0
1980–84	3,030	51.4	18.2	31.1	40.3	*45.2*	*49.8*
1975–79	2,839	69.5	23.2	38.5	46.9	55.6	58.4
1970–74	1,622	87.5	24.9	39.8	49.8	59.3	64.3
1965–69	893	91.0	34.7	52.3	64.9	69.3	76.9
Black							
All years[2]	1,166	34.0	10.9	16.5	19.6	22.7	25.0
1980–84	380	19.7	*4.7	*10.6	*12.9	*14.8*	*14.8*
1975–79	301	32.3	*11.4	*15.6	18.5	22.2	24.9
1970–74	227	59.0	22.3	29.4	35.3	38.7	42.3
1965–69	98	81.2	*20.9	*27.3	*31.3	40.8	52.1
Hispanic origin							
Hispanic	942	44.7	12.5	16.6	22.7	27.8	29.9
Non-Hispanic	10,635	57.9	21.3	34.3	42.3	47.8	51.5

[1] Includes white, black, and other races.
[2] Includes first marriages dissolved before 1965 and between 1985 and interview.

NOTES: For definitions of terms see technical notes. Because of rounding of estimates, figures may not add to totals. Figures in italics reflect incomplete experience of all or some women in the marriage cohort.

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Symbols

- - - Data not available
. . . Category not applicable
— Quantity zero
0.0 Quantity more than zero but less than 0.05
* Figure does not meet standard of reliability or precision

Suggested citation

London KA. Cohabitation, marriage, marital dissolution, and remarriage: United States, 1988. Advance data from vital and health statistics; no 194. Hyattsville, Maryland: National Center for Health Statistics. 1990.

Technical notes

Survey design

The National Survey of Family Growth (NSFG) is a periodic survey conducted by the National Center for Health Statistics (NCHS) to collect data on fertility and infertility, family planning, and related aspects of maternal and infant health. Fieldwork for Cycle I was conducted in 1973 by the National Opinion Research Center. Fieldwork for Cycles II, III, and IV was conducted by Westat, Inc., in 1976, 1982, and 1988.

For Cycle IV of the NSFG, personal interviews were conducted from January through August 1988 with a national sample of 8,450 women who were 15–44 years of age as of March 15, 1988. Data have been weighted to be representative of the noninstitutionalized population of the United States, and black women were oversampled in order to yield reliable estimates by race. Further details on the sample design of Cycles I–III of the NSFG are given in (7–9).

Interviews for Cycle IV were conducted in households that had participated in another NCHS survey, the National Health Interview Survey, from 1985 through 1987. Respondents were interviewed in person in their own homes by trained female interviewers. The interviews covered the respondent's pregnancy history; past and current use of contraception; ability to bear children; use of medical services for family planning, infertility, and prenatal care; marital history and associated cohabiting unions; occupation and labor force participation; and a wide range of social, economic, and demographic characteristics.

Reliability of estimates

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

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

and

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

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

The parameters shown in table I were used to generate table II, which shows preliminary estimates of standard errors for percents of total or white women, and table III, which shows preliminary estimates of standard errors for percents of black women.

Table I. Preliminary estimates of the parameters A and B for estimating standard errors for women, by race

Race	Parameter A	Parameter B
Total or white	−0.00018	10,738
Black	−0.000626	5,181

The chances are about 68 in 100 that a sample estimate would fall within one standard error and about 95 in 100 that it would fall within two standard errors of a statistic based on a complete count of the population represented by the NSFG. Differences among percents discussed in this report were found to be statistically significant at the 95-percent confidence level using a two-tailed *t*-test with 39 degrees of freedom. This means that, in repeated samples of the same type and size, a difference as large as the one observed would occur in only 5 percent of the samples if there were, in fact, no difference between the percents in the population.

In the text, terms such as "greater," "less," "increase," and "decrease" indicate that the observed differences were statistically significant at the 0.05 level using a two-tailed normal deviate test. Statements using the phrase "the data suggest" indicate that the difference was significant at the 0.10 (10-percent) level but not at the 0.05 (5-percent) level. Lack of comment in the text about any two statistics does not mean that the difference was tested and found not to be significant.

Table II. Preliminary estimates of standard errors for percents of total or white women: 1988 National Survey of Family Growth

Base of percent	Estimated percent: 2 or 98	5 or 95	10 or 90	20 or 80	30 or 70	40 or 60	50
	Standard error in percentage points						
100,000	4.6	7.1	9.8	13.1	15.0	16.1	16.4
500,000	2.1	3.2	4.4	5.9	6.7	7.2	7.3
1,000,000	1.5	2.3	3.1	4.1	4.7	5.1	5.2
5,000,000	0.6	1.0	1.4	1.9	2.1	2.3	2.3
10,000,000	0.5	0.7	1.0	1.3	1.5	1.6	1.6
30,000,000	0.3	0.4	0.6	0.8	0.9	0.9	0.9
50,000,000	0.2	0.3	0.4	0.6	0.7	0.7	0.7
58,000,000	0.2	0.3	0.4	0.5	0.6	0.7	0.7

Table III. Preliminary estimates of standard errors for estimated percents of black women: 1988 National Survey of Family Growth

Base of percent	Estimated percent: 2 or 98	5 or 95	10 or 90	20 or 80	30 or 70	40 or 60	50
	Standard error in percentage points						
100,000	3.2	5.0	6.8	9.1	10.4	11.2	11.4
500,000	1.4	2.2	3.1	4.1	4.7	5.0	5.1
1,000,000	1.0	1.6	2.2	2.9	3.3	3.5	3.6
5,000,000	0.5	0.7	1.0	1.3	1.5	1.6	1.6
7,500,000	0.4	0.6	0.8	1.1	1.2	1.3	1.3

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

Statistics in this report also may be subject to nonsampling error, that is, errors or omissions in responding to the interview, recording answers, and processing data. The data have been adjusted for nonresponse by means of adjustment to the sample weights assigned to each case. Other types of nonsampling error were minimized by a series of quality control measures.

Definition of terms

Cohabitation—Women were classified as currently cohabiting if they reported that their marital status was "not married but living with a partner or boyfriend." Women were classified as having cohabited before their first marriage and as ever having cohabited based on a series of questions on whether they had lived with their husbands before they got married and whether they had ever lived with a partner or boyfriend without being married to him. Women who asked for clarification were told, "By living together, we mean both of you having the same usual address."

Hispanic origin—In the 1988 NSFG, a respondent was classified as being of Hispanic origin if she reported that her only or principal national origin was Puerto Rican, Cuban, Mexican American, Central or South American, or other Spanish. For 3 percent of respondents, origin was not ascertained, so values were imputed. In tables where data are presented for women according to race and Hispanic origin, women of Hispanic origin are included in the statistics for white and black women if they were classified as such by race.

Marital dissolution—Dissolution of formal marriage includes death of the spouse, separation because of marital discord, and divorce. In the case of divorce, the date that a woman and her husband separated is used to compute the number of years between first marriage and dissolution.

Marital status—Respondents were classified by marital status as married, widowed, divorced, separated, or never married. In Cycles I and II, informally married women—women who volunteered that they were sharing living quarters with their sexual partner—were classified as currently married. These women constituted about 2 percent of currently married respondents in Cycle I and 3 percent in Cycle II. In Cycles III and IV, such women were classified according to their legal marital status. In all cycles, women who were married but separated from their spouses were classified as separated if the reason for the separation was marital discord; otherwise, they were classified as currently married. Formal marital status is used throughout this report. Thus, for example, the number of years between first marriage and dissolution refers to the time elapsed between the date of the first formal marriage and the date of dissolution; remarriage is entry into a second formal marriage.

Race—Race refers to the race of the woman interviewed and is reported as black, white, or other. In the 1988 NSFG, race was classified according to the woman's own report of the race that best described her.

Cooperating agencies

Cycle IV of the National Survey of Family Growth was supported in part by the National Institute of Child Health and Human Development, National Institutes of Health, and the Office of Population Affairs, Office of the Assistant Secretary of Health. These agencies also participated in the design of the questionnaire.

Number 195 • December 18, 1990

Advance Data

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

AIDS Knowledge and Attitudes for April–June 1990

Provisional Data From the National Health Interview Survey

by Joseph E. Fitti, M.S.P.H., and Marcie Cynamon, M.A., Division of Health Interview Statistics

Introduction

The National Center for Health Statistics has included questions about acquired immunodeficiency syndrome (AIDS) in the National Health Interview Survey (NHIS) since 1987. Data concerning the adult population's knowledge and attitudes about AIDS and transmission of the human immunodeficiency virus (HIV) are collected to assist in planning educational programs. Since the initiation of the NHIS AIDS Knowledge and Attitudes Survey, its scope has widened to include questions on HIV testing and blood donation experience. In addition, questions assessing self-perceived risk of becoming infected with HIV and a general risk behavior question similar to that asked by the Red Cross of potential blood donors have been included. At various points in its history, the AIDS survey has also been used as a tool for evaluating public awareness campaigns and for assessing the public's willingness to participate in a national seroprevalence survey. Information on the NHIS AIDS Knowledge and Attitudes Survey sample is contained in the technical notes at the end of this report.

The first AIDS Knowledge and Attitudes Survey was in the field from August-December 1987. Provisional results of that survey were published monthly in *Advance Data From Vital and Health Statistics* (Nos. 146, 148, 150, 151, and 153). During the beginning of 1988, the NHIS questionnaire was revised to meet program needs at that time. The revised AIDS Knowledge and Attitudes Survey entered the field in May 1988. Provisional findings for the remainder of 1988 were published periodically (*Advance Data From Vital and Health Statistics* Nos. 160, 161, 163, 164, 167, 175, and 193); in addition, two special reports with a focus on minority populations were published from the 1988 data (*Advance Data From Vital and Health Statistics* Nos. 165 and 166).

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

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

The *Advance Data* reports describing the NHIS AIDS data have been restricted to simple descriptive statistics to facilitate their timely release. Thus, these reports do not attempt to explain or interpret differences among population subgroups or to examine relationships

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among various measures of knowledge and behavior. The NHIS AIDS data bases permit more complex analyses than those presented in this series of *Advance Data* reports, and further exploration of the data is encouraged. Public use data tapes of the 1987 and 1988 AIDS Knowledge and Attitudes Surveys are available at this time, and the data tape for 1989 will be released by the end of this year.

This report presents provisional data for April–June 1990 for most items included in the 1990 NHIS AIDS Knowledge and Attitudes questionnaire. Table 1 displays percent distributions of persons 18 years of age and over by response categories, according to age, sex, race/ethnicity, and education. In most cases, the actual questions asked of the respondents are reproduced verbatim in table 1 along with the coded response categories. In a few cases, questions or response categories have been rephrased or combined for clearer or more concise presentation or results. Refusals and other nonresponse categories (generally less than 1 percent of total responses) are excluded from the denominator in the calculation of estimates, but responses of "don't know" are included. The NHIS AIDS questionnaire uses the phrase "the AIDS virus" rather than "HIV," because it is felt to be more widely recognized and understood. However, this recognition is changing, as is noted later that over 70 percent of adults said they had heard AIDS called by the term "HIV". In this report the two terms are used synonymously.

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

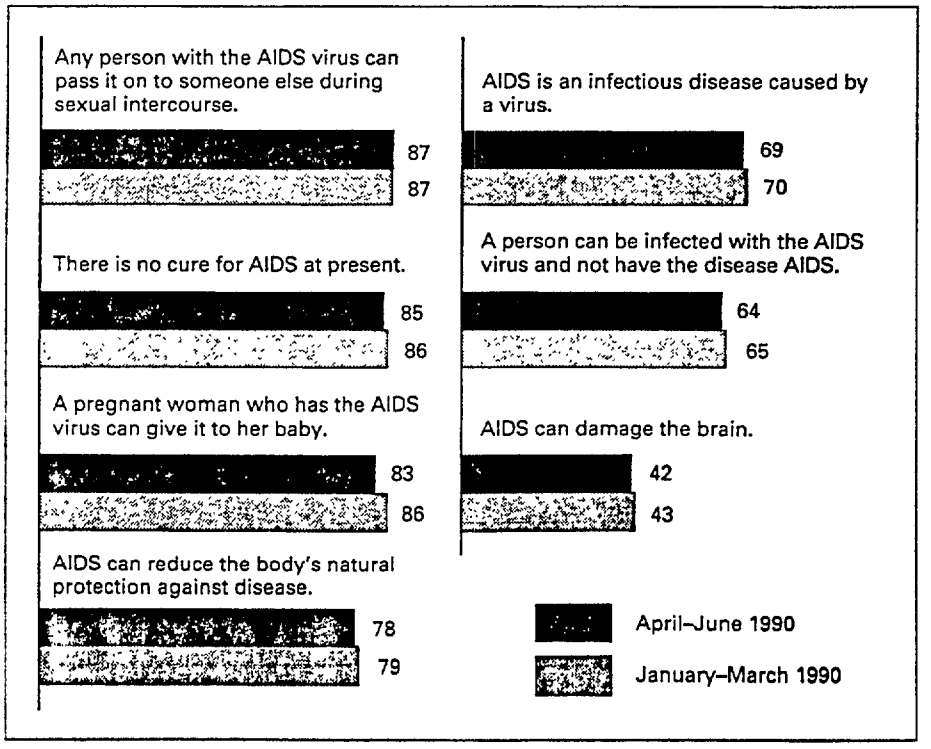

Figure 1. Provisional estimates of percent of adults reporting that selected statements are definitely true: United States, April–June 1990

Selected findings

The following highlights describe survey results of the NHIS AIDS Knowledge and Attitudes Survey for the period April–June 1990. Unless otherwise noted in the text, all measures described remained stable over the 3-month period. All differences cited in the text are statistically significant at the .05 level. Table II shows provisional estimates of the standard errors associated with these results.

General AIDS knowledge— Knowledge about AIDS and HIV was ascertained through a series of statements about the general characteristics of the disease and how it is transmitted. Respondents were asked to classify each statement as definitely true, probably true, probably false, or definitely false. As shown in figure 1, the level of general knowledge about AIDS and HIV in the second quarter of 1990 was unchanged for most measures from the first quarter.

Gains noted during the first quarter of 1990 in areas where knowledge levels were low in 1989 continued at the elevated level during the second quarter. For example, the increase in the percent of adults who stated that it is definitely true that AIDS can damage the brain (27 percent in the last quarter of 1989 to 43 percent in the first quarter of 1990) remained in the second quarter of 1990 (42 percent). The percent who thought it definitely true that a person can be infected with the AIDS virus and not have AIDS rose from 58 percent in 1989 to 65 percent in the first quarter of 1990 and 64 percent in the second quarter.

The high baseline level of knowledge about the main modes of HIV transmission remained at the improved level reached in the first quarter of 1990. The proportions of

adults who thought it definitely true that HIV can be transmitted via sexual intercourse and from a pregnant woman to her child each increased from the level in the last quarter of 1989 by 4 percentage points to 87 and 86 percent, respectively in the first quarter of 1990, and remained at 87 percent and 85 percent in the second quarter. The proportion of adults who thought it very likely that HIV can be transmitted by sharing needles for drug use remained at the January-March 1990 level of 95 percent. Knowledge about HIV transmission via needle sharing was asked in a separate series of questions.

Despite the overall improvement in knowledge shown in the first quarter of 1990, there was a decrease in one area. In October–December 1989, 75 percent of U.S. adults 18 years of age and over realized that it is definitely false that there is a vaccine for the AIDS virus. This decreased to 68 percent for January–March 1990 and remained at the lower level for the period, April–June 1990. This change from the 1989 level may reflect confusion between a vaccine and drugs that are used in treatment of AIDS/HIV, e.g., zidovudine (AZT), or it may result from publicity concerning progress towards development of a vaccine.

Although knowledge levels have increased since 1989, self-assessed knowledge about AIDS declined. In October–December 1989, 24 percent of adults stated that they knew a lot about AIDS; in January–March 1990, this proportion declined to 18 percent. Similarly, in April–June 1990, 19 percent of adults stated they knew a lot about AIDS. The proportion of adults claiming to know nothing about AIDS increased from 7 to 11 percent by the first quarter of 1990 and held constant through the second quarter. It is impossible to determine whether the decline in self-assessed level of knowledge from 1989 reflects a sense of information overload associated with the increasing amount of information available about development of a vaccine for HIV, modes of transmission, and forms of treatment, or if it is solely an effect of questionnaire design changes. Although this question is worded the same in 1990 as in preceding years, its location in the interview has changed so that it is now the first question asked.

General knowledge about AIDS continues to vary by demographic and socioeconomic characteristics. Persons aged 50 years and over were less knowledgeable than younger persons. Knowledge increased directly with number of years of school completed. For 8 out of the 9 measures of general AIDS knowledge examined, non-Hispanic white adults were more likely than non-Hispanic black or Hispanic adults to respond correctly. For one measure (awareness that AIDS can damage the brain), non-Hispanic black adults were the most knowledgeable. There was no consistent difference by gender in general AIDS knowledge. These differentials in objective measures of knowledge were generally consistent with those in self-assessed knowledge about AIDS. The population subgroups most likely to state that they know a lot about AIDS were persons below 50 years of age and those with more than 12 years of school.

Two new items regarding general AIDS knowledge were added to the 1990 NHIS AIDS survey. One of these is a question asking whether or not the respondent had ever heard the AIDS virus referred to as "HIV." Two-thirds of adults were familiar with the "HIV" term as of January–March 1990; by April–June 1990, 71 percent reported recognizing this term. However, familiarity with the term is lower among adults 50 years of age or over and among adults with less than 12 years of school. In January–March 1990, these percentages were only 54 percent and 42 percent, respectively. In April–June 1990, they were 58 percent and 44 percent, respectively. The percent of persons of Hispanic origin who said they were familiar with this term decreased substantially between the first quarter and the second quarter 1990, from 48 percent to 39 percent. The possibility that this difference may be related to a translation problem is being investigated.

The proportion of adults who categorized the second new item, a statement regarding the availability of drugs to extend the life of a person infected with HIV, as true or probably true remained at the same level in the second quarter as in the first quarter 1990, (46 and 27 percent and 45 and 27 percent, respectively).

Misinformation about HIV transmission—Respondents were asked to estimate the risk of HIV transmission associated with several forms of casual contact with infected or potentially infected individuals, e.g., working with someone with AIDS, using public toilets, and so forth. Five response options were offered for the likelihood of transmission: very likely, somewhat likely, somewhat unlikely, very unlikely, and definitely not possible. Both "very unlikely" and "definitely not possible" were interpreted as correct responses, even for forms of contact where our current understanding of the virus indicates that there definitely is no possibility of transmission. The decision to accept "very unlikely" as correct was based on the large numbers of respondents who chose that option, seemingly unwilling to commit themselves to the concept of a zero probability.

As has been true since 1987 when the survey was begun, the results for April–June 1990 indicated that many misperceptions about HIV transmission exist. The proportion of adults who assessed the risk of transmission as "very unlikely" or "definitely not possible" varied from less than half for transmission via insect bites or contact with the saliva of an infected individual (sharing eating utensils, being sneezed/coughed on) to about three-fourths for working near or attending school with someone with HIV. The level of misinformation, as indicated by these measures, has remained constant in 1990.

As with general AIDS knowledge, there were demographic and socioeconomic differentials in

misperceptions about HIV transmission. Adults 50 years of age and over were more likely than younger adults to be misinformed, and non-Hispanic black and Hispanic individuals generally had more misperceptions than did non-Hispanic white individuals. The level of misinformation decreased with increasing educational attainment. Again, there was no consistent differential by gender.

Information and communication about AIDS—The proportion of adults who reported discussing AIDS with their children aged 10–17 years during April–June 1990 was 68 percent, and the proportion who reported that their children had received instruction in school about AIDS was 75 percent. Ninety percent of adults stated that they had received information about AIDS/HIV in the month preceding the NHIS AIDS survey. The most commonly reported sources of information were television (cited by 80 percent of adults), newspapers and magazines (57 and 45 percent, respectively), and radio (33 percent).

Sources of AIDS information differed somewhat by race and ethnicity. Newspapers were reported more frequently by non-Hispanic white individuals (59 percent) than by Hispanic or non-Hispanic black individuals (42 percent and 47 percent, respectively). There were 7 sources of information that were reported more often by non-Hispanic black than by Hispanic or non-Hispanic white individuals: street signs and billboards, store displays, mass transit displays (signs in buses and subways), health department brochures, work place brochures, and friends and relatives. Mention of these sources by non-Hispanic black individuals ranged from 11 percent to 26 percent.

Blood donation and testing—There was no change in blood donation experience between January-March 1990 and April–June 1990. Data for the first two quarters of 1990 indicated that 39 and 40 percent of adults, respectively, had ever donated blood, 16 and 15 percent had donated blood since March 1985 (when blood donations were first routinely tested for HIV), and 7 and 6 percent had donated blood in the preceding year. Multiple donations were common among those who had donated blood. Of the 15 percent of adults who had donated blood since March 1985, as reported in April–June 1990, about half (7 percent) donated blood 3 or more times.

Seventy-nine percent of U.S. adults had heard of the blood test to detect HIV antibodies. Sixty-eight percent knew blood donations are routinely tested for HIV, i.e., seven-eighths of those familiar with the blood test. Two percent of the persons who had donated blood since March 1985—an estimated 500,000 individuals—reportedly did so at least in part to be tested for HIV. Use of blood donation as a means of being tested for HIV was reported more often by men than women and was far more common for non-Hispanic black than other adults.

Ten percent of U.S. adults reported in January–March 1990 having had their blood tested for HIV antibodies (not counting testing performed in conjunction with blood donation), including 7 percent tested once and 3 percent with multiple tests. In April–June 1990 , these percentages remained the same. Including the 15 percent of adults who were tested as a part of blood donation since 1985, an estimated 25 percent of the adult population has been tested. This is a substantial increase over the estimate of 21 percent from October-December 1989, but the difference may partly reflect questionnaire changes. In 1988–89, the NHIS AIDS questionnaire asked if respondents had the AIDS blood test; if they did not respond positively but had donated blood since March 1985, they were included in the estimate of persons tested. In this year's survey respondents are asked separately about blood donation and testing exclusive of blood donation; then the two estimates are summed.

The proportion of adults who had been tested exclusive of blood donation declined sharply with age, from 16 percent of persons 18–29 years of age to 12 and 3 percent, respectively, of those 30–49 years of age and 50 years of age and over. Men were slightly more likely than women to have been tested exclusive of blood donation, 11 percent compared with 9 percent. Hispanic adults and non-Hispanic black adults were more likely than non-Hispanic white adults to have been tested outside of blood donations, 14 percent each compared with 9 percent. Having been tested also increased with education, from 8 percent of persons with less than 12 years of school to 12 percent of those with more than 12 years of school.

Of persons tested exclusive of blood donation, 52 percent stated that all their tests were required, i.e., conducted as a part of an activity that includes mandatory blood testing. For 43 percent all their tests were voluntary. Three percent had both required and voluntary tests. The most commonly cited reasons for required tests were hospitalization or surgery and military induction or service (each reported by 10 percent of persons tested outside of blood donation). In addition, 7 percent were tested as a requirement of employment, 6 percent for life insurance, 7 percent for immigration (cited by 47 percent of Hispanic adults who were tested exclusive of blood donation), 4 percent for health insurance, and 14 percent for other reasons. Individuals may have cited more than one reason for a single test (e.g., for both employment and health insurance) or may have had more than one required test; thus, the sum of the individual reasons exceeds the proportion of persons with at least one required blood test. The only difference reported between the first and second quarters of 1990 was Hispanic adults reporting immigration as a reason for testing, 35 percent in the first quarter and 47 percent in the second quarter.

Twenty-nine percent of persons tested for HIV antibodies exclusive of blood donations—including both voluntary and required testing—had their last blood test at a doctor's

office or HMO, and 22 percent were tested at a hospital clinic or emergency room. Forty-three percent and 9 percent of Hispanic adults tested for HIV antibodies, other than in blood donations, were tested at these locations, respectively. Eleven percent of all adults tested were tested at military induction/service sites. Only 3 percent of persons tested for HIV exclusive of blood donations were tested at designated AIDS clinic/counseling/testing sites. Thirty-nine percent of persons tested received counseling about AIDS and HIV before the test was administered.

Three-fourths of the persons tested (74 percent) received their test results; of those who did not, one-third reportedly wanted the results of their tests. Of those persons who received their test results, only 29 percent were given counseling about prevention of HIV transmission at the time the results were provided. Sixty-six percent of persons who received results got their test results in person, compared with smaller proportions who received their test results by mail (13 percent), telephone (15 percent), or in some other way (5 percent). The vast majority (91 percent) of persons tested for HIV felt that their tests were handled properly in terms of confidentiality of test results.

Six percent of U.S. adults reportedly plan to be tested for HIV antibodies in the next 12 months, according to the NHIS AIDS data for April–June 1990. This figure, which has remained fairly stable since 1989, was 2 times higher for minorities than for non-Hispanic white adults. Thirteen percent of non-Hispanic black adults reported plans to be tested, compared with 11 percent of Hispanic adults and 5 percent of non-Hispanic white adults.

Of persons who plan to be tested, two-thirds stated that they would be tested voluntarily, because they personally wanted to know if they are infected. Twenty-four percent plan to be tested as part of blood donation, and 16 percent cited the need for testing as a requirement for a job other than military. Some individuals reported more than one reason for anticipated testing. The locations at which persons plan to be tested are similar to those reported for tests already conducted, with private doctors/HMOs and hospital emergency rooms/clinics accounting for over half (38 and 17 percent, respectively).

Risk of HIV infection—The second-quarter 1990 NHIS AIDS survey results indicated that 5 percent of U.S. adults, an estimated 9 million persons, received blood transfusions between 1977 and 1985. This is the period when HIV is thought to have entered the United States and when routine screening of blood donations began. The level reported in the second quarter agrees with that reported in the first quarter. About half of the nation's adults think the blood supply is now safe for transfusions.

The 1990 AIDS survey revealed increasing uncertainty about the efficacy of condom use in preventing HIV transmission. The proportion of adults who think condoms are very effective in preventing transmission of the virus declined from 33 percent in October–December 1989 to 27 percent in both January–March 1990 and April–June 1990, while the proportion who did not know rose from 7 to 14 percent. Although these shifts occurred in all population subgroups, the increase in uncertainty was especially evident among adults age 50 years and over. For this group, the proportion who did not know how effective condoms are in preventing HIV transmission rose from 13 percent in the last quarter of 1989 to 23 percent in January–March 1990. These differences between 1989 and 1990 may be due to the change in the format of the question.

Eighty percent of adults felt there was no chance of their having been infected with HIV, and 15 percent said there was a low chance. The proportions who thought there was a medium or high chance of already being infected were 2 and less than 1 percent, respectively. Between the last quarter of 1989 and the second quarter of 1990, the proportion of persons who thought there was no chance of their becoming infected with HIV in the future dropped from 77 to 73 percent, reversing a long-term increase in this area. As of April–June 1990, 21 percent believed that they had a low chance of becoming infected; three and less than 1 percent, respectively, cited a medium or high chance. Only 2 percent of adults reported being in any of the categories associated with a high risk of HIV infection. This proportion has remained stable since the risk behavior question was added to the NHIS AIDS questionnaire in 1988.

As of April–June 1990, 15 percent of adults knew someone with AIDS or HIV, about the same figure as in the last quarter of 1989. This proportion remains higher for persons under 50 years of age than for those age 50 years and over and higher for black non-Hispanic adults than for Hispanic or non-Hispanic white adults. The proportion of adults who reported knowing someone with AIDS or HIV increased sharply with number of years of school, from 8 percent of persons with less than 12 years of school to 21 percent of those with more than 12 years of school.

Suggested citation

Fitti JE, Cynamon M. AIDS knowledge and attitudes for April–June 1990; Provisional data from the National Health Interview Survey. Advance data from vital and health statistics; no 195. Hyattsville, Maryland: National Center for Health Statistics. 1990.

Symbols

–	Quantity zero
0	Quantity more than zero but less than 0.05

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

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

AIDS knowledge or attitude	Total	Age			Sex		Race/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	19	22	22	12	18	19	19	17	18	9	15	27
Some	47	53	54	35	46	49	50	39	36	29	50	54
A little	24	21	20	30	25	22	22	27	28	31	27	17
Nothing	11	4	4	23	11	10	9	17	18	30	8	3
Don't know	0	–	0	0	0	0	0	0	–	0	0	0
2. In the past month, have you received information about AIDS from any of these sources?[1]												
Television	80	81	81	78	81	79	80	77	79	75	81	81
Radio	33	38	38	25	38	30	34	30	34	26	31	40
Magazines	45	50	49	37	43	47	46	42	37	30	43	56
Newspapers	57	53	60	55	58	56	59	47	42	40	55	67
Street signs/billboards	12	18	13	7	14	10	11	17	14	8	10	16
Store displays/store distributed brochures	7	10	8	4	7	7	6	11	9	5	7	8
Bus/streetcar/subway displays	4	7	4	2	5	3	3	10	7	3	3	5
Health department brochures	18	25	20	11	16	20	17	26	18	12	18	21
Workplace distributed brochures	12	11	17	6	12	12	11	18	10	5	10	17
School distributed brochures	10	16	11	3	8	11	8	13	11	7	9	12
Church distributed brochures	4	4	5	4	4	4	4	7	7	4	4	5
Community organization	5	6	6	4	5	6	4	9	6	3	4	7
Friend/acquaintance	13	18	16	7	13	13	12	18	15	10	12	16
Other	3	4	3	2	2	3	3	3	4	1	2	4
Don't know	1	0	0	1	1	1	1	1	1	2	0	0
Received no AIDS information in past month	10	9	8	13	10	10	10	12	12	17	10	6
3. Have you heard the AIDS virus called HIV?												
Yes	71	75	79	58	70	71	74	71	39	44	70	85
No	27	24	20	38	28	26	24	27	58	51	27	14
Don't know	2	2	1	4	2	2	2	3	4	5	2	1
4a. AIDS can reduce the body's natural protection against disease.												
Definitely true	78	81	85	68	79	78	82	65	63	54	78	91
Probably true	11	11	8	13	11	11	10	13	19	18	12	6
Probably false	1	1	1	1	1	1	1	3	1	3	1	0
Definitely false	2	2	2	2	2	2	1	5	4	3	3	1
Don't know	8	5	4	15	8	8	6	15	14	22	6	2
4b. AIDS can damage the brain.												
Definitely true	42	40	44	42	42	42	41	50	45	40	42	43
Probably true	25	26	25	26	26	25	26	22	24	27	27	23
Probably false	9	12	10	6	9	8	9	6	7	5	8	12
Definitely false	4	6	5	2	4	4	4	4	5	2	4	6
Don't know	19	17	16	25	18	20	20	17	18	26	19	16
4c. AIDS is an infectious disease caused by a virus.												
Definitely true	69	76	77	56	71	68	70	70	65	55	68	78
Probably true	16	15	13	19	15	16	15	16	20	19	17	12
Probably false	2	2	2	3	2	2	2	2	1	3	2	2
Definitely false	3	2	3	3	3	3	3	3	2	2	3	3
Don't know	10	5	5	19	9	11	10	10	12	20	10	4
4d. A person can be infected with the AIDS virus and not have the disease AIDS.												
Definitely true	64	67	72	53	64	65	67	59	49	43	62	78
Probably true	17	16	15	21	17	18	17	17	20	20	20	14
Probably false	3	4	2	3	3	3	3	2	5	4	3	2
Definitely false	3	4	3	2	4	3	2	6	5	4	3	2
Don't know	12	9	7	21	13	12	11	16	21	29	11	5
4e. ANY person with the AIDS virus can pass it on to someone else through sexual intercourse.												
Definitely true	87	92	90	81	86	89	88	88	82	81	89	90
Probably true	9	6	7	12	10	7	9	7	12	11	8	8
Probably false	1	1	1	0	0	1	0	1	1	0	1	0
Definitely false	0	0	0	0	0	0	0	0	1	0	0	0
Don't know	3	1	1	6	3	3	3	4	5	7	2	1
4f. A pregnant women who has the AIDS virus can give it to her baby.												
Definitely true	85	89	89	78	83	87	86	85	81	76	86	90
Probably true	11	9	9	14	13	9	10	10	13	15	11	8
Probably false	0	0	0	0	0	0	0	0	0	0	0	0
Definitely false	0	0	0	0	0	0	0	0	–	0	0	0
Don't know	4	2	2	7	4	4	4	4	6	9	3	2

See footnotes at end of table.

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

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

AIDS knowledge or attitude	Total	Age			Sex		Race/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											
4g. There are drugs available to treat AIDS or the AIDS virus which can lengthen the life of an infected person.												
Definitely true	45	46	51	38	46	45	47	41	35	31	43	55
Probably true	27	27	27	28	27	28	28	23	26	24	30	27
Probably false	6	7	5	5	6	5	6	6	6	6	6	6
Definitely false	6	7	7	4	6	6	5	10	9	7	7	5
Don't know	16	12	11	24	15	16	14	20	24	31	15	8
4h. There is a vaccine available to the public that protects a person from getting the AIDS virus.												
Definitely true	2	3	2	3	3	2	2	6	4	5	2	2
Probably true	4	4	3	4	4	4	3	6	10	6	4	2
Probably false	9	10	9	10	9	10	9	10	10	11	10	8
Definitely false	69	71	76	60	71	67	73	58	52	48	69	80
Don't know	15	12	10	24	13	17	14	20	24	29	15	8
4i. There is no cure for AIDS at present.												
Definitely true	85	86	89	81	85	86	87	81	77	74	86	91
Probably true	7	6	6	8	7	7	6	8	7	8	8	5
Probably false	1	2	1	1	1	1	1	2	2	2	1	1
Definitely false	2	2	1	2	2	2	1	3	3	3	1	1
Don't know	5	3	3	8	5	5	4	7	11	12	4	2
5. How likely do you think it is that a person will get AIDS or the AIDS virus infection from—												
5a. Working near someone with the AIDS virus?												
Very likely	2	2	2	3	2	2	2	4	3	4	2	2
Somewhat likely	6	7	6	6	7	6	5	8	11	9	6	5
Somewhat unlikely	9	10	9	9	10	9	9	9	11	10	10	8
Very unlikely	40	40	40	40	40	40	42	37	29	32	41	43
Definitely not possible	36	40	39	31	35	38	37	34	38	31	36	40
Don't know	6	2	4	11	6	6	5	8	9	14	5	2
5b. Eating in a restaurant where the cook has the AIDS virus?												
Very likely	5	4	5	7	6	5	5	8	6	8	6	4
Somewhat likely	17	17	17	17	18	16	17	16	17	18	18	15
Somewhat unlikely	13	15	13	11	13	13	13	14	13	12	12	14
Very unlikely	34	33	37	32	34	34	36	28	25	25	34	39
Definitely not possible	21	25	22	18	20	23	21	21	27	18	21	24
Don't know	10	6	6	16	9	10	9	14	11	19	10	5
5c. Sharing plates, forks, or glasses with someone who has the AIDS virus?												
Very likely	10	8	9	11	10	9	9	12	9	12	10	8
Somewhat likely	22	20	22	22	23	20	21	23	24	24	21	20
Somewhat unlikely	13	15	13	12	13	13	14	12	11	11	14	14
Very unlikely	29	30	31	26	29	29	31	24	21	21	28	34
Definitely not possible	18	22	19	13	16	19	17	17	24	15	18	19
Don't know	9	5	6	15	8	9	8	11	11	17	9	5
5d. Using public toilets?												
Very likely	5	6	4	6	5	6	5	8	8	9	6	3
Somewhat likely	14	13	13	16	15	13	12	15	24	20	14	10
Somewhat unlikely	11	12	11	11	11	12	11	13	9	10	13	11
Very unlikely	36	35	39	35	37	36	39	31	22	26	36	43
Definitely not possible	25	29	28	18	25	25	25	24	27	18	25	29
Don't know	8	5	5	14	7	9	8	10	10	16	7	4
5e. Sharing needles for drug use with someone who has the AIDS virus?												
Very likely	95	97	97	92	95	95	96	94	91	90	96	97
Somewhat likely	2	1	1	3	2	2	2	3	3	4	2	1
Somewhat unlikely	0	0	0	0	0	0	0	0	1	0	0	0
Very unlikely	0	0	0	0	0	0	0	1	1	1	0	1
Definitely not possible	0	0	0	0	0	0	0	0	1	0	0	0
Don't know	2	1	1	4	2	2	1	2	3	5	1	1
5f. Being coughed or sneezed on by someone who has the AIDS virus?												
Very likely	8	7	7	10	8	8	7	10	9	10	8	6
Somewhat likely	20	16	20	23	20	20	20	20	21	23	20	18
Somewhat unlikely	15	16	15	13	15	14	15	14	12	12	15	16
Very unlikely	30	34	32	26	32	29	32	25	24	23	30	35
Definitely not possible	17	22	18	12	16	18	16	17	22	14	17	18
Don't know	10	5	7	17	10	11	10	14	12	19	10	6

See footnotes at end of table.

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

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

AIDS knowledge or attitude	Total	Age			Sex		Race/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											
5g. Attending school with a child who has the AIDS virus?												
Very likely	1	1	1	2	1	1	1	2	2	3	1	1
Somewhat likely	5	4	5	6	6	4	4	6	8	8	5	4
Somewhat unlikely	9	8	10	9	9	8	9	10	8	8	9	9
Very unlikely	41	40	42	41	42	40	44	36	28	34	42	44
Definitely not possible	37	44	39	31	35	40	37	36	45	33	38	40
Don't know	6	2	4	11	6	6	5	9	9	15	5	3
5h. Mosquitoes or other insects?												
Very likely	10	11	9	9	11	8	8	15	15	13	10	8
Somewhat likely	19	22	19	17	20	18	17	21	25	21	20	17
Somewhat unlikely	8	9	9	7	8	8	9	7	6	6	9	9
Very unlikely	24	23	25	24	25	24	26	20	14	19	23	28
Definitely not possible	19	20	22	17	19	20	20	17	21	14	18	23
Don't know	20	15	17	27	17	22	20	20	19	27	20	15
8. Have you ever discussed AIDS with any of your children aged 10–17?[2]												
Yes	68	56	69	62	55	78	68	72	58	51	67	75
No	32	44	31	38	45	22	32	28	42	49	33	24
Don't know	0	–	0	–	–	0	–	–	–	–	–	0
9. Have any or all of your children aged 10–17 had instruction at school about AIDS?[2]												
Yes	75	67	77	69	71	79	74	81	73	68	77	76
No	9	13	9	9	9	9	9	7	12	14	8	9
Don't know	15	20	14	22	20	12	17	12	15	18	15	15
10. Have you ever donated blood?												
Yes	40	31	44	41	50	30	43	32	27	26	37	50
No	60	69	56	58	50	69	57	67	73	73	63	50
Don't know	0	0	0	0	0	0	0	0	–	0	0	0
11a. Have you donated blood since March 1985?												
Yes	15	21	19	6	18	12	16	12	9	5	14	21
No	85	79	81	93	81	88	83	88	91	95	86	78
Don't know	0	0	1	0	1	0	0	1	0	0	0	1
11b. Have you donated blood in the past 12 months?												
Yes	6	8	7	3	7	4	7	4	2	2	5	9
No	94	92	92	97	92	95	93	95	98	98	95	90
Don't know	0	0	1	0	1	0	1	1	0	0	0	1
12. How many times have you donated blood since March 1985?												
Once	5	9	5	2	5	4	5	4	4	2	5	5
Twice	3	4	3	1	4	2	3	3	2	1	2	4
Three times or more	7	8	10	4	9	6	8	4	3	2	6	12
Don't know	0	0	0	0	0	0	0	0	0	0	0	0
Did not donate blood since March 1985[3]	85	79	81	94	82	88	84	88	91	95	86	79
13. How many times have you donated blood in the past 12 months?												
Once	3	5	4	1	4	3	4	3	2	1	3	5
Twice	1	2	2	1	2	1	2	1	0	0	1	2
Three times or more	1	1	1	1	2	1	1	0	0	0	1	2
Don't know	0	0	0	0	0	0	0	–	–	0	0	0
Did not donate blood in the past 12 months[4]	94	92	93	97	93	95	93	96	98	98	95	91
14. Have you ever heard of a blood test that can detect the AIDS virus infection?												
Yes	79	82	87	66	79	78	81	68	68	60	78	89
No	19	17	11	30	19	19	17	30	30	36	20	10
Don't know	2	1	1	4	2	3	2	2	2	4	2	1
15. To the best of your knowledge, are blood donations routinely tested for the AIDS virus infection?												
Yes	68	72	77	54	68	68	72	54	53	47	66	81
No	4	4	4	4	4	4	4	6	5	4	4	4
Don't know	6	6	6	8	6	6	6	8	10	9	7	5
Never heard of test[5]	21	18	13	34	21	22	19	32	32	40	22	11
16. Was one of your reasons for donating blood because you wanted to be tested for the AIDS virus infection?[6]												
Yes	2	3	2	1	3	1	1	7	3	1	3	1
No	82	80	85	74	82	81	84	68	66	67	76	87
Don't know	0	–	0	–	0	–	0	–	–	–	0	0
Never heard of test[5]	11	12	8	19	10	12	10	18	22	22	16	7
17. Except for blood donations since 1985, have you had your blood tested for the AIDS virus infection?												
Yes	10	16	12	3	11	9	9	14	14	8	9	12
No	66	64	73	60	65	67	70	52	51	50	67	74
Don't know	2	2	2	3	3	2	2	1	3	2	2	3
Never heard of test[5]	21	18	13	34	21	22	19	32	32	40	22	11

See footnotes at end of table.

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

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

AIDS knowledge or attitude	Total	Age			Sex		Race/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											
18. How many times have you had your blood tested for the AIDS virus infection, not including blood donations?												
Once	7	11	8	2	7	7	6	9	10	6	6	8
Twice	2	3	2	0	2	1	1	3	3	1	1	2
Three times or more	1	2	2	0	2	1	1	2	1	1	1	2
Don't know	0	0	0	0	0	0	0	0	–	0	0	0
Never heard of/had test[7]	90	84	88	97	89	91	91	86	86	92	91	88
19. How many times in the past 12 months have you had your blood tested for the AIDS virus infection, not including blood donations?												
None	5	7	6	2	5	4	4	6	6	4	4	6
Once	5	8	5	1	5	4	4	7	8	4	4	5
Twice	0	1	0	0	1	0	0	1	0	0	1	0
Three times or more	0	0	0	0	0	0	0	1	0	0	0	0
Don't know	0	–	0	0	0	0	0	0	–	0	0	0
Never heard of/had test[7]	90	84	88	97	89	91	91	86	86	92	91	88
20a. Were the blood tests, including those you had before the past 12 months, required or did you go for them voluntarily, or were there some of each?[8]												
All required	52	57	50	47	55	49	54	43	60	57	48	54
All volunteered	43	39	46	45	39	47	42	53	35	40	47	41
Some of each	3	2	3	3	4	1	3	3	3	2	2	3
Don't know	2	1	1	5	1	3	1	1	2	1	2	2
20b. Were any of the blood tests required for:[8]												
Hospitalization or a surgical procedure?	10	8	9	22	7	13	12	10	2	11	9	11
Health insurance?	4	3	4	3	4	3	4	2	–	2	4	4
Life insurance?	6	3	10	5	9	4	9	1	–	2	4	9
Employment?	7	8	8	2	7	7	7	10	2	3	8	8
Military induction or military service?	10	16	6	4	17	2	11	10	1	3	12	10
Immigration?	7	6	7	5	8	5	2	1	47	26	3	3
Other	14	17	12	10	10	18	14	14	11	12	14	14
Don't know	–	–	–	–	–	–	–	–	–	–	–	–
21. When was your last blood test for the AIDS virus infection?[8]												
1990	24	23	24	28	27	21	25	26	14	22	28	22
1989	40	45	40	27	39	42	39	42	50	43	39	41
1988	16	16	16	15	13	18	15	12	24	19	12	17
1987	9	8	10	6	9	8	10	11	5	4	9	11
1986	4	3	3	8	4	4	4	2	1	3	4	4
1985	2	2	3	2	2	2	3	2	2	2	4	1
Don't know	2	1	2	7	2	3	2	3	2	4	2	2
22a. Was your last test required or did you go for it voluntarily?[8]												
Required	53	58	51	47	57	50	55	44	61	58	49	55
Voluntary	44	40	47	48	41	47	43	55	37	41	49	42
Don't know	2	1	2	5	1	3	1	1	2	1	2	2
22b. Was the test required for:[8]												
Hospitalization or a surgical procedure?	9	7	8	19	7	11	11	7	2	11	8	9
Health insurance?	3	3	3	3	4	3	4	2	–	2	4	4
Life insurance?	6	3	9	3	8	4	8	1	–	2	3	9
Employment?	7	7	7	2	7	7	7	10	2	3	8	7
Military induction or military service?	9	15	5	4	16	2	11	10	1	2	11	10
Immigration?	7	6	8	5	8	5	2	1	46	25	3	3
Other	12	16	10	10	8	18	13	13	10	12	13	13
Don't know	–	–	–	–	–	–	–	–	–	–	–	–
23. Not including a blood donation, where was your last blood test for the AIDS virus done?[8]												
AIDS clinic/counseling/testing site	3	4	2	5	3	4	3	3	3	3	2	4
Clinic run by employer	4	4	5	2	5	4	4	8	4	5	5	4
Doctor/HMO	29	26	31	33	24	35	27	30	43	25	29	31
Public health department	8	10	7	6	8	9	6	16	11	14	8	7
Hospital emergency room/outpatient clinic	22	20	21	36	17	28	25	20	9	24	23	21
STD clinic	0	0	0	–	0	0	–	1	–	–	0	0
Family planning clinic	1	1	2	–	1	1	1	1	6	4	1	1
Prenatal clinic	1	1	0	–	–	1	1	1	–	3	–	0
Tuberculosis clinic	–	–	–	–	–	–	–	–	–	–	–	–
Other clinic	5	4	6	4	6	4	4	4	13	7	4	5
Drug treatment facility	0	0	0	–	0	0	0	–	–	–	0	0
Military induction/service site	11	17	7	6	18	3	13	10	2	3	14	11
Immigration site	1	1	1	1	1	1	1	1	7	4	1	1
Other	11	8	15	8	15	7	14	4	2	8	10	14
Don't know	0	0	–	–	0	–	–	1	–	–	–	0

See footnotes at end of table.

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AIDS knowledge or attitude	Total	Age			Sex		Race/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											
24. Before your last blood test for the AIDS virus infection, were you counseled about the AIDS virus and the meaning of the test?[8]												
Yes	39	40	40	28	41	36	37	41	45	38	39	39
No	60	59	58	71	57	62	61	59	54	61	60	59
Don't know	1	0	1	0	0	1	1	0	1	–	1	1
25. Did you get the results of your last test?[8]												
Yes	74	76	72	76	73	75	71	80	86	79	74	72
No	25	23	27	23	26	24	28	20	14	19	25	26
Don't know	0	0	0	1	0	0	1	–	–	–	1	0
26. Did you want the results of your last test?[9]												
Yes	29	32	27	23	30	27	28	26	25	55	23	26
No	67	60	71	74	67	67	68	65	75	45	72	69
Don't know	4	8	2	4	3	6	4	9	–	–	5	5
27. When you received the results of your last test, did you receive counseling or talk with a health professional about how to lower your chances of becoming infected with the AIDS virus or how to avoid passing it on to another person?[10]												
Yes	29	32	29	14	31	26	23	45	37	27	28	30
No	71	68	71	84	69	74	77	54	63	73	72	70
Don't know	0	0	0	1	0	0	0	1	–	0	0	0
28. Were the results given in person, by telephone, by mail or in some other way?[10]												
In person	66	66	64	71	67	64	59	77	87	84	65	59
By telephone	15	15	16	15	13	18	19	12	4	9	16	18
By mail	13	12	15	10	14	13	15	9	4	4	15	16
Other	5	6	5	2	6	5	7	1	4	3	4	7
Don't know	0	0	0	1	1	0	0	1	–	–	0	1
29. Do you feel your last test for the AIDS virus infection was handled properly in terms of the confidentially of your test results?[8]												
Yes	91	92	91	91	91	92	91	96	90	92	91	92
No	3	1	3	4	3	2	3	2	4	3	2	3
Don't know	5	6	5	5	6	5	6	2	6	4	7	4
30. Do you expect to have a blood test for the AIDS virus infection in the next 12 months?												
Yes	6	11	7	2	8	5	5	13	11	7	6	7
No	68	65	77	61	67	69	73	48	48	49	68	79
Don't know	4	5	4	3	4	4	3	7	8	4	4	4
Never heard of test[5]	21	18	13	34	21	22	19	32	32	40	22	11
31. Tell me which of these statements explain why you will have the blood test:[11]												
Voluntarily, because you personally want to know if you are infected	67	69	67	57	63	72	57	83	83	86	68	55
As part of a blood donation	24	25	22	31	26	23	27	21	23	19	25	26
As part of a hospitalization or surgical procedure	11	10	9	21	10	12	12	9	7	12	10	10
As a requirement for health insurance	11	14	9	11	13	10	10	16	13	14	12	10
As a requirement for life insurance	9	10	10	7	11	7	8	13	10	13	8	9
As a requirement for a job, other than military	16	16	17	13	17	15	17	20	9	16	14	17
As a requirement for the military	12	18	6	9	17	6	13	11	12	13	11	12
As a requirement for immigration	3	3	3	1	3	2	2	3	6	5	2	2
As a required part of some other activity that includes a blood sample and automatic AIDS testing	14	16	13	10	13	16	14	16	12	13	15	14
32. Where will you go to have a blood test for the AIDS virus infection?[11]												
AIDS clinic/counseling/testing site	2	2	2	–	2	1	1	3	4	2	2	1
Clinic run by employer	3	2	5	3	4	3	3	3	6	4	4	3
Doctor/HMO	38	39	36	43	36	40	41	32	37	35	41	37
Hospital/emergency room/outpatient clinic	17	15	20	15	15	21	17	20	15	23	18	14
Other clinic	9	9	10	4	8	10	5	12	16	8	8	10
Public health department	10	12	8	6	8	12	7	17	10	18	7	7
Red Cross/blood bank	8	6	9	13	10	6	11	4	3	3	8	12
Other	10	11	8	13	14	4	12	6	3	5	8	15
Don't know	3	4	2	2	4	2	3	2	4	3	4	2

See footnotes at end of table.

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

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

AIDS knowledge or attitude	Total	Age			Sex		Race/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											
33. Did you have a blood transfusion at any time between 1977 and 1985?												
Yes	5	2	5	8	5	6	6	5	4	6	5	5
No	93	97	94	91	94	93	93	94	95	92	94	94
Don't know	1	0	1	2	1	1	1	1	1	1	1	1
34. Do you think the present supply of blood is safe for tranfusions?												
Yes	46	51	49	39	51	42	49	37	32	33	43	56
No	31	31	31	32	28	34	29	39	41	35	34	26
Don't know	23	18	20	29	21	24	23	24	27	32	23	18
35. How effective do you think the use of a condom is to prevent getting the AIDS virus through sexual activity?												
Very effective	27	33	30	20	31	24	27	29	26	19	26	32
Somewhat effective	52	54	55	47	52	52	54	47	46	42	54	55
Not at all effective	4	5	4	5	3	5	4	5	7	7	5	3
Don't know how effective	14	7	10	23	11	16	13	16	16	25	13	8
Don't know method	3	2	1	5	3	3	2	4	6	7	2	1
36. What are your chances of having the AIDS virus?												
High	0	1	0	0	0	0	0	1	1	1	0	0
Medium	2	3	2	2	3	2	2	5	3	2	2	2
Low	15	21	18	9	17	14	16	16	13	9	14	20
None	80	74	78	87	78	82	81	75	79	84	82	77
Don't know	2	2	1	2	2	2	1	3	4	4	1	1
37. What are your chances of getting the AIDS virus?												
High	0	0	0	0	0	0	0	1	0	0	0	0
Medium	3	3	3	2	3	2	2	4	3	2	3	3
Low	21	27	25	12	24	18	22	19	18	12	19	27
None	73	66	70	82	70	76	74	70	73	80	75	68
Don't know	2	2	2	3	2	2	2	5	5	5	2	1
N/A—High chance of already having the AIDS virus	0	1	0	0	0	0	0	1	1	1	0	0
38. Have you ever personally known anyone with AIDS or the AIDS virus?												
Yes	15	13	19	11	14	15	14	18	15	8	11	21
No	84	86	80	88	84	84	85	80	83	91	88	78
Don't know	1	1	1	1	1	1	1	2	2	2	1	1
39. Is any of these statements true for you?												
a. You have hemophilia and have received clotting factor concentrates since 1977.												
b. You are a native of Haiti or Central or East Africa who has entered the United States since 1977.												
c. You are a man who has had sex with another man at some time since 1977, even 1 time.												
d. You have taken illegal drugs by needle at any time since 1977.												
e. Since 1977, you are or have been the sex partner of any person who would answer yes to any of the items above (39 a-d).												
f. You have had sex for money or drugs at any time since 1977.												
Yes to at least 1 statement	2	3	3	1	3	2	2	3	2	2	2	2
No to all statements	98	97	97	99	97	98	98	97	98	98	98	98
Don't know	0	0	0	0	0	0	0	0	0	0	0	0

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

Technical notes

The National Health Interview Survey (NHIS) is a continuous, cross-sectional household interview survey. Each week a probability sample of the civilian noninstitutionalized population is interviewed by personnel of the U.S. Bureau of the Census to obtain information on the health and other characteristics of each member of the household. Information on special health topics is collected for all or a sample of household members. The 1990 National Health Interview Survey of AIDS Knowledge and Attitudes is asked of one randomly chosen adult 18 years of age or over in each family. The estimates in this report are based on completed interviews with 10,261 persons, or about 86 percent of eligible respondents.

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

Table I. Sample sizes for the 1989 National Health Interview Survey of AIDS Knowledge and Attitudes and estimated adult population 18 years of age and over, by selected characteristics: United States, April–June 1990

Characteristics	Sample size	Estimated population in thousands
All adults	10,261	180,270
Age		
18–29 years	2,286	46,282
30–49 years	4,123	71,831
50 years and over	3,852	62,157
Sex		
Male	4,312	85,632
Female	5,949	94,638
Race/ethnicity		
Non-Hispanic white	7,816	140,293
Non-Hispanic black	1,484	19,735
Hispanic	645	13,635
Education		
Less than 12 years	2,204	36,901
12 years	3,897	69,945
More than 12 years	4,090	72,130

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

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

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Advance Data

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

Office Visits by Adolescents

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

Introduction

This report examines 1985 statistics from the United States on the health care provided to adolescents by office-based physicians. The data are collected by means of the National Ambulatory Medical Care Survey (NAMCS), a year-long probability sample survey of private office-based physicians. This survey was conducted annually from 1978 through 1981 and again in 1985 by the Division of Health Care Statistics of the National Center for Health Statistics. NAMCS resumed as an annual survey in 1989. For purposes of this report, an adolescent visit is defined as a visit by a patient 11–20 years of age. Older adolescents are defined as patients 15–20 years of age and younger adolescents as patients 11–14 years of age.

In 1985 in the United States, 58 million visits (9 percent of all patient visits) to office-based physicians were made by adolescent patients. Visits by adolescents were reflective of the demographic profile of all patient visits to private, office-based physicians: primarily non-Hispanic, white, and female (table 1). Health care visits by patients 11–14 years of age were like those of children, and health care visits by patients 15–20 years of age were like those of young adults.

Table 1. Number of office visits made by persons of all ages and by adolescents 11–20 years of age and percent distribution by patient's sex, race, and ethnicity, according to age: United States, 1985

Sex, race, and ethnicity	All ages	11–20 years	11–14 years	15–20 years
Number of visits in thousands	636,386	58,996	19,360	39,637
		Percent distribution		
All visits	100.00	100.00	100.00	100.00
Sex				
Female	60.89	57.39	50.07	60.96
Male	39.11	42.61	49.93	39.04
Race				
White	89.96	89.29	90.78	88.57
Black	8.19	8.76	7.47	9.39
Other races	1.84	1.95	1.74	2.05
Ethnicity				
Hispanic	6.38	7.52	6.22	8.15
Non-Hispanic	93.62	92.48	93.78	91.85

Physician specialty and visit status

Younger adolescents primarily sought medical care from pediatricians and general and/or family practitioners (table 2). The older adolescent patient generally sought care not only from pediatricians and general and/or family practitioners but also from physicians specializing in obstetrics and gynecology and dermatology. Sixty-six percent of the visits by the older adolescent patient were to these four types of specialists. An almost equal percent of visits by the younger

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control
National Center for Health Statistics
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Table 2. Number of office visits made by persons of all ages and by adolescents 11–20 years of age and percent distribution by physician specialty, according to age: United States, 1985

Specialty	All ages	11–20 years	11–14 years	15–20 years
Number of visits in thousands	636,386	58,996	19,360	39,637
		Percent distribution		
All visits	100.00	100.00	100.00	100.00
General and/or family practice	30.48	35 40	30.79	37.65
Internal medicine	11.59	5.14	4.01	5.70
Pediatrics	11.42	17.60	33.33	9.91
Obstetrics and gynecology	8.90	8.05	1.27	11.36
Ophthalmology	6.30	4.62	4.91	4.48
Orthopedic surgery	4.95	7.32	8.03	6.98
General surgery	4.69	3.70	2.09	4.49
Dermatology	3.79	6.48	3.69	7.84
Psychiatry	2.83	2.00	1.85	2.07
Otorhinolaryngology	2.53	2.56	2.88	2.40
Urological surgery	1.84	0.59	0.48	0.64
Cardiovascular disease	1.67	0.13	0.00	0.19
Neurology	0.78	0.63	0.69	0.59
All other specialties	8.24	5.78	5.98	5.68

adolescent patient (64 percent) were to physicians specializing in pediatrics and general and/or family practice.

There was a significant difference between the percent of visits by younger adolescents and the percent by older adolescents to physicians specializing in pediatrics and obstetrics and gynecology. As expected, younger adolescent patients were more likely to seek medical care from pediatricians, and older adolescent patients were more likely to seek medical care from obstetricians and gynecologists. Thirty-three percent of the visits by the younger adolescent patient were to physicians specializing in pediatrics, and only 1 percent were to physicians specializing in obstetrics and gynecology. Eleven percent of the visits by older adolescent patients were to obstetricians and gynecologists, and only 9 percent were to pediatricians.

The percents of visits to dermatologists by the younger adolescent patient and by the older adolescent patient were 3 percent and 7 percent, respectively. Thirty percent of the visits by younger adolescents were to general and/or family practitioners, compared with 37 percent by older adolescents.

Twenty-three percent of the visits by adolescents were classified as "first-time" visits, or as "new-patient" visits. Assuming all new-patient visits presented the physician with a new medical problem, at least 50 percent of the visits by adolescents were for care of a new medical problem (table 3). New problem visits for patients of all ages accounted for 39 percent of the total number of visits.

Patient's reason for visit

General medical or physical examination was the major reason adolescents visited a physician's office (table 4), accounting for 5.4 million visits. This ranked as the principal reason for visit for all adolescent patients, especially younger adolescent patients.

Routine prenatal examination was the reason given most often among older adolescent patients for visiting a physician, accounting for 3.3 million visits. There were a total of 3.4 million adolescent visits in which a routine prenatal examination was given as the principal reason for visit; and 98 percent of these were by older adolescents. Symptoms referable to throat ranked as the second most frequent reason given by older adolescents for visiting a physician—4.2 million adolescent visits, or 7 percent.

Another major reason for visit by the older adolescent was for acne or pimples. Of the 2.4 million visits made by adolescents for this reason, 2.1 million (or 86 percent) were made by older adolescents.

Visits by younger adolescents in which general medical or physical examination was the principal reason totaled 2.5 million. About half, 1.1 million, of these visits were specifically for physical examination: 836,000 visits were for physical examinations for extracurricular activities and 273,000 were for physical examinations required for school. Older adolescents made 2.8 million visits in which the reason for visit was specifically for a physical examination: 421,000 were for physical examinations for extracurricular activities, 378,000 were for physical examinations required for

Table 3. Number of office visits made by persons of all ages and by adolescents 11–20 years of age and percent distribution by patient's referral status and prior visit status, according to age: United States, 1985

Referral status and prior visit status	All ages	11–20 years	11–14 years	15–20 years
Number of visits in thousands	636,386	58,996	19,360	39,637
		Percent distribution		
All visits	100.00	100.00	100.00	100.00
Referral status				
Referred by another physician	5.62	5.56	5.73	5.48
Not referred by another physician	94.38	94.44	94.27	94.52
Prior visit status				
New patient	16.91	23.01	22.54	23.24
Old patient	83.09	76.99	77.46	76.76
New problem	22.73	29.42	34.45	26.96
Old problem	60.36	47.58	43.01	49.81
New problems	39.64	52.42	56.99	50.19
Old problems	60.36	47.58	43.01	49.81

Table 4. Number and percent distribution of office visits made by adolescents 11–20 years of age by most frequent principal reason for visit, according to age: United States, 1985

Age, principal reason for visit, and RVC code[1]	Number of visits in thousands	Percent distribution
11–20 years		
All visits	58,996	100.00
General medical and physical examination . . .X100,[2]A100-A140	5,440	9.22
Symptoms referable to throat .S455	4,277	7.25
Prenatal examination, routine .X205	3,435	5.82
Acne or pimples .S830	2,455	4.16
Cough .S440	1,460	2.47
Earache or ear infection. .S355	1,359	2.30
Skin rash .S860	1,298	2.20
Knee symptoms .S925	1,076	1.82
Allergy medication .T100	1,065	1.81
Headache, pain in head .S210	949	1.61
Warts, not otherwise specified .S850	945	1.60
Abdominal pain, cramps, spasms. .S550	859	1.46
Allergy, not otherwise specified .S090	812	1.38
Post-operative visit .T205	772	1.31
Eye examination .X230	725	1.23
Head cold, upper respiratory infection (CORYZA) .S445	720	1.22
Vision dysfunctions .S305	671	1.14
Suture–insertion, removal .T555	606	1.03
Fever .S010	571	0.97
Back symptoms. .S905	565	0.96
All other reasons	28,934	49.04
11–14 years		
All visits	19,360	100.00
General medical and physical examination . . .X100,[2]A100-A140	2,562	13.23
Symptoms referable to throat .S455	1,622	8.38
Cough .S440	758	3.91
Skin rash .S860	557	2.88
Earache or ear infection. .S355	526	2.72
Allergy, not otherwise specified .S090	470	2.43
Knee symptoms .S925	436	2.25
Allergy medication .T100	360	1.86
Acne or pimples .S830	339	1.75
Vision dysfunctions .S305	308	1.59
Warts, not otherwise specified. .S850	304	1.57
Headache, pain in head .S210	296	1.53
Nasal congestion. .S400	288	1.49
Head cold, upper respiratory infection (CORYZA) .S445	266	1.37
Abdominal pain, cramps, spasms. .S550	250	1.29
Suture–insertion, removal .T555	234	1.21
Foot and toe symptoms. .S935	224	1.16
Post-operative visit .T205	214	1.10
Eye examination .X230	210	1.09
Back symptoms .S905	209	1.08
All other reasons	8,930	46.12
15–20 years		
All visits	39,637	100.00
Prenatal examination, routine .X205	3,391	8.55
General medical and physical examination . . .X100,[2]A100-A140	2,878	7.26
Symptoms referable to throat .S455	2,655	6.70
Acne or pimples .S830	2,117	5.34
Earache or ear infection. .S355	833	2.10
Skin rash .S860	742	1.87
Allergy medication .T100	705	1.78
Cough .S440	702	1.77
Headache, pain in head .S210	653	1.65
Warts, not otherwise specified. .S850	641	1.62
Knee symptoms .S925	640	1.61
Abdominal pain, cramps, spasms. .S550	609	1.54
Post-operative visit .T205	559	1.41
Eye examination .X230	515	1.30
Head cold, upper respiratory infection (CORYZA) .S445	454	1.15
Fever .S010	375	0.95
Suture–insertion, removal .T555	372	0.94
Vision dysfunctions .S305	363	0.92
Back symptoms. .S905	357	0.90
Allergy, not otherwise specified .S090	343	0.86
All other reasons	19,734	49.79

[1]Based on Schneider D, Appleton A, and McLemore T. A reason for visit classification for ambulatory care. National Center for Health Statistics, Vital and Health Stat 2(78). 1979.

[2]Reason for visit classification (RVC) code X100 is general medical examination and codes A100-A140 are physical examination required for employment, for school, for extracurricular activities, for driver's license examination, for disability examination, and for premarital examination.

school, and 345,000 were for physical examinations required for employment.

Cough was another complaint that characterized visits by younger adolescents. Cough, as a principal reason for visit, accounted for 758,000 (3 percent) visits by younger adolescents and for 702,000 (1 percent) visits by older adolescents.

Diagnostic services and physician's diagnosis

No diagnostic services were ordered or provided by the physician in 42 percent of all adolescent visits. In addition, no diagnostic services were ordered or provided in 48 percent of the visits by younger adolescents and in 39 percent of the visits by older adolescents (table 5).

The diagnostic services most often ordered or provided were blood pressure check and urinalysis. The older adolescent patient, however, was more likely to receive a blood pressure check than the younger adolescent patient. Blood pressure checks were given in 34 percent of the visits by older adolescents and in 19 percent of the visits by younger adolescents. As expected, older adolescents were also more likely to receive some type of gynecological examination. In 12 percent of the visits by older adolescents, patients received diagnostic services of a pelvic examination; and in 6 percent, a breast examination. Only in 1 percent of the visits by younger adolescents did they receive diagnostic services of a breast examination or a pelvic examination.

Normal pregnancy was the principal diagnosis made by the physician during 3.4 million adolescent visits (5 percent) (table 6). Normal pregnancy ranked as the principal diagnosis made during visits by all adolescent patients, especially the older adolescent patient, for whom 3.3 million such diagnoses (or 8 percent) were made.

Aside from normal pregnancy, other diagnoses that were rendered more often during visits by older adolescents than during visits by

Table 5. Number of office visits made by people of all ages and by adolescents 11–20 years of age and percent distribution by diagnostic services ordered or provided, according to age: United States, 1985

Diagnostic services[1]	All ages	11–20 years	11–14 years	15–20 years
Number of visits in thousands	636,386	58,996	19,360	39,637
		Percent distribution		
All visits	100.00	100.00	100.00	100.00
None	36.14	42.15	48.17	39.21
Breast exam	6.78	5.16	1.63	6.89
Pelvic exam	8.62	8.83	1.81	12.26
Rectal exam	5.37	2.67	1.00	3.48
Visual acuity	6.43	7.10	9.02	6.17
Urinalysis	13.83	15.61	13.92	16.44
Hematology	9.27	9.87	10.74	9.44
Blood chemistry	6.90	3.99	3.00	4.47
Pap test	4.49	4.00	0.63	5.64
Other lab test	8.41	11.29	11.81	11.03
Blood pressure check	38.64	29.43	19.97	34.06
EKG	3.19	0.49	0.37	0.55
Chest x ray	2.76	1.11	1.10	1.12
Other radiology	5.94	6.87	8.41	6.11
Ultrasound	0.94	0.74	0.40	0.90
Other	10.65	8.23	5.95	9.34

[1]May not add to 100.00 because more than one diagnostic service was possible during the patient visit.

younger adolescents were diseases of the sebaceous glands; disorders of urethra and urinary tract; contraceptive management; special investigation and examination (principally gynecological); and inflammatory disease of cervix, vagina, and vulva.

General medical examination was the principal diagnosis rendered in 3.3 million adolescent visits (5 percent). General medical examination accounted for 1.4 million younger adolescent visits (7 percent) and ranked as the number one diagnosis during visits by younger adolescents. There were 1.9 million visits (6 percent) by older adolescents for general medical examination.

Nonmedication therapy

Nonmedication therapy was ordered or provided in only 31 percent of the adolescent visits. The nonmedication therapy services given most often were ambulatory surgery and other counseling (table 7).

The nonmedication therapies family planning and diet counseling were each ordered or provided in 3 percent of the visits by adolescents. Ninety-five percent and 79 percent, respectively, of the adolescent visits for family planning service or diet counseling services were by older adolescent patients.

Disposition and duration of visit

The mean durations of visit for adolescent patients and all patients were 14 minutes and 16 minutes, respectively. Approximately 62 percent of the visits by adolescents had a duration of 6 to 15 minutes. A "return" disposition was given in 78 percent of the visits by adolescents. The disposition "Return at a specified time" was given to adolescent patients in 49 percent of the office visits (table 8).

Medication therapy

Medication was ordered or provided in more than 50 percent of the 58 million visits made by adolescents (table 9). These 31 million drug visits produced 46 million drug mentions, representing a drug visit rate of 1.4 drugs per drug visit. The 46 million drug mentions associated with adolescent visits represented 6 percent of all drugs mentioned in all visits by patients of all ages.

The drugs ordered or provided to adolescent patients were generally characterized as antibiotics (table 10). However, drug mentions of tuberculin tine test (a tuberculin skin test) and diphtheria tetanus toxoids (an immunization) were more likely associated with younger adolescents. Drug mentions of Ortho-novum (a contraceptive) and Retin-A (an acne treatment) were more likely associated with older adolescents. The antibiotics mentioned most frequently during visits by adolescents were tetracycline, amoxicillin, ampicillin, amoxil, Pen-Vee K, E.E.S. (erythromycin ethylsuccinate), erythromycin, and Keflex.

Summary

The profile of visits by older adolescents was quite different from that by younger adolescents. Older adolescents differed with respect to the male-to-female ratio (40:60), the specialists from whom they sought medical care (obstetricians), their reasons for visiting the physician (prenatal care, acne), the diagnoses rendered (pregnancy), the nonmedication services provided (family planning, diet counseling), and the medications prescribed (antibiotics, Ortho-novum, Retin-A). Comparatively, younger adolescents sought medical care primarily from pediatricians, the male-to-female ratio was 50:50, the principal reasons for visiting the physician were for a general medical or physical examination or a cough, and antibiotics and immunizations were frequently ordered or provided.

Table 6. Number and percent distribution of office visits made by people of all ages and by adolescents 11–20 years of age by the 15 most frequent principal diagnoses, according to age: United States, 1985

Age, principal diagnosis, and ICD-9-CM code[1]	*Number of visits in thousands*	*Percent distribution*
11–20 years		
All visits	58,996	100.00
Normal pregnancy .V22	3,424	5.80
General medical examination .V70	3,375	5.72
Diseases of sebaceous glands .706	2,888	4.90
Acute pharyngitis .462	1,814	3.07
Acute upper respiratory infections of multiple or unspecified sites .465	1,806	3.06
Other diseases due to viruses and chlamydiae .78	1,424	2.41
Allergic rhinitis .477	1,356	2.30
Disorders of refraction and accommodation .367	1,231	2.09
Suppurative and unspecified otitis media .382	1,141	1.93
Certain adverse effects, not elsewhere classified .995[2]	1,038	1.76
Contact dermatitis and other eczema .692	1,011	1.71
Acute tonsillitis .463	893	1.51
Health supervision of infant or child .V20	853	1.45
Other disorders of urethra and urinary tract .599	678	1.15
Disorder of external ear .380	657	1.11
All other diagnoses	35,408	60.02
11–14 years		
All visits	19,360	100.00
General medical examination .V70	1,433	7.40
Acute pharyngitis .462	709	3.66
Acute upper respiratory infections of multiple or unspecified sites .465	637	3.29
Certain adverse effects, not elsewhere classified .995[2]	555	2.87
Allergic rhinitis .477	553	2.86
Health supervision of infant or child .V20	527	2.72
Contact dermatitis and other eczema .692	475	2.46
Suppurative and unspecified otitis media .382	473	2.44
Other diseases due to viruses and chlamydiae .78	459	2.37
Disorders of refraction and accommodation .367	458	2.37
Diseases of sebaceous glands .706	401	2.07
Curvature of spine .737	311	1.61
Acute tonsillitis .463	308	1.59
Streptococcal sore throat and scarlet fever .34	300	1.55
Asthma .493	297	1.53
All other diagnoses	11,464	59.21
15–20 years		
All visits	39,637	100.00
Normal pregnancy .V22	3,391	8.56
Diseases of sebaceous glands .706	2,487	6.27
General medical examination .V70	1,942	4.90
Acute upper respiratory infections of multiple or unspecified sites .465	1,169	2.95
Acute pharyngitis .462	1,105	2.79
Other diseases due to viruses and chlamydiae .78	965	2.43
Allergic rhinitis .477	803	2.03
Disorders of refraction and accommodation .367	772	1.95
Suppurative and unspecified otitis media .382	668	1.68
Acute tonsillitis .463	585	1.48
Other disorders of urethra and urinary tract .599	547	1.38
Contact dermatitis and other eczema .692	535	1.35
Contraceptive management .V25	510	1.29
Certain adverse effects, not elsewhere classified .995[2]	483	1.22
Special investigations and examinations .V72[3]	464	1.17
All other diagnoses	23,208	58.55

[1]Based on Public Health Service and Health Care Financing Administration. International Classification of Diseases, 9th Revision, clinical modification (ICD-9-CM). Washington: Public Health Service. 1980.
[2]Primarily allergy, unspecified (995.3).
[3]Primarily gynecological examination (V72.3).

Table 7. Number of office visits made by persons of all ages and by adolescents 11–20 years of age and percent distribution by the nonmedication therapy ordered or provided, according to age: United States, 1985

Nonmedication therapy[1]	*All ages*	*11–20 years*	*11–14 years*	*15–20 years*
Number of visits in thousands	636,386	58,996	19,360	39,637
		Percent distribution		
All visits	100.00	100.00	100.00	100.00
None	68.89	69.33	75.05	66.53
Physiotherapy	4.16	4.10	3.53	4.39
Ambulatory surgery	6.59	8.93	7.98	9.40
Radiation therapy	0.10	0.09	0.13	0.07
Psychotherapy	3.35	2.23	1.71	2.48
Family planning	1.91	3 42	0.49	4.85
Diet counseling	6.49	3.69	2.28	4.38
Other counseling	9.29	8.82	8.39	9.03
Corrective lenses	1.71	1.60	1.57	1.62
Other	1.22	1.33	1.73	1.13

[1]May not add to 100.00 because more than one nonmedication therapy was possible during the patient visit.

Table 8. Number of office visits made by persons of all ages and by adolescents 11–20 years of age by duration and disposition of the visit, according to age: United States, 1985

Duration and disposition of visit	*All ages*	*11–20 years*	*11–14 years*	*15–20 years*
Number of visits in thousands	636,386	58,996	19,360	39,637
		Percent distribution		
All visits	100.00	100.00	100.00	100.00
Duration				
Zero minutes[1]	2.27	3.12	3.98	2.70
1–5 minutes	10.25	13.64	13.67	13.62
6–10 minutes	28.47	31.95	31.62	32.12
11–15 minutes	30.01	29.64	30.56	29.19
16–30 minutes	22.66	17.76	16.68	18.29
31 minutes or more	6.34	3.88	3.50	4.07
Disposition[2]				
No followup	9.76	16.45	21.30	14.07
Return at specified time	61.46	49.65	42.92	52.93
Return if needed	22.87	28.68	29.77	28.14
Telephone followup	3.96	3.94	4.66	3.58
Refer to another physician	3.15	2.08	2.36	1.94
Return to referring physician	0.78	0.31	0.45	0.25
Admit to hospital	1.62	0.98	0.80	1.07
Other	0.54	0.30	0.19	0.36

[1]Represents office visits in which there was no face-to-face contact between the patient and the physician.
[2]May not add to 100.00 because more than one disposition was possible during the patient visit.

Table 9. Number of office visits made by persons of all ages and by adolescents 11–20 years of age by number of medications ordered or provided, according to age: United States, 1985

Number of medications	*All ages*	*11–20 years*	*11–14 years*	*15–20 years*
Number of visits in thousands	636,386	58,996	19,360	39,637
		Percent distribution		
All visits	100.00	100.00	100.00	100.00
0	38 81	45.96	50.65	43.67
1	33.45	35 85	33.33	37.08
2	15.99	13.18	11.39	14.06
3 or more	11.75	5.00	4.63	5.18

Table 10. Number, percent distribution, and therapeutic use of drug mentions, by age and the most frequent drug entry for adolescents 11–20 years of age: United States, 1985

Age and entry name[1] of drug	*Number of mentions in thousands*	*Percent distribution*	*Therapeutic use*
11–20 years			
All drug entries	46,705	100.00	...
Tetracycline	1,229	2.63	Antibiotic
Amoxicillin	1,118	2.39	Antibiotic
Ampicillin	877	1.88	Antibiotic
Ortho-novum	859	1.84	Oral contraceptive
Amoxil	839	1.80	Antibiotic
Pen-Vee K	790	1.69	Antibiotic
E.E.S. (erythromycin ethylsuccinate)	743	1.59	Antibiotic
Erythromycin	742	1.59	Antibiotic
Keflex	721	1.54	Antibiotic
Retin-A	619	1.39	Acne treatment
All other mentions	38,168	81.72	...
11–14 years			
All drug entries	13,976	100.00	...
Amoxil	405	2.90	Antibiotic
Amoxicillin	381	2.73	Antibiotic
E.E.S. (erythromycin ethylsuccinate)	271	1.94	Antibiotic
Tuberculin tine test	255	1.83	Tuberculosis skin test
Keflex	236	1.69	Antibiotic
Ampicillin	226	1.62	Antibiotic
Cortisporin	223	1.60	Anti-inflammatory and anti-bacterial agent
Diphtheria tetanus toxoids	215	1.54	Immunization
House dust concentrate bulk treatment	209	1.50	Allergenic extract, immunotherapy
Benadryl	209	1.49	Antihistaminic
All other mentions	11,554	82.67	...
15–20 years			
All drug entries	32,729	100.00	...
Tetracycline	1,022	3.12	Antibiotic
Ortho-novum	789	2.41	Oral contraceptive
Amoxicillin	737	2.25	Antibiotic
Ampicillin	651	1.99	Antibiotic
Pen-Vee K	610	1.87	Antibiotic
Erythromycin	548	1.67	Antibiotic
Keflex	485	1.48	Antibiotic
E.E.S. (erythromycin ethylsuccinate)	472	1.44	Antibiotic
Retin-A	454	1.39	Acne treatment
Amoxil	434	1.33	Antibiotic
All other mentions	26,961	82.38	...

[1]The trade or generic name used by the physician on the prescription or other medical records. The use of trade names is for identification only and does not imply endorsement by the Public Health Service or the U.S. Department of Health and Human Services. Because of its nonspecific nature, the entry "Allergy relief or shots" with 1,459,000 mentions is omitted (655,000 mentions for persons 11–14 years of age and 803,000 mentions for those 15–20 years of age).

Technical notes

Source of data and sample design

The information presented in this report is based on data collected by means of the National Ambulatory Medical Care Survey (NAMCS) from March 1985 through February 1986. The target universe of NAMCS includes office visits made within the coterminous United States by ambulatory patients to nonfederally employed physicians who are principally engaged in office practice but not in the specialties of anesthesiology, pathology, or radiology. Telephone contacts and nonoffice visits are excluded.

A multistage probability sample design is used in NAMCS, involving samples of primary sampling units (PSU's), physician practices within PSU's, and patient visits within physician practices. For 1985, a sample of 5,032 non-Federal, office-based physicians was selected from master files maintained by the American Medical Association and the American Osteopathic Association. The physician response rate for the 1985 NAMCS was 70.2 percent. Sample physicians were asked to complete patient records (see figure) for a systematic random sample of office visits occurring during a randomly assigned 1-week reporting period. Responding physicians completed 71,594 patient records. Characteristics of the physician's practice, such as primary

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
Public Health Service
National Center for Health Statistics

A

PATIENT RECORD
NATIONAL AMBULATORY MEDICAL CARE SURVEY

OMB No. 0937-0141
Expires 9/30/86
(PHS) 6105-A
456–232

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/ ALASKAN NATIVE

5. ETHNICITY
1 ☐ HISPANIC ORIGIN
2 ☐ NOT HISPANIC

6. 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 ☐ HMO/PRE-PAID PLAN
7 ☐ NO CHARGE
8 ☐ OTHER [Specify]

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

8. PATIENT'S COMPLAINT(S), SYMPTOM(S), OR OTHER REASON(S) FOR THIS VISIT [In patient's own words]
a. MOST IMPORTANT
b. OTHER

9. GLUCOSE TESTS THIS VISIT [Check all ordered or provided]
1 ☐ NONE
2 ☐ BLOOD
3 ☐ URINE
4 ☐ ORAL

10. OTHER DIAGNOSTIC SERVICES THIS VISIT [Check all ordered or provided]
1 ☐ NONE
2 ☐ BREAST EXAM
3 ☐ PELVIC EXAM
4 ☐ RECTAL EXAM
5 ☐ VISUAL ACUITY
6 ☐ URINALYSIS
7 ☐ HEMATOLOGY
8 ☐ BLOOD CHEMISTRY
9 ☐ PAP TEST
10 ☐ OTHER LAB TEST
11 ☐ BLOOD PRESSURE CHECK
12 ☐ EKG
13 ☐ CHEST X-RAY
14 ☐ OTHER RADIOLOGY
15 ☐ ULTRASOUND
16 ☐ OTHER SERVICE [Specify]

11. PHYSICIAN'S DIAGNOSES
a. PRINCIPAL DIAGNOSIS/PROBLEM ASSOCIATED WITH ITEM 8a.
b. OTHER SIGNIFICANT CURRENT DIAGNOSES

12. HAVE YOU SEEN PATIENT BEFORE?
1 ☐ YES 2 ☐ NO
IF YES, FOR THE CONDITION IN ITEM 11a?
1 ☐ YES 2 ☐ NO

13. NON-MEDICATION THERAPY [Check all services ordered or provided this visit]
1 ☐ NONE
2 ☐ PHYSIOTHERAPY
3 ☐ AMBULATORY SURGERY
4 ☐ RADIATION THERAPY
5 ☐ PSYCHOTHERAPY
6 ☐ FAMILY PLANNING
7 ☐ DIET COUNSELING
8 ☐ OTHER COUNSELING
9 ☐ CORRECTIVE LENSES
10 ☐ OTHER [Specify]

14. 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.]
IF NONE, CHECK HERE ☐

	a. NEW MEDICATION? YES	NO	b. FOR DX IN ITEM 11a? 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 ☐

15. 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] _____

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

Figure. 1985 National Ambulatory Medical Care Survey Patient Record

specialty and type of practice, were obtained during an induction interview. The National Opinion Research Center, under contract to NCHS, was responsible for the survey's data collection and processing.

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 the practice characteristics of similar responding physicians. For this purpose, physicians were judged similar if they had the same specialty designation and practiced in the same PSU.

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. These measurements are applied to office visits in table I; in table II they are applied to drug mentions.

Table I. Relative standard errors of estimated numbers of office visits based on all physician specialties: National Ambulatory Medical Care Survey, 1985

Estimated number of office visits in thousands	*Relative standard error in percent*
200	37.8
500	24.1
1,000	17.2
2,000	12.5
5,000	8.5
10,000	6.6
20,000	5.4
50,000	4.5
100,000	4.2
600,000	3.9

Example of use of table: An aggregate estimate of 15,000,000 visits has a relative standard error of 6.0 percent, or a standard error of 900,000 visits (6.0 percent of 15,000,000 visits).

Table II. Relative standard errors of estimated numbers of drug mentions based on all physician specialties: National Ambulatory Medical Care Survey, 1985

Estimated number of drug mentions in thousands	*Relative standard error in percent*
300	39.8
500	30.9
1,000	22.1
2,000	15.9
5,000	10.6
10,000	8.1
20,000	6.5
50,000	5.3
100,000	4.9
600,000	4.4

Example of use of table: An aggregate estimate of 15,000,000 drug mentions has a relative standard error of 7.3 percent, or a standard error of 1,095,000 drug mentions (7.3 percent of 15,000,000 drug mentions).

Test of significance and rounding

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

Definition of terms

An ambulatory patient is an individual seeking personal health services who is not currently admitted to any health care institution.

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; who are employed full time by an institution; and who spend no time seeing ambulatory patients.

An office is a place that physicians identify as a location for their ambulatory practice; these customarily include consultation, examination, or treatment spaces the patient associates with the particular physician. Responsibility for patient care and professional services rendered in an office resides with the individual physician rather than with an institution.

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.

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.

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

Number 197 • May 21, 1991

Advance Data

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

Disability and Health: Characteristics of Persons by Limitation of Activity and Assessed Health Status, United States, 1984–88

by Peter Ries, Division of Health Interview Statistics, and Scott Brown, Ph.D., Gallaudet University

Introduction

Health status and disability status are conceptually distinct but empirically interrelated. For instance, a person may be disabled by blindness and yet be in excellent health, and a person with a chronic heart condition may have adequate capacities to function in an average way in relation to his or her social roles and therefore not be disabled. However, in practice a large proportion of persons who are in bad health have some disability, and a large proportion of persons who are disabled are in bad health. This report gives estimates of the number of persons in the civilian noninstitutionalized population of the United States, combining measures of both disability and health status, and describes the resulting groups in relation to sociodemographic and other health characteristics.

Each year the National Center for Health Statistics publishes estimates from the National Health Interview Survey (NHIS) of the number of persons by disability status and health status (1). There are many ways to define "disability," and the concept of limitation of activity due to chronic conditions is used in NHIS. Limitation of activity is defined in terms of level of ability to perform certain major activities associated with specific age ranges (for instance, the ability to attend a regular school, for children 5–17 years of age). The NHIS concept of health status is based on responses to the question, "Would you say ____ 's health in general is excellent, very good, good, fair, or poor?" Because responsible adult family members respond for their children and for other adult members of the family who are not present at the interview or are incapable of responding, the estimates associated with this concept are most properly referred to as "respondent-assessed health status." For convenience of expression, the briefer term "health status" is often used in this publication.

The published annual estimates from NHIS are shown separately for each of these characteristics. Occasionally special reports are released showing detailed estimates for each characteristic for many subgroups within the population (2,3). However, rarely do estimates appear showing these two characteristics cross-classified in terms of, for instance, the health status of persons limited in activity or the limitation status of persons in poor health. This is because disabled people and people with chronic illness, who ordinarily constitute the subgroups of major interest in health statistics, are relatively small proportions of the total population. Thus, cross-classifying persons by these characteristics produces many estimates with very high sampling errors.

To overcome this limitation, this report shows these types of estimates on the basis of accumulating all of the individuals included in the NHIS sample from 1984 to 1988, amounting to an overall population sample of about 504,000 persons. However, even with a sample this large, some of the estimates to be shown in this report would be statistically unreliable if the two health-related characteristics were to be cross-classified in all

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possible detail. For this reason, the estimates are shown in terms of only two categories for each of the characteristics. Persons are classified as limited or not limited in activity (their degree of limitation being disregarded) and as in fair or poor health (combined) or in good, very good, or excellent health (combined). The presentation of the results focuses on the sociodemographic and health differences of the four subgroups produced by this simple cross-classification.

Table 1. Average annual percent distribution and number of persons by limitation of activity due to chronic conditions and respondent-assessed health status: United States, 1984–88

Health status	*Total*	*Limited in activity*	*Not limited in activity*
		Percent distribution	
All health statuses	[1]100.0	13.8	86.2
Fair or poor	10.2	6.1	4.1
Good to excellent	89.8	7.7	82.1
		Number of persons in thousands	
All health statuses	[2]236,122	32,411	202,514
Fair or poor	24,070	14,385	9,685
Good to excellent	210,855	18,026	192,829

[1]Excludes persons for whom health status was not determined.
[2]Includes persons for whom health status was not determined.

Results

Table 1 shows that most persons in the population (82.1 percent) were not limited in activity and were in good to excellent health. Among the other 17.9 percent of the population, 6.1 percent were both limited in activity and in fair or poor health, 7.7 percent were limited in activity but in good to excellent health, and 4.1 percent were in only fair or poor health but were not limited in activity.

Figure 1 shows the distribution of the population of these four subgroups according to age, sex, family income, and race. The relative proportion of each of the groups associated with limitation and/or fair or poor health increases with age. For instance, only about 7.0 percent of persons under 18 years of age were limited in activity, in fair or poor health, or both, but about 48.1 percent of persons 65 years of age and over fell into one of these three groups.

The relative proportions of persons who are both limited and in fair or poor health increase with age in relation to the percents of persons who are either limited or in fair or poor health but not both. For instance, although for persons under 18 years of age only 12.9 percent (0.9 percent divided by 7.0 percent) of those who were limited and/or in fair or poor health were both limited and in fair or poor health, the corresponding estimate for persons 65 years of age and over is 43.9 percent

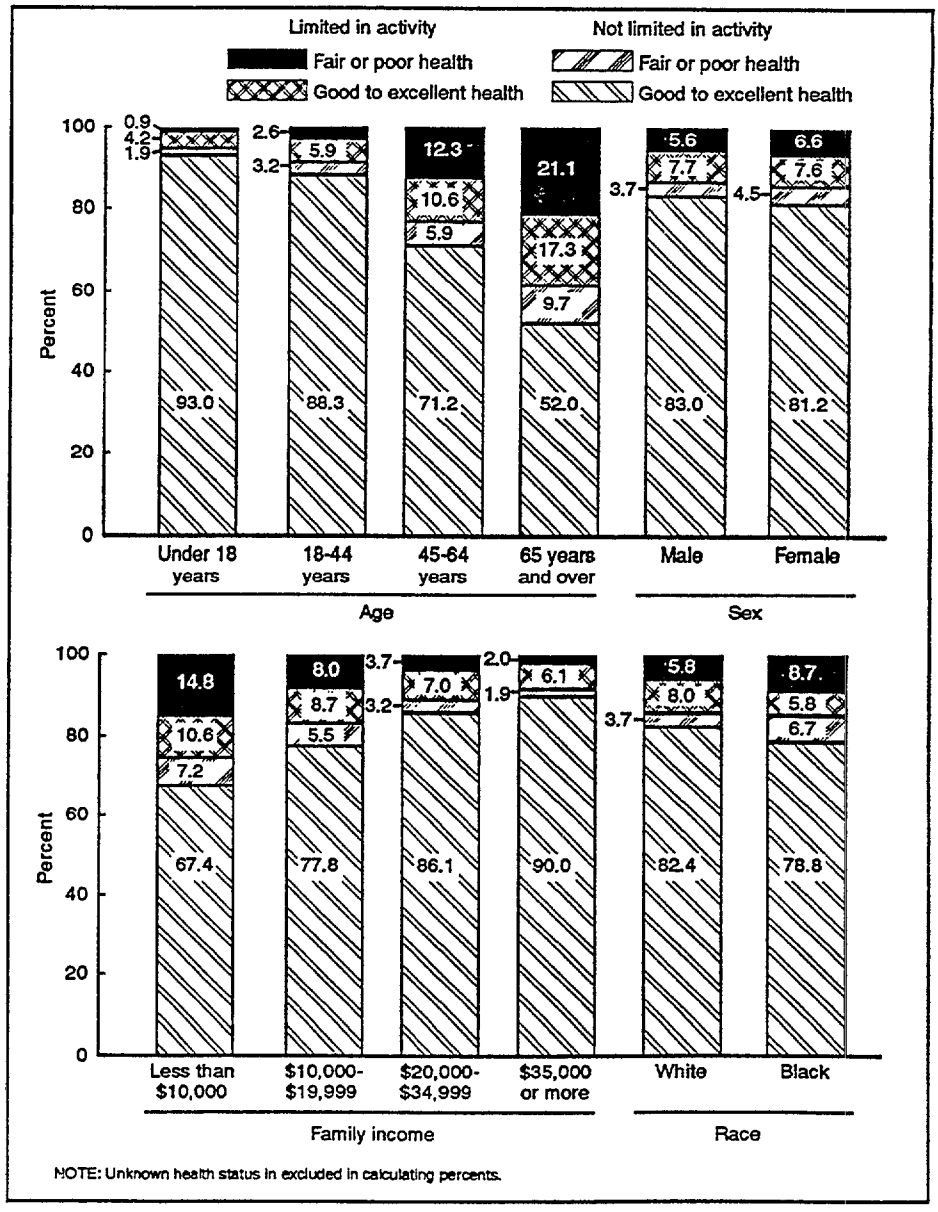

Figure 1. Average annual percent distribution of persons by limitation of activity due to chronic conditions and respondent-assessed health status, according to selected characteristics: United States, 1984–88

(21.1 percent divided by 48.1 percent).

The relative differences according to sex are minor compared with the differences shown for the other characteristics in figure 1. About 83.0 percent of males were not limited in activity and in good to excellent health; for females, the corresponding estimate is 81.2 percent.

About 1 of 3 persons (32.6 percent) in families with an annual income of less than $10,000 was limited in activity, in fair or poor health, or both; the corresponding proportion for persons in families with an annual income of $35,000 or more was 1 in 10 persons (10.0 percent). Also, the ratio of persons limited and in fair or poor health to those either limited or in fair or poor health (but not both) increases as family income decreases. The ratio of persons with both characteristics to those with at least one characteristic is 45.4 percent (14.8 percent divided by 32.6 percent) for incomes of less than $10,000; the corresponding estimate for persons in families with an annual family income of $35,000 or more is 20.0 percent (2.0 percent divided by 10.0 percent).

Figure 1 also shows the results for white and black persons. About 82.4 percent of white persons were not limited in activity and in good to excellent health. The corresponding estimate for black persons is 78.8 percent. The major difference among those who were limited and/or in fair or poor health is that, in contrast to white persons (and unlike the comparisons in figure 1 for age, sex, and family income), the proportion of black persons who were in fair or poor health but not limited in activity (6.7 percent) was larger than the proportion who were limited but not in fair or poor health (5.8 percent). The corresponding estimates for white persons were 3.7 percent and 8.0 percent, respectively. However, the proportion who were both limited and in fair or poor health among black persons (8.7 percent) was larger than the proportion for white persons (5.8 percent).

Table 2 shows the estimates in figure 1 for sex and race by age. It also includes estimates for the four limitation and health status groups by family income, region, and place of residence. The estimates by geographic region are similar, except that a lower proportion of persons in the South were in good to excellent health and not limited in activity (80.2 percent). In regard to place of residence, the lowest proportion of persons in good to excellent health and not limited in activity was among those persons living outside of metropolitan statistical areas (79.3 percent).

Regarding other health characteristics of the four groups of persons distinguished in terms of limitation of activity and assessed health status, figure 2 shows the results for restricted-activity days, physician contacts, and short-stay hospital days. These data are shown by age, sex, race, family income, geographic region, and place of residence in tables 3–5.

A restricted-activity day is a day on which a person stays in bed, misses work or school, or cuts down on his or her usual activity because of illness, impairment, or injury. As may be noted, the estimates for the four groups range from 7.4 days per person per year for those not limited and in good to excellent health to 88.2 days per person per year for persons limited and in fair or poor health. Persons in this latter group experience some form of activity restriction on about one out of every four days (24.2 percent) in a year.

Figure 2 also shows the results for physician contacts. A physician contact is defined as a contact with a physician or a medical assistant working under the supervision of a physician for purposes of treatment, diagnosis, or consultation. Contacts of this nature over the telephone are included, but contacts with medical personnel while an overnight patient in a hospital are not. However, visits to a hospital clinic or emergency room are included. The estimates for physician contacts range from 3.8 per person per year for those not limited in activity and in good to excellent health to 17.1 per person per year for persons who were limited and in fair or poor health.

The range of the estimates is greatest for the third measure shown in figure 2—hospital days, a measure of the number of nights a person spent as an admitted patient in a short-stay hospital. Persons not limited in activity who were in good to excellent health had 33.2 hospital days per 100 persons per year, but those who were limited and in fair to poor health had a corresponding rate of 530.2.

It may be noted from the relationships among the rates shown for each of the health measures in figure 2 that the rates for mixed groups (limited but not in fair or poor health, in fair or poor health but not limited) show little variation. This suggests, at least in terms of these three measures of morbidity, that health status and disability status when considered alone have similar effects with regard to morbidity measures.

Aside from comparing morbidity rates for the four subgroups described in this report, one may examine the proportion of the total morbidity for selected measures associated with each subgroup. Table 6 shows that although during an average year from 1984 to 1988, persons who were limited in activity and in fair or poor health constituted only 6.1 percent of the population, they accounted for 36.6 percent of restricted-activity days, 19.8 percent of physician contacts, and 40.5 percent of short-stay hospital days.

It remains to consider the types of conditions associated with the four limitation and health status groups that to this point have been described only in terms of sociodemographic and health-impact measures. Both limitation of activity and assessed health status are measures of the impact of chronic conditions. Indeed, table 7 shows small differences for the four groups in the incidence rates of acute conditions. Acute conditions

Table 2. Average annual percent distribution and number of persons by limitation of activity due to chronic conditions and respondent-assessed health status, according to selected sociodemographic characteristics: United States, 1984–88

Characteristic	Total[1]	Limited in activity		Not limited in activity		Total[2]	Limited in activity		Not limited in activity	
		Fair or poor health	Good to excellent health	Fair or poor health	Good to excellent health		Fair or poor health	Good to excellent health	Fair or poor health	Good to excellent health
	Percent distribution					Number in thousands				
All persons[3]	100.0	6.1	7.7	4.1	82.1	236,122	14,385	18,026	9,685	192,829
Age										
Under 18 years	100.0	0.9	4.2	1.9	93.0	63,035	568	2,632	1,160	58,170
Under 5 years	100.0	0.7	1.6	2.3	95.5	18,154	118	295	406	17,181
5–17 years	100.0	1.0	5.3	1.7	92.0	44,882	450	2,338	754	40,989
18–44 years	100.0	2.6	5.9	3.2	88.3	100,740	2,584	5,922	3,258	88,650
18–24 years	100.0	1.2	4.5	2.9	91.4	26,790	323	1,206	779	24,383
25–44 years	100.0	3.1	6.4	3.4	87.2	73,950	2,262	4,716	2,479	64,267
45–64 years	100.0	12.3	10.6	5.9	71.2	44,788	5,464	4,743	2,624	31,752
65 years and over	100.0	21.1	17.3	9.7	52.0	27,558	5,769	4,728	2,644	14,257
65–69 years	100.0	20.5	17.5	6.9	55.1	9,477	1,933	1,650	651	5,201
70–74 years	100.0	18.4	13.9	11.7	56.0	7,485	1,367	1,035	868	4,169
75 years and over	100.0	23.5	19.4	10.7	46.4	10,597	2,469	2,044	1,126	4,887
Sex and age										
Male, all ages	100.0	5.6	7.7	3.7	83.0	114,181	6,343	8,758	4,183	94,303
Under 5 years	100.0	0.7	1.8	2.5	95.0	9,290	65	166	226	8,755
5–17 years	100.0	1.1	6.2	1.5	91.2	22,936	244	1,422	340	20,750
18–24 years	100.0	1.1	5.0	2.2	91.7	13,082	147	647	289	11,943
25–44 years	100.0	2.8	6.9	2.8	87.6	36,172	1,020	2,471	995	31,568
45–64 years	100.0	11.8	10.2	5.7	72.4	21,347	2,496	2,168	1,207	15,370
65 years and over	100.0	21.0	16.7	10.0	52.4	11,354	2,371	1,883	1,126	5,917
Female, all ages	100.0	6.6	7.6	4.5	81.2	121,941	8,042	9,268	5,502	98,526
Under 5 years	100.0	0.6	1.5	2.0	95.9	8,864	53	129	180	8,426
5–17 years	100.0	0.9	4.2	1.9	92.9	21,946	206	916	414	20,240
18–24 years	100.0	1.3	4.1	3.6	91.0	13,708	175	559	490	12,439
25–44 years	100.0	3.3	6.0	3.9	86.8	37,778	1,242	2,245	1,484	32,699
45–64 years	100.0	12.7	11.0	6.1	70.2	23,441	2,968	2,575	1,416	16,382
65 years and over	100.0	21.1	17.7	9.4	51.8	16,204	3,398	2,845	1,518	8,341
Race and age										
White, all ages	100.0	5.8	8.0	3.7	82.4	200,424	11,661	16,035	7,437	164,321
Under 5 years	100.0	0.6	1.6	2.0	95.9	14,742	84	229	286	14,027
5–17 years	100.0	0.9	5.4	1.4	92.3	36,562	324	1,960	493	33,512
18–24 years	100.0	1.1	4.7	2.5	91.7	22,155	246	1,033	548	20,247
25–44 years	100.0	2.7	6.7	2.9	87.8	62,923	1,671	4,204	1,808	55,059
45–64 years	100.0	11.2	10.9	5.2	72.6	39,184	4,379	4,265	2,040	28,324
65 years and over	100.0	20.1	17.6	9.2	53.2	24,859	4,956	434	2,263	13,153
Black, all ages	100.0	8.7	5.8	6.7	78.8	28,543	2,472	1,644	1,904	22,336
Under 5 years	100.0	1.1	2.1	3.8	93.0	2,771	31	58	103	2,548
5–17 years	100.0	1.6	4.9	3.4	90.0	6,874	112	335	231	6,131
18–24 years	100.0	1.9	3.6	5.1	89.4	3,688	69	133	189	3,282
25–44 years	100.0	6.3	4.9	6.7	82.2	8,438	527	412	559	6,904
45–64 years	100.0	22.1	8.6	11.1	58.2	4,474	983	383	494	2,589
65 years and over	100.0	32.9	14.2	14.3	38.6	2,297	750	324	327	882
Family income										
Less than $10,000	100.0	14.8	10.6	7.2	67.4	33,392	4,913	3,516	2,391	22,381
$10,000–$19,999	100.0	8.0	8.7	5.5	77.8	45,832	3,652	3,991	2,510	35,487
$20,000–$34,999	100.0	3.7	7.0	3.2	86.1	62,655	2,333	4,366	1,970	53,778
$35,000 or more	100.0	2.0	6.1	1.9	90.0	62,667	1,254	3,788	1,196	56,197
Geographic region										
Northeast	100.0	5.5	7.3	3.8	83.4	49,963	2,754	3,627	1,864	41,429
Midwest	100.0	5.6	8.0	3.8	82.6	58,544	3,290	4,646	2,194	48,160
South	100.0	7.5	7.4	4.9	80.2	80,320	6,017	5,892	3,923	64,035
West	100.0	4.9	8.2	3.6	83.2	47,296	2,324	3,861	1,705	39,205
Place of residence										
MSA	100.0	5.6	7.5	3.9	83.0	177,599	9,883	13,278	6,860	146,651
Central city	100.0	6.7	7.6	4.7	81.0	71,194	4,748	5,403	3,301	57,340
Not central city	100.0	4.9	7.4	3.4	84.3	106,405	5,136	7,876	3,559	89,311
Not MSA	100.0	7.7	8.2	4.8	79.3	58,523	4,501	4,748	2,825	46,178

[1]Excludes persons whose health status was not assessed.
[2]Includes persons whose health status was not assessed.
[3]Includes persons of races other than white or black and persons with unknown family income.

NOTE: MSA is metropolitan statistical area.

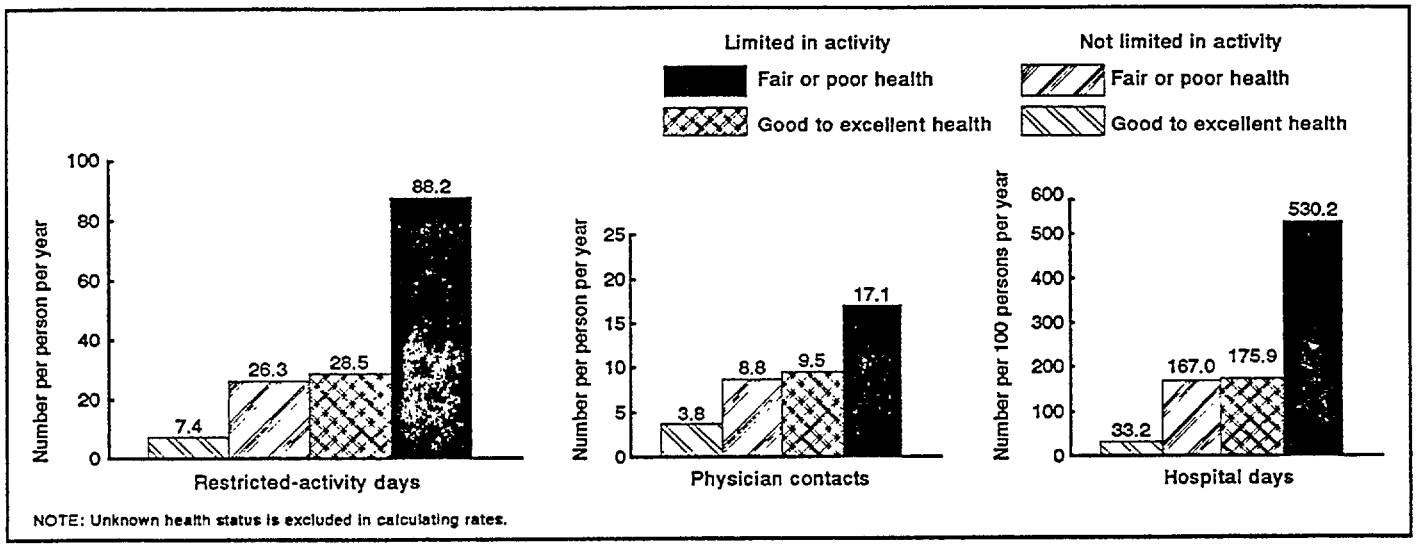

Figure 2. Average annual rates for respondent-assessed health status and limitation of activity due to chronic conditions for restricted-activity days, physician contacts, and short-stay hospital days: United States, 1984–88

play a relatively insignificant role in explaining the large differences among the four groups in the rates shown earlier for restricted-activity days, physician contacts, and hospital days.

Showing the prevalence rates for each of the four limitation and health groups of all of the chronic conditions for which NHIS collects data would be beyond the scope of this report. However, as suggested earlier in the example of blindness, an impairment differs from other types of chronic conditions in that it does not necessarily imply a health problem. Thus the interaction of impairments with disability and health status is of special interest.

In NHIS, a condition is considered chronic if (a) the respondent indicates it was first noted 3 months or more before the reference date of the interview or (b) it is a type of condition that ordinarily has a duration of more than 3 months. An impairment is a chronic or permanent defect, usually static in nature, that results from disease, injury, or congenital malformation.

As expected, considerably lower percentages of persons with impairments than persons in the general population were not limited in activity and were in good to excellent health. As shown in table 8, these percents were lower for persons with an impairment than for all persons for every impairment measured. There is, however, some variation by impairment in the proportions of people not limited in activity and in good to excellent health. At one extreme is color blindness, with roughly three-quarters of persons reported as not limited and in good health. At the other extreme is paralysis of extremities, with only about 1 out of 10 persons so reported.

Estimates for the other impairments range from about 40 to 55 percent. Persons with reported cataracts and those with glaucoma were among the least likely to indicate good health and no limitation; those in the categories of hearing impairment and deformity or orthopedic impairment of the back and lower extremities were most likely.

The relationship of the percents for the two health categories among the population with an activity limitation also differs by impairment. For instance, like the population in general, persons with speech impairments and those with deformity or orthopedic impairments were more likely to be limited but in good to excellent health than to be limited and in fair or poor health. This was not true for the other impairments.

In interpreting the speech impairment data, it is useful to remember that this is one impairment for which children are likely to have higher prevalence rates than adults. In 1988, of an estimated 2,640,000 persons with reported speech impairments, 1,151,000 (43.6 percent) were under the age of 18 years. That children in general are in good health and that so many of the persons with reported speech impairments are children could help to explain why the percent who were limited in activity but in good to excellent health was relatively high for this group.

Also important is the fact that the reported impairments may differ in severity. For example, the overall prevalence rate reported for hearing impairment over the period 1984–88 was relatively high, 89.8 per 1,000 persons. Past studies (4,5) have documented that this category includes various levels of hearing impairment. The rate for paralysis of extremities was much lower, 5.8 per 1,000 persons. There may not be much variation in severity for this condition, however. Almost one-half of the population with paralysis of extremities indicated that they were limited in activity and in fair to poor health.

To discern whether the observed patterns are a function of the

Table 3. Average annual number per person per year and number of restricted-activity days, by limitation of activity due to chronic conditions, respondent-assessed health status, and selected sociodemographic characteristics: United States, 1984–88

Characteristic	Number per person per year					Number in thousands				
		Limited in activity		Not limited in activity			Limited in activity		Not limited in activity	
	Total[1]	Fair or poor health	Good to excellent health	Fair or poor health	Good to excellent health	Total[1]	Fair or poor health	Good to excellent health	Fair or poor health	Good to excellent health
All persons[2]	14.8	88.2	28.5	26.3	7.4	3,492,089	1,269,208	513,288	255,175	1,433,153
Age										
Under 5 years	10.2	84.4	24.9	34.6	8.8	184,942	9,955	7,360	14,035	151,905
5–17 years	8.8	56.9	18.0	22.2	7.5	395,341	25,618	42,137	16,723	307,667
18–24 years	9.6	71 4	25 0	26.9	7.5	258,194	23,047	30,142	20,934	183,369
25–44 years	12.1	91.5	31.3	27.7	7.3	897,053	207,040	147,544	68,730	470,660
45–64 years	19.8	88.6	29 7	21.4	6.3	886,192	484,011	140,939	56,211	199,513
65 years and over	31.6	90.1	30.7	29.7	8.4	870,369	519,538	145,167	78,544	120,039
Sex and age										
Male, all ages	12.9	83.2	25.6	23.2	6.5	1,468,806	527,574	224,165	96,960	610,565
Under 5 years	10.3	81.4	25.9	33.8	8.8	95,678	5,294	4,303	7,644	77,410
5–17 years	8.2	52.3	16.4	21.0	6.9	186,981	12,754	23,291	7,148	142,390
18–24 years	7.7	67.1	22.4	21.2	5.8	100,399	9,868	14,484	6,124	69,666
25–44 years	10.4	90.4	28.3	21.9	6.1	377,990	92,206	69,931	21,764	192,987
45–64 years	18.2	85.1	29.3	19.9	5.6	389,108	212,330	63,424	24,013	86,683
65 years and over	28.1	82.3	25.9	26.9	7.0	318,651	195,122	48,733	30,267	41,428
Female, all ages	16.6	92.2	31.2	28.8	8.3	2,023,283	741,634	289,123	158,215	822,588
Under 5 years	10.1	87.9	23.7	35.5	8.8	89,263	4,661	3,056	6,391	74,495
5–17 years	9.5	62.4	20.6	23.1	8.2	208,360	12,863	18,846	9,575	165,277
18–24 years	11.5	75.3	28.0	30.2	9.1	157,795	13,179	15,658	14,810	113,703
25–44 years	13.7	92.5	34.6	31.7	8.5	519,063	114,834	77,614	46,966	277,673
45–64 years	21.2	91.5	30.1	22.7	6.9	497,084	271,681	77,515	32,198	112,829
65 years and over	34.0	95.5	33.9	31.8	9.4	551,718	324,415	96,433	48,276	78,611
Race and age										
White, all ages	14.7	87.7	28.1	27.3	7.6	2,943,152	1,023,2[illegible]	451,239	202,779	1,248,494
Under 5 years	10.6	89.9	26.9	38.9	9.2	155,838	7,5[illegible]	6,167	11,138	129,631
5–17 years	9.2	60.9	18.6	26.0	7.9	338,095	19,721	36,437	12,804	266,231
18–24 years	9.9	73.5	25.4	28.8	7.8	218,374	18,084	26,215	15,790	157,849
25–44 years	11.7	91.2	30.2	27.3	7.4	735,836	152,336	126,946	49,398	405,134
45–64 years	18.8	87.3	29.4	22.3	6.3	735,875	382,183	125,455	45,480	177,656
65 years and over	30.5	89.5	29.9	30.1	8.5	759,133	443,336	130,019	68,169	111,992
Black, all ages	16.7	89.8	32.6	24.3	6.8	477,113	221,919	53,515	46,239	151,879
Under 5 years	8.8	67.0	*17.9	25.8	7.3	24,468	2,078	1,039	2,655	18,491
5–17 years	7.0	41.1	15.9	15.0	5.6	48,246	4,602	5,326	3,473	34,635
18–24 years	8.8	64.6	26.0	24.1	6.0	32,454	4,454	3,452	4,557	19,726
25–44 years	16.4	91.4	41.1	30.5	8.0	138,467	48,191	16,929	17,032	55,265
45–64 years	29.9	94 6	33.5	19.2	6.9	133,587	92,985	12,849	9,465	17,902
65 years and over	43.5	92.8	43.0	27.7	6.6	99,891	69,609	13,921	9,057	5,859
Family income										
Less than $10,000	25.2	94.7	31.7	28.7	8.5	841,379	465,201	111,477	68,719	190,870
$10,000–$19,999	16.9	85.1	28.9	25.8	7.9	772,558	310,647	115,144	64,737	278,585
$20,000–$34,999	12.4	83.6	26.6	24.1	7.7	776,856	194,989	116,335	47,438	415,369
$35,000 or more	10.0	82.8	26.8	25.5	6.9	627,806	103,888	101,598	30,557	388,500
Geographic region										
Northeast	13.8	85.0	29.6	26 2	7.1	687,757	234,127	107,449	48,849	293,123
Midwest	13.3	80.5	25.6	25.9	6.9	779,020	264,702	118,772	56,801	333,448
South	16.0	89.1	28.7	24.9	7.4	1,282,756	536,215	168,884	97,624	471,468
West	15.7	100.8	30.6	30.4	8.5	742,556	234,164	118,183	51,902	335,115
Place of residence										
MSA	14.7	91.6	29.9	27.3	7.6	2,615,601	905,042	396,531	187,021	1,110,397
Central city	16.2	94 8	31.2	26.7	7.7	1,154,269	450,253	168,711	88,030	439,963
Not central city	13.7	88.5	28.9	27.8	7.5	1,461,331	454,789	227,820	98,991	670,434
Not MSA	15.2	81.3	24.9	24.7	7.1	838,109	348,903	111,910	65,874	307,418

[1] Includes persons whose health status was not assessed.

[2] Includes persons of races other than white or black and persons with unknown family income.

NOTE: MSA is metropolitan statistical area.

Table 4. Average annual number per person per year and number of physician contacts, by limitation of activity due to chronic conditions, respondent-assessed health status, and selected sociodemographic characteristics: United States, 1984–88

Characteristic	Total[1]	Limited in activity		Not limited in activity		Total[1]	Limited in activity		Not limited in activity	
		Fair or poor health	Good to excellent health	Fair or poor health	Good to excellent health		Fair or poor health	Good to excellent health	Fair or poor health	Good to excellent health
	Number per person per year					Number in thousands				
All persons[2]	5.3	17.1	9.5	8.8	3.8	1,244,439	245,779	171,595	85,361	735,521
Age										
Under 5 years	6.6	28.2	14.3	14.8	6.1	119,676	3,328	4,220	5,998	105,327
5–17 years	3.3	16.4	7.7	6.6	2.8	146,154	7,363	17,975	4,989	114,940
18–24 years	4.2	17.2	8.5	9.2	3.6	111,521	5,551	10,213	7,186	88,265
25–44 years	4.8	20.1	9.9	9.6	3.7	355,082	45,462	46,764	23,712	238,214
45–64 years	6.1	16.9	9.6	7.5	3.7	275,332	92,166	45,682	19,682	116,230
65–74 years	8.0	15.8	9.7	8.7	4.7	135,885	51,983	26,027	13,175	43,658
75 years and over	9.5	16.2	10.1	9.4	5.9	100,788	39,927	20,713	10,619	28,888
Sex and age										
Male, all ages	4.4	15.6	8.1	7.7	3.2	503,891	98,957	71,184	32,359	298,235
Under 18 years	4.2	19.4	8.1	9.5	3.8	136,841	5,964	12,862	5,391	111,630
18–44 years	3.3	17.0	7.5	7.2	2.5	162,419	19,852	23,365	9,209	109,447
45–64 years	5.3	15.4	8.2	6.6	3.1	113,258	38,342	17,794	8,004	48,264
65 years and over	8.0	14.7	9.1	8.7	4.9	91,374	34,798	17,162	9,756	28,894
Female, all ages	6.1	18.3	10.8	9.6	4.4	740,548	146,822	100,411	53,002	437,286
Under 18 years	4.2	18.3	8.9	9.4	3.8	128,989	4,727	9,334	5,597	108,637
18–44 years	5.9	22.0	12.0	11.0	4.8	304,185	31,160	33,612	21,689	217,032
45–64 years	6.9	18.1	10.8	8.2	4.1	162,075	53,824	27,888	11,678	67,966
65 years and over	9.0	16.8	10.4	9.2	5.2	145,299	57,111	29,578	14,038	43,652
Race and age										
White, all ages	5.4	17.6	9.6	9.4	4.0	1,085,630	204,776	154,154	69,894	651,568
Under 18 years	4.5	22.3	8.9	11.7	4.1	232,040	9,105	19,428	9,077	192,928
18–44 years	4.7	21.0	9.7	10.3	3.8	401,120	40,352	50,727	24,321	284,798
45–64 years	6.1	17.2	9.6	7.8	3.7	238,961	75,195	40,952	15,859	105,659
65 years and over	8.6	16.2	9.9	9.1	5.2	213,510	80,124	43,046	20,637	68,182
Black, all ages	4.6	15.0	8.7	6.9	3.0	132,190	37,016	14,300	13,223	66,861
Under 18 years	2.9	10.0	6.1	4.7	2.5	27,696	1,426	2,413	1,569	22,122
18–44 years	4.4	15.8	9.5	7.4	3.2	53,255	9,411	5,158	5,540	32,849
45–64 years	6.9	15.5	9.4	6.7	3.2	30,714	15,217	3,612	3,333	8,344
65 years and over	8.9	14.6	9.6	8.5	4.0	20,524	10,963	3,117	2,781	3,546
Family income										
Less than $10,000	6.5	16.0	8.9	8.2	3.8	216,542	78,803	31,315	19,595	85,420
$10,000–$19,999	5.3	15.9	9.2	8.2	3.6	245,088	58,201	36,837	20,489	128,559
$20,000–$34,999	5.1	19.0	10.1	9.5	3.9	318,026	44,328	43,956	18,745	209,625
$35,000 or more	5.1	22.9	10.3	12.0	4.2	321,016	28,712	39,064	14,387	237,819
Geographic region										
Northeast	5.1	18.2	10.2	9.5	3.6	254,529	50,047	36,978	17,644	148,404
Midwest	5.4	17.8	9.6	9.3	4.0	317,520	58,579	44,620	20,313	192,726
South	5.1	15.0	8.4	7.6	3.7	407,151	90,502	49,642	29,741	234,937
West	5.6	20.1	10.5	10.4	4.1	265,238	46,651	40,355	17,664	159,454
Place of residence										
MSA	5.4	18.1	10.1	9.4	3.9	956,458	179,117	134,690	64,281	573,545
Central city	5.5	18.2	10.4	9.5	3.8	393,452	86,426	56,300	31,247	217,373
Not central city	5.3	18.0	10.0	9.3	4.0	563,006	92,691	78,389	33,034	356,172
Not MSA	4.9	14.8	7.8	7.5	3.5	287,981	66,662	36,906	21,080	161,976

[1] Includes persons whose health status was not assessed.
[2] Includes persons of races other than white or black and persons with unknown family income.

NOTE: MSA is metropolitan statistical area.

Table 5. Average annual number per 100 persons per year and number of short-stay hospital days, by limitation of activity due to chronic conditions, respondent-assessed health status, and selected sociodemographic characteristics: United States, 1984–88

Characteristic	Total[1]	Limited in activity		Not limited in activity		Total[1]	Limited in activity		Not limited in activity	
		Fair or poor health	Good to excellent health	Fair or poor health	Good to excellent health		Fair or poor health	Good to excellent health	Fair or poor health	Good to excellent health
	Number per 100 persons per year					Number in thousands				
All persons[2]	80.2	530.2	175.9	167.0	33.2	189,252	76,265	31,706	16,176	64,042
Age										
Under 5 years	51.7	1,582.2	220.0	321.7	31.9	9,387	1,867	649	1,306	5,481
5–17 years	20.2	345 6	88.5	65.3	11.8	9,045	1,555	2,069	492	4,826
18–24 years	47.2	476.8	146 8	134.3	33.9	12,648	1,540	1,771	1,046	8,262
25–44 years	58.4	466.5	149.9	136.4	34.3	43,153	10,552	7,070	3,382	22,028
45–64 years	110.7	489.8	168.8	130.0	34.9	49,558	26,764	8,007	3,412	11,073
65–74 years	207.6	570.6	219.1	242.4	69.9	35,211	18,831	5,882	3,682	6,553
75 years and over	285.5	613.9	306.1	253.6	119.1	30,251	15,157	6,257	2,856	5,818
Sex and age										
Male, all ages	75.5	600.5	171.3	178.8	26.4	86,161	38,087	15,002	7,478	24,853
Under 18 years	28.0	378.2	96.5	137.3	18.4	9,038	1,165	1,533	77	5,422
18–44 years	41.4	522.9	144.8	107.2	19.1	20,399	6,102	4,515	1,377	8,311
45–64 years	128.6	612.0	203.6	163.3	36.5	27,461	15,275	4,415	1,971	5,612
65 years and over	257.7	655.7	241.1	297.7	93.1	29,263	15,546	4,539	3,352	5,507
Female, all ages	84.5	474.7	180.2	158.1	39.8	103,091	38,178	16,704	8,699	39,189
Under 18 years	30.5	871.4	113.4	171.9	17.0	9,394	2,257	1,185	1,021	4,886
18–44 years	68.8	422.7	154.3	154.5	48.7	35,402	5,990	4,326	3,050	21,979
45–64 years	94.3	387.1	139.5	101.8	33.3	22,096	11,490	3,593	1,441	5,461
65 years and over	223.4	542.7	267.2	209.9	82.3	36,200	18,442	7,601	3,187	6,863
Race and age										
White, all ages	79.4	529.1	174.6	178.7	33.6	159,105	61,695	28,002	13,290	55,221
Under 18 years	27.8	596.1	103.4	160.2	17.3	14,279	2,432	2,264	1,248	8,215
18–44 years	53.0	456.6	142.0	142.1	33.7	45,065	8,753	7,436	3,349	25,401
45–64 years	105.8	485.9	163.2	138.2	35.8	41,466	21,278	6,959	2,819	10,144
65 years and over	234.5	589.8	261.1	259.6	87.1	58,295	29,232	11,342	5,874	11,460
Black, all ages	95.7	549.5	205.4	136.7	34.0	27,316	13,584	3,377	2,603	7,600
Under 18 years	39.5	655.9	111.7	147.6	21.7	3,812	938	439	493	1,884
18–44 years	78.8	527.7	238.7	129.1	40.4	9,556	3,145	1,301	966	4,120
45–64 years	168.8	535.5	237.1	113.2	30.5	7,554	5,264	908	559	789
65 years and over	278.4	564.9	224.7	178.9	91.6	6,395	4,237	728	585	808
Family income										
Less than $10,000	136.4	495.1	213.4	163.1	43.0	45,530	24,326	7,504	3,900	9,619
$10,000–$19,999	98.9	540.1	179.2	183.1	38.5	45,337	19,726	7,151	4,602	13,670
$20,000–$34,999	63.7	570.4	150.0	155.1	31.4	39,939	13,308	6,549	3,056	16,864
$35,000 or more	45.9	531.4	128.0	145.0	27.4	28,757	6,664	4,848	1,734	15,395
Geographic region										
Northeast	85.8	641.1	194.8	189.1	34.9	42,855	17,657	7,067	3,524	14,464
Midwest	83.4	542.6	186.7	208.4	36.1	48,820	17,851	8,674	4,573	17,372
South	89.0	523.2	188.8	151.7	35.1	71,471	31,483	11,124	5,953	22,452
West	55.2	399.1	125.4	124.7	24.9	26,105	9,275	4,842	2,126	9,754
Place of residence										
MSA	77.8	544.0	183.9	168.4	32.5	138,091	53,760	24,417	11,554	47,602
Central city	87.9	555.2	210.2	155.9	33.9	62,576	26,361	11,355	5,145	19,446
Not central city	71.0	533.5	165.8	180.1	31.5	75,515	27,399	13,062	6,409	28,155
Not MSA	87.4	500.0	153.5	163.6	35.6	51,162	22,505	7,289	4,623	16,441

[1]Includes persons whose health status was not assessed.
[2]Includes persons of races other than white or black and persons with unknown family income.

NOTE: MSA is metropolitan statistical area.

Table 6. Average annual percent distribution of persons with restricted-activity days, physician contacts, and hospital days by limitation of activity and respondent-assessed health status: United States, 1984–88

Event	Total[1]	Limited in activity		Not limited in activity	
		Fair or poor health	Good to excellent health	Fair or poor health	Good to excellent health
		Percent distribution			
Population	100.0	6.1	7.7	4.1	82.1
Restricted-activity days	100.0	36.6	14.8	7.4	41.3
Physician contacts	100.0	19.8	13.9	6.9	59.4
Hospital days	100.0	40.5	16.8	8.6	34.0

[1]Excludes persons whose health status was not assessed.

Table 7. Average annual number of acute conditions per 100 persons per year, by limitation of activity due to chronic conditions and respondent-assessed health status: United States, 1984–88

Limitation of activity and assessed health status	Number per 100 persons per year
Total	178.0
Limited, fair or poor health	190.5
Limited, good to excellent health	184.6
Not limited, fair or poor health	216.3
Not limited, good to excellent health	174.6

particular age distribution for each pattern, the data were adjusted for age. The distributions for four age groups (under 45 years, 45–64 years, 65–74 years, and 75 years and over) were calculated using the total population in each age group as the base, rather than the population in each age group with the particular impairment. The resulting populations in each age group are summed and divided by the total population to obtain an age-adjusted percent distribution of activity limitation for each impairment.

The patterns observed in the actual data generally hold in the age-adjusted distributions. Because, with one exception, impairments are positively associated with age, the age-adjusted percents in good health with no activity limitation are higher than the actual ones. The exception is speech impairments, for which the

Table 8. Unadjusted and age-adjusted average annual percent distribution of selected chronic impairments by limitation of activity and respondent-assessed health status, according to impairment: United States, 1984–88

Impairment	Total[1]	Limited in activity		Not limited in activity	
		Fair or poor health	Good to excellent health	Fair or poor health	Good to excellent health
		Unadjusted percent distribution			
Total population	100.0	6.1	7.7	4.1	82.1
Visual impairment	100.0	25.2	17.6	5.2	52.0
Color blindness	100.0	9.5	9.1	3.5	77.9
Cataracts	100.0	29.4	21.5	9.0	40.1
Glaucoma	100.0	26.1	22.4	8.8	42.7
Hearing impairment	100.0	19.1	18.0	7.1	55.8
Tinnitus	100.0	23.7	18.3	7.1	50.9
Speech impairment	100.0	20.1	30.0	4.9	44.9
Absence of extremities	100.0	24.3	20.0	5.3	50.3
Paralysis of extremities	100.0	48.3	39.2	1.9	10.6
Deformity or orthopedic impairment	100.0	17.6	22.2	5.5	54.7
Back	100.0	18.8	20.0	6.1	55.2
Upper extremities	100.0	22.2	27.8	4.8	45.2
Lower extremities	100.0	18.6	25.4	4.9	51.1
		Age-adjusted percent distribution			
Visual impairment	100.0	17.8	14.9	4.4	62.9
Color blindness	100.0	8.0	8.7	3.3	80.0
Cataracts	100.0	19.5	20.6	4.9	55.0
Glaucoma	100.0	18.2	17.0	7.5	57.3
Hearing impairment	100.0	12.5	16.5	5.9	65.1
Tinnitus	100.0	16.3	16.7	6.4	60.6
Speech impairment	100.0	21.1	29.5	4.9	44.5
Absence of extremities	100.0	17.1	20.1	3.6	59.2
Paralysis of extremities	100.0	37.4	48.4	2.0	12.2
Deformity or orthopedic impairment	100.0	14.9	21.6	5.1	58.4
Back	100.0	16.4	19.3	5.8	58.6
Upper extremities	100.0	17.3	29.2	4.0	49.6
Lower extremities	100.0	15.6	24.8	4.5	55.1

[1]Excludes persons whose health status was not assessed

Table 9. Unadjusted and age-adjusted average annual number of selected chronic impairments per 1,000 persons, by limitation of activity and respondent-assessed health status: United States, 1984–88

Impairment	Total[1]	Limited in activity		Not limited in activity	
		Fair or poor health	Good to excellent health	Fair or poor health	Good to excellent health
	Unadjusted number per 1,000 persons				
Visual impairment	34.9	143.5	80.0	44.1	22.1
Color blindness	11.3	17.5	13.4	9.5	10.7
Cataracts	23.4	112.3	65.5	51.1	11.4
Glaucoma	7.9	33.9	23.1	16.9	4.1
Hearing impairment	89.8	280.2	210.1	155.7	61.0
Tinnitus	26.1	101.1	62.4	44.8	16.2
Speech impairment	10.6	34.8	41.5	12.7	5.8
Absence of extremities	7.0	27.9	18.4	9.1	4.3
Paralysis of extremities	5.8	45.6	29.6	2.7	0.7
Deformity or orthopedic impairment	113.1	325.5	327.2	150.4	75.3
Back	64.2	196.6	166.9	94.9	43.1
Upper extremities	13.3	48.1	48.0	15.6	7.3
Lower extremities	48.3	146.7	160.2	57.5	30.1
	Age-adjusted number per 1,000 persons				
Visual impairment	34.8	123.3	66.5	36.5	23.7
Color blindness	11.3	14.8	12.8	9.2	10.9
Cataracts	23.4	43.7	33.2	23.4	17.0
Glaucoma	7.9	17.2	13.2	9.8	5.7
Hearing impairment	89.8	200.9	166.0	115.0	73.1
Tinnitus	26.1	75.7	48.7	34.2	19.2
Speech impairment	10.6	45.0	53.1	15.8	5.6
Absence of extremities	7.0	22.6	15.7	6.2	5.0
Paralysis of extremities	5.8	42.6	29.8	2.4	0.9
Deformity or orthopedic impairment	113.1	380.2	341.8	148.6	77.5
Back	64.2	252.9	173.0	96.7	44.1
Upper extremities	13.3	49.0	51.3	12.9	7.9
Lower extremities	48.4	173.7	166.7	54.7	30.9

[1]Excludes persons whose health status was not assessed.

percent is unchanged. At the same time, the adjusted percents for persons in good health and with no limitation are virtually unchanged for color blindness and paralysis of extremities. After age adjustment, almost one-half of the persons with paralysis of extremities are seen to have had an activity limitation but to have been in good health. In the actual distribution one-half are limited and in fair or poor health. Likewise, the percents of persons limited but in good health are higher than the percents limited and in fair or poor health for those who have hearing impairments and absence of extremities in the adjusted distributions but not in the unadjusted distributions.

As might be expected, the prevalence rates for reported impairments tend to be highest among persons limited in activity and in fair or poor health. They are lowest among those not limited and in good health, as demonstrated in table 9. There are a few exceptions to this pattern. The prevalence rates per 1,000 persons of reported impairments of speech and of the lower extremities were higher for persons limited in activity and in good health than for those limited and in less than good health.

For persons limited in activity and in fair to poor health, the prevalence rates per 1,000 persons for reported visual impairments, cataracts, glaucoma, and absence or paralysis of extremities were very high compared with those for all persons. In sharp contrast, color blindness did not show much variation in reported rates.

Rates of impairments were generally higher for those limited but in good health than for those not limited but in fair to poor health. Among those not limited but in fair to poor health, reported rates for cataracts and glaucoma were relatively high.

As with the percent distributions, the prevalence rates were adjusted for age. Rates for four age groups (under 45 years, 45–64 years, 65–74 years, and 75 years of age and over) were calculated using the total population in each age group as the base, rather than the population in each age group with a particular activity limitation and health status configuration. The resulting populations in each age group are summed and divided by the total population to obtain an age-adjusted rate for each configuration.

In general, the patterns found in the unadjusted data hold. The adjusted rates tend to be lower for persons either with an activity limitation or in fair or poor health, because these populations tend to be older than the population with no limitations and in good health. The adjusted rate for deformity or orthopedic impairment of lower extremities among persons limited and in fair or poor health is higher

than among those limited but in good to excellent health. This is not true for the unadjusted rate.

To summarize, there appear to be particular patterns of association among various impairment categories and various configurations of activity limitation and self-assessed health status. Visual impairment, cataract, glaucoma, and absence of extremities are associated with fair to poor health; reported speech impairment and deformity or orthopedic impairment are associated with limited activity but good health. Color blindness is associated with good health and no activity limitation, but paralysis of extremities is associated with activity limitation and, to a lesser extent, with less than good health.

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Symbols

– – –	Data not available
. . .	Category not applicable
–	Quantity zero
0.0	Quantity more than zero but less than 0.05
*	Figure does not meet standard of reliability or precision

Technical notes

The National Health Interview Survey (NHIS) is a continuous, cross-sectional, nationwide survey conducted by household interview. Each week a probability sample of households in the civilian noninstitutionalized population of 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. A description of the survey design, methods used in estimation, and general qualifications of the NHIS data is provided in the Current estimates report for 1989 (6).

The NHIS sample for the 5 years 1984–88 was composed of about 194,000 eligible households, containing approximately 504,000 persons living at the time of interview. The total noninterview rate for NHIS was about 4.3 percent. Estimates were produced by summing the frequencies for the 5-year period and dividing by 5. Thus, the frequencies, percents, and rates represent average annual estimates for this 5-year period and not estimates for the whole period.

The sampling errors associated with the estimates shown in this report may be obtained by consulting appendix I of the Current estimates report for 1989 (6) and using the appropriate formulas and the parameters for 5 years of data shown in table I.

Population estimates restricted to age, sex, or race categories are adjusted to U.S. Bureau of the Census estimates and therefore have no sampling variation.

Table I. Parameters used to compute estimated standard errors for the estimates shown in this report

Characteristic	Parameter	
	a	b
Population group defined by characteristics other than age, sex, or race	0.00001028	10,901
Restricted-activity days	0.000105	118,358
Physician contacts	0.0000156	36,892
Hospital discharge days	0.00055	22,224

Suggested citation

Ries P, Brown S. Disability and health: Characteristics of persons by limitation of activity and assessed health status, United States, 1984–88. Advance data from vital and health statistics; no 197. Hyattsville, Maryland: National Center for Health Statistics. 1991.

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Advance Data

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

AIDS Knowledge and Attitudes for July–September 1990

Provisional Data From the National Health Interview Survey

by Patricia F. Adams and Ann M. Hardy, Dr.P.H., Division of Health Interview Statistics

Introduction

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

The first AIDS Knowledge and Attitudes survey was in the field from August through December 1987. Provisional results of that survey were published monthly in *Advance Data From Vital and Health Statistics* (Nos. 146, 148, 150, 151, and 153). During the first 4 months of 1988, the NHIS questionnaire was revised to meet program needs at that time. The revised AIDS Knowledge and Attitudes Survey entered the field in May 1988. Provisional findings for the remainder of 1988 were published periodically (*Advance Data From Vital and Health Statistics*, Nos. 160, 161, 163, 164, 167, and 175); in addition, two special reports with a focus on minority populations were published from the 1988 data (*Advance Data From Vital and Health Statistics*, Nos. 165 and 166).

The 1988 AIDS questionnaire was used without modification throughout 1989, and results were published on a quarterly basis (*Advance Data From Vital and Health Statistics*, Nos. 176, 179, 183, and 186). For 1990 the AIDS questionnaire was revised again, with added emphasis on HIV testing procedures and on the distinction between testing in connection with blood donation and for other reasons. Provisional survey findings have been published on a quarterly basis in *Advance Data From Vital and Health Statistics*, Nos. 193 and 195, and will continue to be published on a quarterly basis for 1990.

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

The *Advance Data* reports describing the NHIS AIDS data have

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been restricted to simple descriptive statistics to facilitate their timely release. Thus these reports do not attempt to explain or interpret differences among population subgroups or to examine relationships among various measures of knowledge and behavior. The NHIS AIDS data bases permit more complex analyses than those presented in this series of *Advance Data* reports, and further exploration of the data is encouraged. Public use data tapes of the 1987, 1988, and 1989 AIDS Knowledge and Attitudes surveys are available at this time.

This report presents provisional data for July–September 1990 for most items included in the NHIS AIDS questionnaire. Table 1 displays percent distributions of persons 18 years of age and over by response categories, according to age, sex, race and ethnicity, and education. In most cases, the actual questions asked of the respondents are reproduced verbatim in table 1 along with the coded response categories. In a few cases, questions or response categories have been rephrased or combined for clearer or more concise presentation or results. Refusals and other nonresponse categories (generally less than 1 percent of total responses) are excluded from the denominator in the calculation of estimates, but responses of "don't know" are included. The NHIS AIDS questionnaire uses the phrase "the AIDS virus" rather than "HIV," because it is felt to be more widely recognized and understood. In this report the two terms are used synonymously.

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

Selected findings

The following highlights describe survey results of the NHIS AIDS Knowledge and Attitudes Survey for the period July–September 1990. 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.

General AIDS knowledge—General knowledge about AIDS and HIV was ascertained through a series of statements about the general characteristics of the disease and how it is transmitted. Respondents were asked to classify each statement as definitely true, probably true, probably false, or definitely false. Overall the measures of general knowledge about AIDS and HIV were similar between the second and third quarters of 1990. For example, the percent of adults who stated that it is definitely true that AIDS can damage the brain remained steady at 42 percent compared to 43 percent; and the percent who thought it is definitely true that a person can be infected with the AIDS virus and not have AIDS was 64 compared to 65 percent.

Levels of knowledge about the three major modes of HIV transmission also remained high. For the third quarter the proportions of adults who thought it is definitely true that HIV can be transmitted through sexual intercourse (86 percent) and from a pregnant woman to her child (84 percent) were similar to the second quarter (87 percent and 85 percent, respectively). The proportion of adults who thought it very likely that HIV can be transmitted by sharing needles for drug use remained stable at 95 percent. (Knowledge about HIV transmission through needle sharing was asked in a separate series of questions with different response categories.)

Despite the overall similarities in knowledge, there was a slight decrease in one area. For this 3-month period 67 percent of U.S. adults 18 years of age and over realized that it is definitely false that there is a vaccine for the AIDS virus; a decrease from 69 percent for the previous 3-month period. Overall there has been a decrease in 1990 compared with 1989 in proportions with the definitive correct answer to this question. This may reflect failure to distinguish between a vaccine and drugs that are used in treatment of AIDS or HIV, for example, zidovudine (AZT), or it may result from publicity concerning progress towards development of a vaccine.

During the third quarter of 1990, as in all previous quarters, general knowledge about AIDS varied by demographic and socioeconomic characteristics. Persons aged 50 years and over were less knowledgeable than younger persons. Knowledge increased directly with number of years of school completed. For five of the nine measures of general AIDS knowledge examined, non-Hispanic white adults were more likely than non-Hispanic black or Hispanic adults to respond correctly. For three of the remaining four measures, knowledge was lower among Hispanic adults; for one measure (awareness that HIV can damage the brain), non-Hispanic black adults (50 percent) were the most knowledgeable compared with non-Hispanic white (43 percent) and Hispanic adults (44 percent). There was no consistent difference by gender in general AIDS knowledge.

Two new items regarding general AIDS knowledge were added to the 1990 NHIS AIDS survey. One was a question asking whether the respondent had ever heard the AIDS virus referred to as "HIV." Almost three-fourths of adults were familiar with this term as of July–September 1990, but this proportion was much lower for persons 50 years of age and over (62 percent) and for persons with less than 12 years of school

(48 percent). Also, the proportion of Hispanic adults who recognized this term (51 percent) was much lower than the proportion for non-Hispanic white adults (77 percent) or non-Hispanic black adults (69 percent). Since approximately 25 percent of the Hispanic households sampled in the first half of 1990 required at least some translation of the NHIS survey into Spanish, this lower level of recognition may be due, in part, to unfamiliarity with the English term "HIV" among Spanish-speaking Hispanic adults. The second new item in the survey was a statement that there are drugs available to extend the life of a person infected with HIV. Slightly less than half of all adults (45 percent) categorized this statement as definitely true; an additional 27 percent stated it as probably true.

Self-assessed knowledge about AIDS also remained stable for the second and third quarters of 1990. In the third quarter, 19 percent of adults stated they knew a lot about AIDS; in the second quarter, this proportion was identical. The proportion of adults who stated they knew nothing about AIDS also remained virtually unchanged (10 percent). While these proportions did not change in 1990, they represent a decline from the previous year. Although this question is worded the same in 1990 as in preceding years, its location was changed in 1990 so that it is now the first question asked in the survey. In general the sociodemographic differentials in objective measures of knowledge were generally consistent with those in self-assessed knowledge about AIDS. The population subgroups most likely to state that they know a lot about AIDS were persons under 50 years of age and those with more than 12 years of school.

Misinformation about HIV transmission—The NHIS AIDS questionnaire asked respondents to estimate the risk of HIV transmission associated with several forms of casual contact with infected or potentially infected individuals, for example, working with someone with AIDS, using public toilets, and so forth. Respondents were offered five response options for the likelihood of transmission—very likely, somewhat likely, somewhat unlikely, very unlikely, and definitely not possible. Both "very unlikely" and "definitely not possible" were interpreted as correct responses, even for forms of contact where our current understanding of the virus indicates that there definitely is no possibility of transmission. The decision to accept "very unlikely" as correct was based on the large numbers of respondents who chose that option, seemingly unwilling to commit themselves to the concept of a zero probability. As has been true since 1987, the results for July–September 1990 indicated that many misperceptions about HIV transmission remain. The proportion of adults who assessed the risk of transmission as "very unlikely" or "definitely not possible" varied from less than half for transmission by means of insect bites or contact with the saliva of an infected individual (sharing eating utensils or being sneezed or coughed on) to almost three-fourths for working near or attending school with someone with HIV. Most of these measures remained similar between April–June and July–September 1990.

As with general AIDS knowledge, there were demographic and socioeconomic differentials in misperceptions about HIV transmission. Adults 50 years of age and over were more likely than younger adults to be misinformed, and non-Hispanic black and Hispanic individuals generally had more misperceptions than did non-Hispanic white individuals. The level of misinformation decreased with increasing educational attainment. Again, there was no consistent differential by gender.

Information and communication about AIDS—From April–June to July–September 1990, the proportion of adults who reported discussing AIDS with their children aged 10–17 years was similar, 68 and 67 percent, respectively. However, the proportion who reported that their children had received instruction in school about AIDS decreased slightly, from 75 to 72 percent for the same time period. Eighty-seven percent of adults stated that they had received information about AIDS or HIV in the month preceding the NHIS AIDS survey. The most commonly reported sources of information were television (cited by 75 percent of adults), newspapers (51 percent), magazines (41 percent), and radio (28 percent). Each of these sources showed a decline from the previous quarter—80, 57, 45, and 33 percent, respectively.

Sources of AIDS information did not differ significantly in most areas by race or ethnicity. Newspapers and magazines were cited most often by non-Hispanic white individuals than minorities. There were three sources of information that were reported more often by non-Hispanic black than by non-Hispanic white individuals—mass transit displays (signs in buses and subways), health department brochures, and brochures distributed at the workplace.

Blood donation and testing—There was no change in blood donation experience between the second and third quarters of 1990. Data for the third quarter indicated that 40 percent of adults had ever donated blood, 16 percent had donated blood since March 1985 (when blood donations were first routinely tested for HIV), and 7 percent had donated blood in the preceding year. Multiple donations were common among those who had donated blood. Of the 16 percent of adults who had donated blood since March 1985, one-half, or 8 percent, donated blood three times or more. In the year preceding the interview, 4 percent of adults had donated blood once, 2 percent had donated blood twice, and 1 percent had donated blood three times or more.

Seventy-nine percent of U.S. adults had heard of the blood test to detect HIV antibodies, the same percent reported for the second quarter of 1990. Sixty-six percent, or five-sixths of those familiar with the blood test, knew blood donations are

routinely tested for HIV. This was a slight decrease from 68 percent reported during the previous quarter. Two percent of the persons who had donated blood since March 1985 (an estimated 692,000 individuals) reportedly did so at least in part to be tested for HIV.

Not counting testing performed in conjunction with blood donation, 10 percent of U.S. adults reported having had their blood tested for HIV antibodies. Testing as a result of blood donation occurred in the 16 percent of adults who had donated blood since March 1985. These figures include 2 percent who were tested because of blood donation and for other means. Overall an estimated 24 percent of the adult population has been tested for HIV antibodies. The total percent tested in the first three quarters of 1990 (23–24 percent) represents a slight increase over the estimate of 21 percent from the last quarter of 1989. (The revised estimated total percent of adults tested for HIV for the first and second quarters of 1990 is 23 percent for each.)

The proportion of adults who had been tested exclusive of blood donation declined sharply with age, from 16 percent of persons 18–29 years of age to 13 and 4 percent, respectively, of those 30–49 years and 50 years of age and over. There was no statistically significant difference between men and women in percent tested. Hispanic adults were more likely than non-Hispanic white adults to have been tested outside of blood donations, 17 percent compared to 9 percent. The probability of having been tested showed no differences with education.

Of persons tested exclusive of blood donation, 49 percent stated that all their tests were required, that is, conducted as a part of an activity that includes mandatory blood testing. For 47 percent all their tests were voluntary. Three percent had both required and voluntary tests. The most commonly cited reasons for required tests were hospitalization or surgery and military induction or service (reported by 9 percent of persons tested outside of blood donation). In addition, 8 percent were tested as a requirement for life insurance, 7 percent for immigration (cited by 39 percent of Hispanic adults who were tested exclusive of blood donation), 6 percent for employment, 3 percent for health insurance, and 12 percent were tested for other reasons. Individuals may have cited more than one reason for a single test (for example, for both employment and health insurance) or may have had more than one required test; thus the sum of the individual reasons exceeds the proportion of persons with at least one required blood test.

One-third of persons tested for HIV antibodies apart from blood donations—including both voluntary and required testing—had their last blood test at a doctor's office or a Health Maintenance Organization (HMO), and about one-fourth (24 percent) were tested at a hospital, outpatient clinic, or emergency room. Eight percent were tested at military induction or service sites, and another 8 percent were tested at public health departments. Only 3 percent were tested at designated AIDS clinics or counseling and testing sites. Less than half, 43 percent, were counseled about AIDS and HIV before the test was administered. Almost four-fifths (79 percent) received their test results. Of those that did not receive their results, nearly two-fifths (38 percent) reportedly wanted them. Of those who received their test results, 29 percent were counseled about prevention of HIV transmission at the time the results were provided. Sixty-three percent received their test results in person compared to smaller proportions who received their test results by telephone (17 percent), mail (13 percent), or by other means (6 percent). The vast majority (92 percent) of persons tested for HIV felt that their tests were handled properly in terms of confidentiality of test results.

According to the NHIS AIDS data for this quarter, 6 percent of U.S. adults reportedly plan to be tested for HIV antibodies in the next 12 months. The proportion of these persons who had been tested previously has not yet been analyzed, but it is likely that some are repeaters. This figure, which has remained fairly stable over the past year, was more than two times higher for non-Hispanic black than for non-Hispanic white adults. Twelve percent of non-Hispanic black adults reported plans to be tested compared to 5 percent of non-Hispanic white adults.

Of persons who plan to be tested, almost two-thirds stated that they would be tested voluntarily because they personally wanted to know if they are infected. Twenty-five percent plan to be tested as part of blood donation, 12 percent as part of a hospital or surgical procedure, and 10 percent cited the need for testing as a requirement for a job or the military. Some individuals reported more than one reason for anticipated testing. In general the locations at which persons plan to be tested are somewhat similar to those reported for tests already conducted, with private doctors or HMOs and hospital emergency rooms or clinics accounting for over half of the locations (38 and 18 percent, respectively).

Risk of HIV infection—The third-quarter 1990 NHIS AIDS survey results indicated that 5 percent of U.S. adults, an estimated 10 million persons, received blood transfusions between 1977 and 1985. This is the period when HIV is thought to have entered the United States and when routine screening of blood donations began. Slightly less than half of the Nation's adults think the blood supply is now safe for transfusions.

During July–September 1990 the proportion of adults who think condoms are very effective in preventing transmission of HIV was 26 percent, similar to figures during the two previous quarters in 1990. Perceptions about effectiveness varied by race and ethnicity. Twenty-one percent of Hispanic adults reported condoms are very effective in preventing transmission of HIV compared to 27 percent for both non-Hispanic black and non-Hispanic white adults. The proportion who did

not know how effective condoms are in preventing transmission of HIV was higher for non-Hispanic black (18 percent) than for non-Hispanic white adults (13 percent).

Eighty percent of adults felt there was no chance of their having been infected with HIV, and 15 percent said there was a low chance. The proportion who thought there was a medium or high chance of already being infected was 3 percent. The proportion of persons who thought there was no chance of their becoming infected with HIV in the future was similar for the second and third quarters of 1990 (73 and 72 percent, respectively). As of this quarter, 21 percent of adults believed that they had a low chance of becoming infected, and 4 percent cited a medium or high chance. Only 2 percent of adults reported being in any of the behavior categories associated with a high risk of HIV infection. This proportion has remained stable since the risk behavior question was added to the NHIS AIDS questionnaire in 1988.

As of July–September 1990, about one out of every seven adults (15 percent) knew someone with AIDS or HIV, the same figure as in the second quarter of 1990. This proportion was higher for persons under 50 years of age than for those aged 50 years and over but did not vary by sex. However, the proportion was higher among non-Hispanic black (19 percent) than among non-Hispanic white adults (15 percent). The proportion of adults who reported knowing someone with AIDS or HIV increased sharply with number of years of school, from 9 percent of persons with less than 12 years of school to 21 percent of those with more than 12 years of school.

Symbols

–	Quantity zero
0	Quantity more than zero but less than 0.05

Suggested citation

Adams PF, Hardy AM. AIDS knowledge and attitudes for July–September 1990; Provisional data from the National Health Interview Survey. Advance data from vital and health statistics; no 198. Hyattsville, Maryland: National Center for Health Statistics. 1991.

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

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

AIDS knowledge or attitude	Total	Age			Sex		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	19	22	23	13	18	20	19	18	21	10	15	28
Some	46	52	53	35	45	47	49	38	35	30	48	53
A little	24	21	21	30	25	23	23	29	28	32	28	16
Nothing	10	5	3	22	11	10	9	15	15	28	8	3
Don't know	0	0	0	0	0	0	0	0	0	0	0	0
2. In the past month, have you received information about AIDS from any of these sources?[1]												
Television	75	75	76	74	76	75	75	75	78	72	75	77
Radio	28	32	32	21	32	25	29	27	28	20	27	34
Magazines	41	44	44	35	39	43	43	34	34	24	38	53
Newspapers	51	46	54	51	53	49	53	43	42	35	51	60
Street signs/billboards	10	15	11	5	12	8	10	13	11	7	9	13
Store displays/store distributed brochures	6	10	6	4	6	6	6	9	7	5	6	7
Bus/streetcar/subway displays	4	6	4	2	4	4	3	7	5	3	3	5
Health department brochures	17	24	17	11	15	19	16	20	18	11	16	20
Workplace distributed brochures	11	11	16	5	10	12	10	14	12	5	9	16
School distributed brochures	7	13	8	2	6	8	7	8	10	4	6	10
Church distributed brochures	4	4	5	3	4	4	3	6	7	4	4	4
Community organization	4	5	5	3	4	5	4	6	6	3	4	5
Friend/acquaintance	12	19	12	7	12	12	11	13	15	9	11	14
Other	3	4	3	2	3	3	3	2	3	1	2	5
Don't know	1	1	0	1	1	1	1	1	1	1	1	0
Received no AIDS information in past month	13	11	12	16	13	13	13	15	11	19	13	10
3. Have you heard the AIDS virus called HIV?												
Yes	73	77	81	62	72	75	77	69	51	48	73	88
No	24	22	18	34	25	23	21	27	46	47	25	11
Don't know	2	2	2	4	2	3	2	4	3	5	2	1
4a. AIDS can reduce the body's natural protection against disease.												
Definitely true	77	80	83	66	77	76	81	62	63	52	77	90
Probably true	12	9	10	15	12	11	10	14	20	19	13	6
Probably false	1	1	1	2	1	1	1	1	2	2	1	0
Definitely false	2	3	2	2	2	3	1	8	2	4	3	1
Don't know	8	7	4	15	8	8	7	15	12	23	7	2
4b. AIDS can damage the brain.												
Definitely true	43	42	46	42	44	43	43	50	44	39	42	47
Probably true	26	27	24	27	26	26	26	25	30	27	28	23
Probably false	7	9	8	5	7	7	8	4	7	4	7	9
Definitely false	4	5	5	2	4	4	4	3	4	3	3	5
Don't know	19	17	17	24	18	20	20	19	16	26	20	15
4c. AIDS is an infectious disease caused by a virus.												
Definitely true	70	77	76	56	70	69	70	71	64	54	69	79
Probably true	15	13	13	20	16	15	15	15	19	20	17	12
Probably false	2	1	1	3	1	2	2	1	2	2	2	1
Definitely false	3	2	3	3	2	3	3	3	1	2	3	3
Don't know	11	6	6	19	10	11	10	11	13	22	10	5
4d. A person can be infected with the AIDS virus and not have the disease AIDS.												
Definitely true	65	68	72	54	63	66	68	61	50	46	63	76
Probably true	16	15	15	19	18	15	16	14	23	18	18	14
Probably false	3	3	2	3	3	3	2	2	4	5	3	1
Definitely false	3	5	3	2	4	3	3	5	4	3	4	2
Don't know	13	9	8	22	13	13	11	17	19	29	12	6
4e. ANY person with the AIDS virus can pass it on to someone else through sexual intercourse.												
Definitely true	86	89	89	80	84	88	88	86	78	78	87	90
Probably true	10	8	9	12	11	8	9	8	15	13	10	8
Probably false	0	1	0	0	0	0	0	1	0	0	0	1
Definitely false	0	0	0	0	1	0	0	0	1	0	1	0
Don't know	3	2	2	6	4	3	3	4	5	9	3	1
4f. A pregnant women who has the AIDS virus can give it to her baby.												
Definitely true	84	87	87	78	81	87	86	83	74	73	85	88
Probably true	11	10	10	14	14	9	10	12	19	17	11	9
Probably false	0	0	0	0	0	0	0	0	0	0	0	0
Definitely false	0	0	0	0	0	0	0	1	0	0	0	–
Don't know	4	3	3	7	5	4	4	5	7	9	4	2

See footnotes at end of table

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

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

AIDS knowledge or attitude	Total	Age: 18–29 years	Age: 30–49 years	Age: 50 years and over	Sex: Male	Sex: Female	Race or ethnicity: Non-Hispanic White	Race or ethnicity: Non-Hispanic Black	Race or ethnicity: Hispanic	Education: Less than 12 years	Education: 12 years	Education: More than 12 years
						Percent distribution						
4g. There are drugs available to treat AIDS or the AIDS virus which can lengthen the life of an infected person.												
Definitely true	45	46	50	38	45	45	47	42	33	29	43	55
Probably true	27	25	27	28	27	26	27	21	30	24	29	26
Probably false	5	6	5	4	5	5	5	5	3	5	5	5
Definitely false	6	8	6	5	7	5	5	9	9	8	7	5
Don't know	17	14	12	25	16	18	15	23	25	33	16	9
4h. There is a vaccine available to the public that protects a person from getting the AIDS virus.												
Definitely true	3	3	3	3	3	3	2	7	5	4	2	3
Probably true	4	5	3	4	4	4	3	6	8	6	4	2
Probably false	10	11	8	10	9	10	10	8	11	10	10	9
Definitely false	67	69	74	57	69	66	71	57	49	48	67	78
Don't know	16	13	11	25	15	18	14	22	28	32	16	9
4i. There is no cure for AIDS at present.												
Definitely true	85	85	88	80	84	85	87	80	74	74	85	90
Probably true	7	6	6	8	7	6	6	7	7	8	7	5
Probably false	1	2	1	1	1	1	1	2	1	2	2	1
Definitely false	2	2	1	2	2	2	1	2	2	1	2	1
Don't know	6	5	4	9	6	6	4	7	16	14	5	3
5. How likely do you think it is that a person will get AIDS or the AIDS virus infection from—												
5a. Working near someone with the AIDS virus?												
Very likely	2	2	2	3	2	2	2	5	4	4	3	1
Somewhat likely	6	5	6	7	6	6	6	7	8	8	6	5
Somewhat unlikely	9	10	9	9	9	9	9	8	14	9	10	8
Very unlikely	40	38	41	40	40	39	41	36	29	35	40	42
Definitely not possible	37	42	39	30	36	37	37	35	37	29	36	41
Don't know	6	4	4	12	6	7	5	9	8	15	6	3
5b. Eating in a restaurant where the cook has the AIDS virus?												
Very likely	6	5	5	7	5	6	5	9	6	8	6	4
Somewhat likely	18	17	17	20	19	18	18	20	18	21	20	15
Somewhat unlikely	13	16	13	12	14	13	13	11	16	11	14	14
Very unlikely	31	31	35	28	32	31	33	27	23	23	30	37
Definitely not possible	22	26	23	18	21	22	21	21	26	18	20	25
Don't know	10	5	7	17	9	10	9	12	12	19	10	5
5c. Sharing plates, forks, or glasses with someone who has the AIDS virus?												
Very likely	10	9	10	11	10	10	10	13	10	13	11	8
Somewhat likely	21	20	20	24	23	20	21	23	22	24	23	18
Somewhat unlikely	13	15	13	12	13	13	13	11	14	11	13	14
Very unlikely	27	26	30	24	27	26	28	22	21	20	25	32
Definitely not possible	20	24	21	15	19	21	20	19	22	16	19	23
Don't know	9	6	6	15	9	9	8	12	11	17	9	5
5d. Using public toilets?												
Very likely	6	5	4	8	5	6	5	10	10	10	6	3
Somewhat likely	13	12	12	16	12	15	12	15	19	18	14	10
Somewhat unlikely	12	13	11	11	12	11	11	11	12	10	13	11
Very unlikely	34	32	38	31	36	32	36	28	23	26	33	39
Definitely not possible	27	32	30	21	27	27	28	25	26	20	25	33
Don't know	8	6	5	14	8	9	8	11	10	16	8	5
5e. Sharing needles for drug use with someone who has the AIDS virus?												
Very likely	95	96	97	92	95	95	96	93	93	90	96	97
Somewhat likely	2	2	1	3	2	2	2	3	2	3	2	1
Somewhat unlikely	0	0	–	0	0	0	0	0	0	0	0	0
Very unlikely	0	0	0	0	0	0	0	0	1	0	0	0
Definitely not possible	0	0	0	0	0	0	0	0	1	0	0	0
Don't know	2	1	1	5	2	2	2	3	3	6	1	1
5f. Being coughed or sneezed on by someone who has the AIDS virus?												
Very likely	8	6	8	10	7	8	7	12	7	12	8	6
Somewhat likely	20	18	18	23	20	20	20	21	17	21	22	18
Somewhat unlikely	14	15	15	12	14	14	14	12	12	11	14	15
Very unlikely	30	31	33	25	31	28	31	25	27	23	28	34
Definitely not possible	18	24	19	13	18	19	18	18	26	15	18	21
Don't know	10	6	7	17	10	11	10	12	12	19	10	6

See footnotes at end of table.

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

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

AIDS knowledge or attitude	Total	Age: 18–29 years	Age: 30–49 years	Age: 50 years and over	Sex: Male	Sex: Female	Race or ethnicity: Non-Hispanic White	Race or ethnicity: Non-Hispanic Black	Race or ethnicity: Hispanic	Education: Less than 12 years	Education: 12 years	Education: More than 12 years
	Percent distribution											
5g. Attending school with a child who has the AIDS virus?												
Very likely	2	2	1	2	2	2	1	4	3	4	2	1
Somewhat likely	5	4	5	7	5	6	5	6	8	8	5	4
Somewhat unlikely	8	9	8	8	9	8	8	9	7	8	9	7
Very unlikely	41	38	42	40	43	39	43	35	29	34	41	44
Definitely not possible	37	43	39	30	36	38	37	36	43	30	37	41
Don't know	7	4	4	13	6	7	6	9	10	16	6	3
5h. Mosquitoes or other insects?												
Very likely	9	11	8	9	9	9	8	14	13	13	10	6
Somewhat likely	19	21	19	18	20	19	18	24	24	23	21	16
Somewhat unlikely	7	9	8	6	8	7	8	8	5	6	7	8
Very unlikely	25	23	28	23	26	24	27	19	20	19	24	30
Definitely not possible	20	21	22	17	19	21	21	16	20	13	19	25
Don't know	19	15	16	27	18	21	19	20	18	27	20	15
8. Have you ever discussed AIDS with any of your children aged 10–17?[2]												
Yes	67	57	68	56	54	78	70	61	57	52	65	75
No	33	42	32	44	46	22	30	39	43	48	35	25
Don't know	0	1	–	–	–	0	0	–	–	–	0	–
9. Have any or all of your children aged 10–17 had instruction at school about AIDS?[2]												
Yes	72	66	73	70	67	77	73	74	70	65	71	77
No	9	22	9	7	7	11	9	9	9	13	11	6
Don't know	18	12	18	24	26	12	18	17	21	22	18	17
10. Have you ever donated blood?												
Yes	40	34	43	41	52	29	43	33	27	29	37	49
No	60	66	56	59	48	70	57	67	73	71	63	50
Don't know	0	0	0	0	0	0	0	0	0	0	0	0
11a. Have you donated blood since March 1985?												
Yes	16	24	20	6	20	13	17	14	12	7	15	23
No	83	76	80	93	80	86	82	85	88	93	85	76
Don't know	1	0	1	1	1	0	1	1	0	1	0	1
11b. Have you donated blood in the past 12 months?												
Yes	7	9	8	3	8	5	7	5	4	2	6	9
No	93	91	92	96	91	94	92	94	95	98	93	90
Don't know	1	0	1	1	1	1	1	1	0	1	0	1
12. How many times have you donated blood since March 1985?												
Once	5	9	5	1	5	5	5	5	4	2	5	6
Twice	3	5	4	1	5	2	3	4	3	2	3	5
Three times or more	8	9	10	3	10	6	9	6	5	2	7	12
Don't know	0	0	0	0	0	0	0	0	–	0	0	0
Did not donate blood since March 1985[3]	84	76	80	94	80	87	83	86	88	93	85	77
13. How many times have you donated blood in the past 12 months?												
Once	4	6	4	2	5	3	4	3	3	1	4	5
Twice	2	2	2	1	2	1	2	1	1	0	1	3
Three times or more	1	1	2	0	2	1	1	1	1	0	1	2
Don't know	0	0	0	0	0	0	0	0	0	–	0	0
Did not donate blood in the past 12 months[4]	93	91	92	97	92	95	93	95	95	98	94	91
14. Have you ever heard of a blood test that can detect the AIDS virus infection?												
Yes	79	81	86	68	79	78	82	68	67	60	78	89
No	19	17	13	28	18	19	16	29	30	35	20	10
Don't know	2	1	1	4	2	3	2	3	3	5	2	1
15. To the best of your knowledge, are blood donations routinely tested for the AIDS virus infection?												
Yes	66	71	74	54	66	66	70	51	54	45	65	78
No	5	4	6	5	6	5	5	9	5	5	5	5
Don't know	7	6	7	9	8	7	7	8	9	10	7	6
Never heard of test[5]	21	19	14	32	21	22	18	32	33	40	22	11
16. Was one of your reasons for donating blood because you wanted to be tested for the AIDS virus infection?[6]												
Yes	2	3	2	0	2	2	2	6	1	4	2	2
No	81	79	84	76	79	83	84	59	77	59	77	87
Don't know	0	0	–	–	0	0	–	–	2	–	0	0
Never heard of test[5]	9	9	7	15	10	8	7	22	15	24	12	5
17. Except for blood donations since 1985, have you had your blood tested for the AIDS virus infection?												
Yes	10	16	13	4	12	9	9	13	17	9	10	12
No	66	64	71	61	65	67	70	53	48	49	66	75
Don't know	2	2	2	3	2	2	2	2	2	2	2	3
Never heard of test[5]	21	19	14	32	21	22	18	32	33	40	22	11

See footnotes at end of table.

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

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

AIDS knowledge or attitude	Total	Age			Sex		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											
18. How many times have you had your blood tested for the AIDS virus infection, not including blood donations?												
Once	7	10	9	3	8	7	7	9	13	6	7	8
Twice	2	3	2	1	2	1	2	2	3	2	2	2
Three times or more	1	2	1	0	2	1	1	1	1	1	1	1
Don't know	0	0	0	0	0	0	0	0	0	0	0	0
Never heard of/had test[7]	90	84	87	96	88	91	91	87	83	91	90	88
19. How many times in the past 12 months have you had your blood tested for the AIDS virus infection, not including blood donations?												
None	5	7	6	2	6	4	5	5	8	4	4	6
Once	5	7	6	1	5	4	4	7	8	4	4	5
Twice	1	1	1	0	1	1	0	1	1	1	1	1
Three times or more	0	0	0	0	0	0	0	0	0	0	0	0
Don't know	0	–	–	0	–	0	0	–	–	0	–	–
Never heard of/had test[7]	90	84	87	96	88	91	91	87	83	91	90	88
20a. Were the blood tests, including those you had before the past 12 months, required or did you go for them voluntarily, or were there some of each?[8]												
All required	49	47	51	43	54	42	49	36	56	45	47	51
All volunteered	47	49	45	55	43	53	48	57	41	51	49	45
Some of each	3	4	2	1	2	3	2	4	1	2	3	3
Don't know	1	0	1	1	1	1	1	1	1	2	0	1
20b. Were any of the blood tests required for:[8]												
Hospitalization or a surgical procedure?	9	9	7	15	7	12	10	8	5	10	9	9
Health insurance?	3	1	4	1	4	1	3	1	0	0	2	4
Life insurance?	8	6	11	6	12	5	10	6	2	2	5	14
Employment?	6	5	6	6	7	5	5	10	5	2	6	7
Military induction or military service?	9	14	7	3	15	2	10	6	–	0	12	10
Immigration?	7	3	11	2	6	7	1	5	39	21	5	3
Other	12	14	11	12	10	15	13	10	9	12	13	11
Don't know	–	–	–	–	–	–	–	–	–	–	–	–
21. When was your last blood test for the AIDS virus infection?[8]												
1990	35	35	35	36	32	38	35	43	33	34	38	34
1989	30	35	28	27	31	29	28	33	35	33	28	31
1988	18	19	18	18	19	17	19	9	21	19	17	19
1987	8	5	10	8	8	8	9	7	6	6	9	8
1986	4	3	5	2	4	3	4	3	2	3	3	5
1985	1	1	2	1	1	1	2	1	–	–	1	2
Don't know	2	2	1	6	3	2	3	0	1	3	3	2
22a. Was your last test required or did you go for it voluntarily?[8]												
Required	50	49	52	43	56	43	50	39	57	47	48	53
Voluntary	48	49	46	54	43	55	49	57	41	50	51	46
Don't know	1	0	1	2	0	1	1	1	1	2	0	1
22b. Was the test required for:[8]												
Hospitalization or a surgical procedure?	9	10	7	15	7	12	10	6	5	11	9	9
Health insurance?	3	1	4	1	4	1	3	1	–	0	2	4
Life insurance?	8	5	11	6	11	4	10	4	2	2	4	13
Employment?	5	5	5	6	7	4	5	10	5	2	5	7
Military induction or military service?	8	12	6	3	13	2	9	5	–	0	12	8
Immigration?	7	3	11	2	6	7	1	5	39	21	5	3
Other	11	12	10	11	10	13	12	10	7	10	11	11
Don't know	–	–	–	–	–	–	–	–	–	–	–	–
23. Not including a blood donation, where was your last blood test for the AIDS virus done?[8]												
AIDS clinic/counseling/testing site	3	2	4	6	3	4	3	4	6	7	2	3
Clinic run by employer	3	3	2	5	3	2	2	5	2	3	3	2
Doctor/HMO	33	31	36	25	29	37	33	25	44	29	34	34
Public health department	8	10	7	5	7	9	6	16	10	15	9	4
Hospital/emergency room/outpatient clinic	24	23	21	36	21	27	26	20	9	21	25	24
STD clinic	0	0	–	–	0	0	0	–	–	0	–	0
Family planning clinic	0	1	0	–	1	0	1	1	–	0	1	0
Prenatal clinic	0	0	0	–	0	0	0	1	–	0	1	–
Tuberculosis clinic	–	–	–	–	–	–	–	–	–	–	–	–
Other clinic	7	6	6	11	7	6	5	7	13	11	5	6
Drug treatment facility	0	1	0	–	1	–	0	2	0	0	0	1
Military induction/service site	8	11	6	4	12	3	9	7	–	0	10	9
Immigration site	1	1	2	0	1	2	–	2	5	4	0	1
Other	12	10	14	8	14	10	13	8	10	9	10	14
Don't know	0	1	–	–	0	–	0	–	–	–	–	0

See footnotes at end of table.

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

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

AIDS knowledge or attitude	Total	Age			Sex		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					
24. Before your last blood test for the AIDS virus infection, were you counseled about the AIDS virus and the meaning of the test?[8]												
Yes	43	52	40	25	43	42	42	54	33	37	46	42
No	56	47	58	74	55	56	57	41	65	62	52	56
Don't know	1	1	1	–	2	1	1	1	1	1	1	1
25. Did you get the results of your last test?[8]												
Yes	79	80	78	79	76	81	77	78	85	85	77	78
No	20	19	21	20	22	18	22	19	14	14	22	21
Don't know	1	1	0	–	1	0	1	–	1	1	0	1
26. Did you want the results of your last test?[9]												
Yes	38	48	35	27	42	34	38	32	46	43	37	38
No	58	47	63	70	55	62	60	56	54	49	59	60
Don't know	3	5	2	4	3	4	2	12	–	8	4	2
27. When you received the results of your last test, did you receive counseling or talk with a health professional about how to lower your chances of becoming infected with the AIDS virus or how to avoid passing it on to another person?[10]												
Yes	29	37	25	16	30	28	27	39	26	31	32	24
No	70	62	74	83	69	72	72	61	74	67	68	75
Don't know	1	1	1	1	1	0	1	–	–	2	0	1
28. Were the results given in person, by telephone, by mail, or in some other way?[10]												
In person	63	66	60	67	64	62	58	66	86	72	69	54
By telephone	17	17	18	11	11	23	20	15	4	10	14	23
By mail	13	10	14	16	16	10	14	16	6	13	12	15
Other	6	6	7	4	8	4	8	4	3	4	6	8
Don't know	1	0	1	1	1	0	1	–	1	1	0	1
29. Do you feel your last test for the AIDS virus infection was handled properly in terms of the confidentially of your test results?[8]												
Yes	92	94	90	94	91	94	92	92	93	90	95	91
No	2	3	2	0	2	2	2	1	4	3	2	2
Don't know	5	3	6	5	6	4	5	5	2	6	2	6
30. Do you expect to have a blood test for the AIDS virus infection in the next 12 months?												
Yes	6	10	6	2	7	5	5	12	8	6	5	6
No	69	66	76	63	68	70	74	49	51	50	69	79
Don't know	4	5	4	3	4	4	3	6	9	5	4	4
Never heard of test[5]	21	19	14	32	21	22	18	32	33	40	22	11
31. Tell me which of these statements explain why you will have the blood test:[11]												
Voluntarily, because you personally want to know if you are infected	64	68	62	56	60	70	55	80	87	77	68	55
As part of a blood donation	25	24	26	24	28	21	26	18	34	24	22	28
As part of a hospitalization or surgical procedure	12	12	9	22	10	14	12	14	7	16	13	9
As a requirement for health insurance	8	7	10	9	9	8	7	11	8	10	10	7
As a requirement for life insurance	8	7	9	11	9	7	7	9	11	9	7	8
As a requirement for a job, other than military	10	9	12	8	11	10	8	16	13	10	10	11
As a requirement for the military	10	13	11	–	14	6	12	7	7	3	14	11
As a requirement for immigration	3	3	2	2	2	3	2	2	7	2	3	2
As a required part of some other activity that includes a blood sample and automatic AIDS testing	15	16	13	14	16	14	16	13	16	14	14	16
32. Where will you go to have a blood test for the AIDS virus infection?[11]												
AIDS clinic/counseling/testing site	1	1	1	1	1	1	1	1	2	2	1	1
Clinic run by employer	3	1	4	8	4	2	3	6	1	2	4	4
Doctor/HMO	38	40	35	39	34	43	35	41	45	36	42	35
Hospital/emergency room/outpatient clinic	18	19	17	19	15	22	18	21	12	17	18	19
Other clinic	6	6	5	11	5	7	5	5	12	10	3	7
Public health department	8	11	7	5	8	8	6	12	11	15	10	4
Red Cross/blood bank	11	9	13	11	14	7	13	6	9	10	7	14
Other	10	8	13	2	13	6	13	4	1	3	10	13
Don't know	5	6	4	4	6	4	5	4	8	5	6	4

See footnotes at end of table.

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

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

AIDS knowledge or attitude	Total	Age			Sex		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											
33. Did you have a blood transfusion at any time between 1977 and 1985?												
Yes	5	3	5	8	6	5	6	5	3	7	5	6
No	93	97	94	90	93	94	93	94	96	92	94	93
Don't know	1	1	1	2	1	1	1	0	2	2	1	1
34. Do you think the present supply of blood is safe for tranfusions?												
Yes	44	51	47	36	48	41	47	34	32	31	43	53
No	32	31	33	33	30	35	31	37	43	37	34	28
Don't know	23	18	20	31	22	24	22	29	25	32	23	19
35. How effective do you think the use of a condom is to prevent getting the AIDS virus through sexual activity?												
Very effective	26	31	29	19	30	23	27	27	21	17	25	32
Somewhat effective	53	53	56	49	52	54	54	44	49	43	54	57
Not at all effective	4	4	3	5	3	5	4	8	5	6	4	3
Don't know how effective	14	10	9	23	13	15	13	18	16	26	14	7
Don't know method	3	2	2	4	3	3	2	3	9	7	2	1
36. What are your chances of having the AIDS virus?												
High	0	0	1	0	0	0	0	1	1	1	0	0
Medium	2	4	2	1	2	2	2	4	3	2	2	2
Low	15	21	17	9	17	13	16	13	9	9	14	19
None	80	73	79	88	78	83	81	78	82	83	82	77
Don't know	2	2	2	2	2	2	1	4	5	5	2	1
37. What are your chances of getting the AIDS virus?												
High	1	1	0	0	1	0	0	1	2	1	1	0
Medium	3	5	3	2	3	3	3	3	3	3	3	3
Low	21	28	25	12	24	19	22	17	19	12	18	30
None	72	63	69	83	69	75	73	73	68	78	76	66
Don't know	2	2	2	3	3	2	1	5	6	6	2	1
N/A—High chance of already having the AIDS virus	0	0	1	0	0	0	0	1	1	1	0	0
38. Have you ever personally known anyone with AIDS or the AIDS virus?												
Yes	15	16	19	11	14	16	15	19	15	9	13	21
No	83	82	79	87	83	82	83	78	83	88	86	76
Don't know	2	2	2	2	2	2	2	3	2	3	2	2
39. Is any of these statements true for you?												
a. You have hemophilia and have received clotting factor concentrates since 1977.												
b. You are a native of Haiti or Central or East Africa who has entered the United States since 1977.												
c. You are a man who has had sex with another man at some time since 1977, even 1 time.												
d. You have taken illegal drugs by needle at any time since 1977.												
e. Since 1977, you are or have been the sex partner of any person who would answer yes to any of the items above (39 a–d).												
f. You have had sex for money or drugs at any time since 1977.												
Yes to at least 1 statement	2	5	3	1	3	2	2	4	3	3	2	2
No to all statements	97	95	97	99	97	98	98	96	97	97	98	97
Don't know	0	0	0	0	0	0	0	0	0	0	0	0

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

Technical notes

The National Health Interview Survey (NHIS) is a continuous, cross-sectional household interview survey. Each week, a probability sample of the civilian noninstitutionalized population is interviewed by personnel of the U.S. Bureau of the Census to obtain information on the health and other characteristics of each member of the household. Information on special health topics is collected for all or a sample of household members. The 1990 National Health Interview Survey of AIDS Knowledge and Attitudes is asked of one randomly chosen adult 18 years of age or over in each family. The estimates in this report are based on completed interviews with 10,125 persons, or about 85 percent of eligible respondents.

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

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

Characteristics	Sample size	Estimated population in thousands
All adults	10,125	180,271
Age		
18–29 years	2,347	46,282
30–49 years	4,053	71,831
50 years and over	3,725	62,157
Sex		
Male	4,253	85,632
Female	5,872	94,638
Race or ethnicity		
Non-Hispanic white	7,795	139,440
Non-Hispanic black	1,330	19,585
Hispanic	682	14,118
Education		
Less than 12 years	2,163	36,782
12 years	3,941	72,418
More than 12 years	3,968	70,036

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

		Age			Sex		Race or 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
05 or 95	0.3	0.6	0.4	0.5	0.4	0.4	0.3	0.8	1.1	0.6	0.4	0.4
10 or 90	0.4	0.8	0.6	0.6	0.6	0.5	0.4	1.1	1.5	0.8	0.6	0.6
15 or 85	0.5	0.9	0.7	0.8	0.7	0.6	0.5	1.3	1.8	1.0	0.7	0.7
20 or 80	0.5	1.1	0.8	0.8	0.8	0.7	0.6	1.4	2.0	1.1	0.8	0.8
25 or 75	0.6	1.2	0.9	0.9	0.9	0.7	0.6	1.5	2.1	1.2	0.9	0.9
30 or 70	0.6	1.2	0.9	1.0	0.9	0.8	0.7	1.6	2.3	1.3	0.9	0.9
35 or 65	0.6	1.3	1.0	1.0	0.9	0.8	0.7	1.7	2.4	1.4	1.0	1.0
40 or 60	0.6	1.3	1.0	1.0	1.0	0.8	0.7	1.7	2.4	1.4	1.0	1.0
45 or 55	0.6	1.3	1.0	1.0	1.0	0.8	0.7	1.8	2.5	1.4	1.0	1.0
50	0.6	1.3	1.0	1.1	1.0	0.8	0.7	1.8	2.5	1.4	1.0	1.0

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Advance Data

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

1989 Summary: National Hospital Discharge Survey

by Edmund J. Graves, Division of Health Care Statistics

Introduction

During 1989, an estimated 30.9 million inpatients, excluding newborn infants, were discharged from short-stay non-Federal hospitals in the United States. These patients used 200.8 million days of inpatient hospital care. The discharge rate was 126 discharges per 1,000 civilian population and the average length of stay was 6.5 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 1989, data were abstracted from the medical records of approximately 233,000 patients discharged from 408 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 and 1989 and earlier years because of the redesign of the survey.

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

Starting in 1985, some hospitals participating in the NHDS have submitted machine-readable data tapes through commercial abstracting services. In 1989, approximately 27 percent of the hospitals used this method to submit data. Analysis indicates that a greater number of nonsurgical procedures per patient are recorded from these hospitals than from hospitals submitting data in the traditional manual mode (see "Technical notes"). A portion of the increases from 1984 to 1989 in the estimates for miscellaneous diagnostic and therapeutic procedures and, therefore, for total procedures may be due to this change in data collection methods.

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

Data highlights

Utilization by patient and hospital characteristics

The number, rate, and average length of stay of patients discharged from short-stay non-Federal hospitals are shown by age, geographic region, and sex in tables 1–3. The 30.9 million patients discharged from short-stay hospitals during 1989 comprised an estimated 12.6 million males and 18.4 million females. The rate per 1,000 population for females was 145, which was 38 percent higher than the rate of 105 for males. The number and rate of discharges are higher for females than for males because of the large number of women in their childbearing years (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 6.1 days for females during 1989. The average length of stay of the 3.9 million women who were hospitalized for deliveries was 2.9 days. The average length of stay was 4.9 days for patients under 15 years of age, 4.7 days for patients 15–44 years of age, 6.7 days for patients 45–64 years of age, and 8.9 days for patients 65 years of age and over.

The number of discharges from short-stay hospitals by geographic region during 1989 ranged from 11.0 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 139 in the Northeast Region to 103 in the West. Average lengths of stay by geographic region were 5.4 days in the West, 6.3 days in the South, 6.4 days in the Midwest, and 7.7 days in the Northeast.

Table 1. Number of inpatients discharged from short-stay hospitals, by age, geographic region, and sex: United States, 1989

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

Age and region	Both sexes	Male	Female
	Number of patients discharged in thousands		
Total	30,947	12,583	18,364
Age			
Under 15 years	2,597	1,521	1,077
15–44 years	11,848	3,405	8,443
45–64 years	6,271	3,179	3,092
65 years and over	10,230	4,478	5,752
Region			
Northeast	7,044	2,976	4,068
Midwest	7,676	3,182	4,493
South	10,960	4,309	6,650
West	5,268	2,115	3,152

Table 2. Rate of inpatients discharged from short-stay hospitals, by age, geographic region, and sex: United States, 1989

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

Age and region	Both sexes	Male	Female
	Rate of patients discharged per 1,000 population		
Total	125.5	105.3	144.5
Age			
Under 15 years	48.2	55.1	40.9
15–44 years	102.8	59.8	144.9
45–64 years	135.0	142.8	127.9
65 years and over	330.2	354.4	313.5
Region			
Northeast	139.1	122.8	154.0
Midwest	127.9	109.1	145.7
South	129.5	105.6	151.7
West	102.8	83.8	121.3

Table 3. Average length of stay for inpatients discharged from short-stay hospitals, by age, geographic region, and sex: United States, 1989

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

Age and region	Both sexes	Male	Female
	Average length of stay in days		
Total	6.5	7.0	6.1
Age			
Under 15 years	4.9	4.9	4.9
15–44 years	4.7	6.2	4.1
45–64 years	6.7	6.7	6.6
65 years and over	8.9	8.6	9.1
Region			
Northeast	7.7	8.0	7.4
Midwest	6.4	6.9	6.1
South	6.3	6.9	5.9
West	5.4	6.2	4.9

Utilization by diagnosis

Diseases of the circulatory system ranked first in 1989 of the ICD–9–CM diagnostic chapters as a principal or first-listed diagnosis for patients discharged from non-Federal short-stay hospitals. These conditions accounted for an estimated 5.2 million discharges. Other leading ICD–9–CM diagnostic chapters were supplementary classifications (including females with deliveries) (4.4 million discharges) and diseases of the digestive system (3.3 million discharges). Approximately 42 percent of the patients discharged from non-Federal short-stay hospitals were included in these three ICD–9–CM diagnostic chapters.

The diagnostic categories presented in this report were selected

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

The number and rate of discharges and average length of stay for each ICD–9–CM diagnostic chapter and selected categories are shown by sex and age in tables 4–6. The most common diagnostic categories for all patients were deliveries and heart disease. Other leading diagnostic categories were malignant neoplasms, pneumonia, and fractures. Excluding deliveries, these last four diagnostic categories were the most common first-listed diagnoses for both males and females. Some of the more common diagnoses for patients under 15 years of age were pneumonia, acute respiratory infections, asthma, fractures, and chronic diseases of tonsils and adenoids. For patients 15–44 years of age, frequent diagnoses were deliveries, psychoses, fractures, abortions and ectopic pregnancies, and heart disease. 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 14.5 days for psychoses.

Utilization by procedures

One or more surgical or nonsurgical procedures were performed for an estimated 20.1 million of the 30.9 million inpatients discharged from short-stay hospitals during 1989. A total of 40.0 million procedures, or an average of 2.0 per patient who underwent at least one procedure, were recorded in 1989.

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

Three-fourths of all the surgical and nonsurgical procedures performed during 1989 are listed in just 5 of the 16 procedure chapters. These were diagnostic and therapeutic procedures (11.5 million), obstetrical procedures (6.4 million), operations on the digestive system (5.4 million), operations on the cardiovascular system (3.7 million), and operations on the musculoskeletal system (3.2 million).

The number and rate of all-listed procedures in 1989 for each ICD–9–CM procedure chapter and selected procedure categories are shown by sex and age in tables 7 and 8. Of the 40.0 million procedures performed during 1989, 16.1 million were for males and 24.0 million were for females. The corresponding rates per 100,000 population were 16,241.1 for both sexes, 13,466.7 for males, and 18,849.2 for females. Frequent procedures for males were arteriography and angiocardiography and computerized axial tomography. Procedures commonly performed on females were episiotomy, cesarean section, diagnostic ultrasound, computerized axial tomography, and repair of current obstetric laceration.

The rate of procedures by age per 100,000 population ranged from 3,987.7 for patients under 15 years of age to 42,677.0 for patients 65 years of age and over. Commonly performed procedures for patients under 15 years of age were spinal tap and tonsillectomy, with or without adenoidectomy; for patients 15–44 years of age, episiotomy 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, computerized axial tomography, arteriography and angiocardiography, and diagnostic ultrasound.

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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 standards of reliability or precision (see Technical notes)
#	Figure suppressed to comply with confidentiality requirements

Table 4. Number of inpatients discharged from short-stay hospitals, by category of first-listed diagnosis, sex, and age: United States, 1989

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

Category of first-listed diagnosis and ICD–9–CM code	Total	Sex		Age			
		Male	Female	Under 15 years	15–44 years	45–64 years	65 years and over
	Number of patients discharged in thousands						
All conditions	30,947	12,583	18,364	2,597	11,848	6,271	10,230
Infectious and parasitic diseases .001–139	726	362	363	200	242	102	182
Neoplasms .140–239	2,001	842	1,159	45	370	643	942
Malignant neoplasms .140–208,230–234	1,608	770	838	31	187	512	878
Malignant neoplasm of large intestine and rectum .153–154,197.5	167	84	83	–	*6	44	117
Malignant neoplasm of trachea, bronchus, and lung .162,197.0,197.3	239	147	92	*	11	101	127
Malignant neoplasm of breast .174–175,198.81	163	*	162	*	18	67	77
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature .210–229,235–239	392	72	320	14	183	131	64
Endocrine, nutritional and metabolic diseases, and immunity disorders .240–279	1,097	453	644	93	235	283	486
Diabetes mellitus .250	438	197	241	22	107	142	166
Diseases of the blood and blood-forming organs .280–289	318	154	164	59	89	49	121
Mental disorders .290–319	1,514	778	736	47	937	291	239
Psychoses .290–299	773	351	422	12	414	175	173
Alcohol dependence syndrome .303	218	165	53	*	149	55	14
Diseases of the nervous system and sense organs .320–389	819	364	455	181	211	166	260
Diseases of the central nervous system .320–336,340–349	341	158	183	60	121	67	93
Cataract .366	65	20	44	*	*	*10	53
Diseases of the ear and mastoid process .380–389	177	87	90	91	29	25	31
Diseases of the circulatory system .390–459	5,197	2,670	2,527	27	406	1,552	3,212
Heart disease .391–392.0,393–398,402,404, 410–416,420–429	3,534	1,892	1,642	16	225	1,116	2,177
Acute myocardial infarction .410	695	421	274	*	42	245	408
Atherosclerotic heart disease .414.0	407	282	125	*	22	187	197
Other ischemic heart disease .411–413,414.1–414.9	893	471	422	*	50	339	503
Cardiac dysrhythmias .427	487	220	267	*	36	109	338
Congestive heart failure .428.0	643	304	339	*	18	116	505
Cerebrovascular disease .430–438	795	344	451	*	32	152	607
Diseases of the respiratory system .460–519	2,996	1,507	1,489	764	536	505	1,190
Acute respiratory infections, except influenza .460–466	475	244	230	214	61	62	138
Chronic disease of tonsils and adenoids .474	134	58	76	94	38	*	–
Pneumonia, all forms .480–486	1,033	544	489	220	136	145	532
Asthma .493	475	204	271	168	127	88	93
Diseases of the digestive system .520–579	3,295	1,501	1,794	264	953	858	1,220
Ulcers of the stomach and small intestine .531–534	256	134	122	*	44	76	135
Gastritis and duodenitis .535	143	58	85	*7	51	36	48
Appendicitis .540–543	227	135	92	60	130	26	11
Inguinal hernia .550	213	193	20	30	46	56	81
Noninfectious enteritis and colitis .555–556,558	351	139	212	88	124	63	76
Cholelithiasis .574	482	132	351	*	172	151	157
Diseases of the genitourinary system .580–629	2,191	851	1,340	69	915	473	734
Calculus of kidney and ureter .592	278	180	98	*	138	94	44
Hyperplasia of prostate .600	249	249	...	–	*	55	193
Complications of pregnancy, childbirth, and the puerperium[1] .630–676	756	...	756	*	751	*	...
Abortions and ectopic and molar pregnancies .630–639	229	...	229	*	227	*	...
Diseases of the skin and subcutaneous tissue .680–709	480	238	242	39	155	120	165
Diseases of the musculoskeletal system and connective tissue .710–739	1,569	745	825	51	586	465	467
Arthropathies and related disorders .710–719	431	193	237	18	125	103	184
Intervertebral disc disorders .722	396	219	177	*	209	147	40
Congenital anomalies .740–759	207	112	95	137	41	18	11
Certain conditions originating in the perinatal period .760–779	152	88	63	146	*	*	*5
Symptoms, signs, and ill-defined conditions .780–799	381	191	190	56	154	115	56
Injury and poisoning .800–999	2,806	1,514	1,292	341	1,188	486	791
Fractures, all sites .800–829	1,021	480	541	120	332	157	412
Fracture of neck of femur .820	265	61	204	*	*9	25	228
Sprains and strains of back (including neck) .846–847	79	39	41	*	42	23	12
Intracranial injuries (excluding those with skull fracture) .850–854	186	114	73	51	93	15	27
Lacerations and open wounds .870–904	224	171	53	30	152	27	15
Supplementary classifications .V01–V82	4,444	214	4,230	75	4,078	143	147
Females with deliveries .V27	3,937	...	3,937	*9	3,926	*	...

[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, 1989

[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	1,255.2	1,053.3	1,445.0	481.8	1,028.5	1,350.1	3,301.6
Infectious and parasitic diseases .001–139	29.4	30.3	28.6	37.0	21.0	22.0	58.7
Neoplasms .140–239	81.1	70.5	91.2	8.4	32.1	138.5	303.9
Malignant neoplasms .140–208,230–234	65.2	64.5	66.0	5.7	16.2	110.3	283.3
Malignant neoplasm of large intestine and rectum .153–154,197.5	6.8	7.0	6.5	–	*0.5	9.4	37.8
Malignant neoplasm of trachea, bronchus, and lung .162,197.0,197.3	9.7	12.3	7.3	*	1.0	21.8	40.9
Malignant neoplasm of breast .174–175,198.81	6.6	*	12.7	*	1.6	14.5	25.0
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature .210–229,235–239	15.9	6.0	25.2	2.6	15.9	28.2	20.6
Endocrine, nutritional and metabolic diseases, and immunity disorders .240–279	44.5	37.9	50.7	17.2	20.4	61.0	156.8
Diabetes mellitus .250	17.8	16.5	18.9	4.1	9.3	30.6	53.6
Diseases of the blood and blood-forming organs .280–289	12.9	12.9	12.9	10.9	7.7	10.5	39.2
Mental disorders .290–319	61.4	65.1	57.9	8.7	81.4	62.6	77.2
Psychoses .290–299	31.3	29.3	33.2	2.2	35.9	37.6	55.8
Alcohol dependence syndrome .303	8.8	13.8	4.2	*	12.9	11.7	4.7
Diseases of the nervous system and sense organs .320–389	33.2	30.5	35.8	33.5	18.3	35.7	84.1
Diseases of the central nervous system .320–336,340–349	13.8	13.2	14.4	11.1	10.5	14.4	30.1
Cataract .366	2.6	1.7	3.5	*	*	*2.1	17.3
Diseases of the ear and mastoid process .380–389	7.2	7.3	7.1	16.9	2.5	5.5	10.0
Diseases of the circulatory system .390–459	210.8	223.5	198.8	5.0	35.2	334.2	1,036.8
Heart disease .391–392.0,393–398,402,404, 410–416,420–429	143.3	158.4	129.2	2.9	19.6	240.2	702.6
Acute myocardial infarction .410	28.2	35.2	21.6	*	3.6	52.8	131.6
Atherosclerotic heart disease .414.0	16.5	23.6	9.8	*	1.9	40.2	63.5
Other ischemic heart disease .411–413,414.1–414.9	36.2	39.4	33.2	*	4.3	73.0	162.4
Cardiac dysrhythmias .427	19.7	18.4	21.0	*	3.1	23.4	109.2
Congestive heart failure .428.0	26.1	25.4	26.7	*	1.6	25.0	162.9
Cerebrovascular disease .430–438	32.3	28.8	35.5	*	2.8	32.8	195.8
Diseases of the respiratory system .460–519	121.5	126.2	117.2	141.8	46.6	108.8	384.2
Acute respiratory infections, except influenza .460–466	19.3	20.5	18.1	39.8	5.3	13.3	44.5
Chronic disease of tonsils and adenoids .474	5.4	4.9	6.0	17.4	3.3	*	–
Pneumonia, all forms .480–486	41.9	45.6	38.5	40.9	11.8	31.2	171.8
Asthma .493	19.3	17.1	21.3	31.2	11.0	19.0	29.9
Diseases of the digestive system .520–579	133.6	125.6	141.1	48.9	82.7	184.7	393.8
Ulcers of the stomach and small intestine .531–534	10.4	11.2	9.6	*	3.8	16.3	43.5
Gastritis and duodenitis .535	5.8	4.8	6.7	*1.4	4.4	7.7	15.6
Appendicitis .540–543	9.2	11.3	7.3	11.2	11.2	5.6	3.6
Inguinal hernia .550	8.6	16.1	1.6	5.6	4.0	12.0	26.2
Noninfectious enteritis and colitis .555–556,558	14.2	11.6	16.7	16.3	10.7	13.7	24.5
Cholelithiasis .574	19.6	11.0	27.6	*	14.9	32.6	50.8
Diseases of the genitourinary system .580–629	88.9	71.2	105.4	12.8	79.4	101.8	236.9
Calculus of kidney and ureter .592	11.3	15.1	7.7	*	12.0	20.3	14.2
Hyperplasia of prostate .600	10.1	20.8	...	–	*	11.7	62.4
Complications of pregnancy, childbirth, and the puerperium[1] .630–676	30.7	...	59.5	*	65.2	*	...
Abortions and ectopic and molar pregnancies .630–639	9.3	...	18.0	*	19.7	*	...
Diseases of the skin and subcutaneous tissue .680–709	19.5	19.9	19.1	7.2	13.5	25.9	53.3
Diseases of the musculoskeletal system and connective tissue .710–739	63.6	62.3	64.9	9.5	50.9	100.0	150.8
Arthropathies and related disorders .710–719	17.5	16.2	18.7	3.3	10.9	22.3	59.5
Intervertebral disc disorders .722	16.1	18.4	13.9	*	18.1	31.7	12.9
Congenital anomalies .740–759	8.4	9.4	7.5	25.4	3.6	3.8	3.6
Certain conditions originating in the perinatal period .760–779	6.1	7.4	5.0	27.2	*	*	*1.5
Symptoms, signs, and ill-defined conditions .780–799	15.4	16.0	15.0	10.4	13.3	24.7	18.1
Injury and poisoning .800–999	113.8	126.7	101.7	63.3	103.2	104.6	255.1
Fractures, all sites .800–829	41.4	40.2	42.6	22.3	28.8	33.9	133.0
Fracture of neck of femur .820	10.8	5.1	16.0	*	*0.8	5.3	73.4
Sprains and strains of back (including neck) .846–847	3.2	3.2	3.2	*	3.7	5.0	3.9
Intracranial injuries (excluding those with skull fracture) .850–854	7.5	9.5	5.7	9.4	8.1	3.3	8.7
Lacerations and open wounds .870–904	9.1	14.3	4.2	5.6	13.2	5.8	4.9
Supplementary classifications .V01–V82	180.2	17.9	332.8	14.0	354.0	30.8	47.6
Females with deliveries .V27	159.7	...	309.8	*1.6	340.8	*	...

[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, 1989

[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	6.5	7.0	6.1	4.9	4.7	6.7	8.9
Infectious and parasitic diseases .001–139	7.7	8.1	7.3	4.3	7.2	10.6	10.3
Neoplasms .140–239	8.3	8.8	8.0	6.5	5.9	7.7	9.8
Malignant neoplasms .140–208,230–234	9.2	9.2	9.3	8.3	7.6	8.6	10.0
Malignant neoplasm of large intestine and rectum .153–154,197.5	14.0	13.1	14.9	–	*9.1	14.1	14.2
Malignant neoplasm of trachea, bronchus, and lung .162,197.0,197.3	8.6	8.5	8.9	*	8.6	8.5	8.8
Malignant neoplasm of breast .174–175,198.81	5.4	*	5.4	*	4.2	5.1	5.9
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature .210–229,235–239	4.7	4.6	4.7	2.6	4.1	4.6	7.2
Endocrine, nutritional and metabolic diseases, and immunity disorders .240–279	6.8	6.9	6.8	4.4	5.1	6.2	8.5
Diabetes mellitus .250	7.6	7.7	7.4	4.6	5.8	7.1	9.5
Diseases of the blood and blood-forming organs .280–289	6.0	5.9	6.1	3.6	5.7	5.6	7.5
Mental disorders .290–319	12.7	12.5	13.0	25.2	12.1	11.8	13.9
Psychoses .290–299	14.5	14.0	14.9	26.6	13.9	14.3	15.4
Alcohol dependence syndrome .303	10.6	10.5	11.0	*	11.2	8.5	11.9
Diseases of the nervous system and sense organs .320–389	5.5	5.5	5.6	3.9	5.6	5.2	6.8
Diseases of the central nervous system .320–336,340–349	8.6	8.7	8.5	6.6	6.9	8.4	12.3
Cataract .366	1.5	1.3	1.5	*	*	*1.1	1.5
Diseases of the ear and mastoid process .380–389	2.6	2.3	2.9	2.2	2.8	2.8	3.5
Diseases of the circulatory system .390–459	7.6	7.4	7.8	5.8	5.6	6.3	8.4
Heart disease .391–392.0,393–398,402,404, 410–416,420–429	7.0	6.8	7.2	6.1	5.3	6.0	7.7
Acute myocardial infarction .410	8.6	8.1	9.3	*	5.9	7.5	9.5
Atherosclerotic heart disease .414.0	6.2	6.0	6.6	*	4.0	5.0	7.5
Other ischemic heart disease .411–413,414.1–414.9	5.2	5.2	5.3	*	3.9	4.7	5.7
Cardiac dysrhythmias .427	5.8	5.7	5.9	*	3.7	4.4	6.4
Congestive heart failure .428.0	8.4	7.9	8.8	*	6.3	7.6	8 7
Cerebrovascular disease .430–438	10.2	10.3	10.2	*	10.0	9.2	10.5
Diseases of the respiratory system .460–519	6.7	6.6	6.8	3.5	4.8	7.5	9.3
Acute respiratory infections, except influenza .460–466	4.9	4.5	5.4	3.5	4.2	5.8	7.1
Chronic disease of tonsils and adenoids .474	1.2	1.2	1.2	1.2	1.2	*	–
Pneumonia, all forms .480–486	8.1	7.8	8.4	4.3	7.0	9.2	9.6
Asthma .493	4.5	3.8	5.0	2.9	4.2	5.2	7.2
Diseases of the digestive system .520–579	6.3	6.0	6.6	3.8	4.7	6.1	8.2
Ulcers of the stomach and small intestine .531–534	7.3	6.8	8.0	*	4.8	6.7	8.6
Gastritis and duodenitis .535	4.6	4.1	4.9	*2.7	3.6	4.6	5.9
Appendicitis .540–543	4.9	4.5	5.4	4.9	4.1	5.9	11.4
Inguinal hernia .550	2.6	2.6	2.5	1.5	2.0	2.5	3.4
Noninfectious enteritis and colitis .555–556,558	5.1	5.8	4.6	3.4	4.0	5.0	9.0
Cholelithiasis .574	6.3	7.5	5.9	*	4.8	5.7	8.7
Diseases of the genitourinary system .580–629	5.2	5.5	5.1	5.2	3.9	4.6	7.2
Calculus of kidney and ureter .592	3.0	2.7	3.7	*	2.6	2.9	4.7
Hyperplasia of prostate .600	5.2	5.2	...	–	*	4.3	5.5
Complications of pregnancy, childbirth, and the puerperium[1] .630–676	2.8	...	2.8	*	2.8	*	...
Abortions and ectopic and molar pregnancies .630–639	2.3	...	2.3	*	2.3	*	...
Diseases of the skin and subcutaneous tissue .680–709	8.0	7.8	8.3	4.2	5.8	8.4	10.7
Diseases of the musculoskeletal system and connective tissue .710–739	6.5	5.9	7.1	5.9	4.8	6.1	9.2
Arthropathies and related disorders .710–719	7.7	6.9	8.4	5.7	3.8	7.6	10.6
Intervertebral disc disorders .722	5.4	5.0	6.0	*	5.0	5.4	7.6
Congenital anomalies .740–759	5.9	5.2	6.6	5.4	5.1	10.6	7.2
Certain conditions originating in the perinatal period .760–779	11.3	10.3	12.8	11.0	*	*	*14.8
Symptoms, signs, and ill-defined conditions .780–799	3.3	3.2	3.3	2.7	2.6	3.4	5.5
Injury and poisoning .800–999	6.8	6.3	7.4	4.3	5.1	7.1	10.3
Fractures, all sites .800–829	8.5	7.5	9.4	5.1	6.0	8.3	11.6
Fracture of neck of femur .820	13.2	13.8	13.0	*	*9.0	12.5	13.5
Sprains and strains of back (including neck) .846–847	4.5	4.1	4.8	*	4.1	4.7	5.7
Intracranial injuries (excuding those with skull fracture) .850–854	7.0	8.2	5.0	3.1	7.8	8.9	10.6
Lacerations and open wounds .870–904	3.7	3.7	3.8	4.2	3.6	3.8	4.5
Supplementary classifications .V01–V82	3.2	5.9	3.1	4.8	2.9	4.5	8.9
Females with deliveries .V27	2.9	...	2.9	*3.3	2.9	*	...

[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, 1989

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

Procedure category and ICD–9–CM code	Total	Sex		Age			
		Male	Female	Under 15 years	15–44 years	45–64 years	65 years and over
	Number of all-listed procedures in thousands						
All procedures	40,043	16,088	23,954	2,150	15,805	8,865	13,223
Operations on the nervous system .01–05	909	475	435	226	288	198	198
Spinal tap .03.31	377	203	174	172	97	47	61
Operations on the endocrine system .06–07	113	31	83	*	42	45	25
Operations on the eye .08–16	448	198	250	28	99	100	220
Extraction of lens .13.1–13.6	79	25	54	*	*	13	60
Insertion of prosthetic lens (pseudophakos) .13.7	72	24	48	–	*	13	56
Operations on the ear .18–20	168	93	75	96	39	17	16
Operations on the nose, mouth, and pharynx .21–29	734	386	348	181	313	136	104
Rhinoplasty and repair of nose .21.8	90	46	44	*5	59	15	*10
Tonsillectomy with or without adenoidectomy .28.2–28.3	155	69	86	103	48	*	*
Operations on the respiratory system .30–34	1,051	608	442	81	194	307	470
Bronchoscopy .33.21–33.23	137	85	52	20	24	37	56
Operations on the cardiovascular system .35–39	3,722	2,236	1,486	150	436	1,320	1,815
Removal of coronary artery obstruction .36.0	259	177	82	*	19	133	107
Direct heart revascularization .36.1	368	271	97	*	12	165	191
Cardiac catheterization .37.21–37.23	958	601	357	23	95	425	414
Pacemaker insertion, replacement, removal, repair .37.7–37.8	275	142	133	*	*10	43	221
Operations on the hemic and lymphatic system .40–41	385	190	195	20	82	105	178
Operations on the digestive system .42–54	5,360	2,309	3,051	226	1,546	1,310	2,278
Esophagoscopy and gastroscopy (natural orifice) .42.23,44.13	91	43	48	*9	20	18	44
Partial gastrectomy and resection of intestine .43.5–43.8,45.6–45.8	294	136	157	*	35	80	176
Colonoscopy and sigmoidoscopy .45.23–45.24	409	157	252	*	65	93	247
Appendectomy, excluding incidental .47.0	253	141	112	61	149	29	15
Hemorrhoidectomy .49.43–49.46	75	45	30	–	28	32	15
Cholecystectomy .51.2	504	144	359	*	179	162	160
Repair of inguinal hernia .53.0–53.1	243	220	24	33	50	62	98
Division of peritoneal adhesions .54.5	329	59	270	*	164	67	95
Operations on the urinary system .55–59	1,594	962	633	43	384	386	781
Endoscopies (natural orifice) .55.21–55.22,56.31,57.32,58.22	530	380	150	*8	93	135	294
Operations on the male genital organs .60–64	648	648	...	49	48	129	421
Prostatectomy .60.2–60.6	376	376	...	...	*	71	304
Operations on the female genital organs .65–71	2,385	...	2,385	*8	1,683	470	225
Oophorectomy and salpingo-oophorectomy .65.3–65.6	421	...	421	*	228	144	48
Bilateral destruction or occlusion of fallopian tubes .66.2–66.3	389	...	389	–	386	*	...
Hysterectomy .68.3–68.7	541	...	541	*	317	165	58
Dilation and curettage of uterus .69.0	265	...	265	*	209	42	13
Repair of cystocele and rectocele .70.5	135	...	135	–	38	52	46
Obstetrical procedures .72–75	6,383	...	6,383	12	6,368	*	...
Episiotomy with or without forceps or vacuum extraction .72.1,72.21,72.31,72.71,73.6	1,704	...	1,704	*5	1,698	*	...
Cesarean section .74.0–74.2,74.4,74.99	938	...	938	*	936	*	...
Repair of current obstetric laceration .75.5–75.6	762	...	762	*	760	*	...
Operations on the musculoskeletal system .76–84	3,171	1,676	1,495	215	1,320	755	881
Open reduction of fracture except jaw .76.79, 79.2–79.3,79.5–79.6	479	236	243	34	175	92	178
Other reduction of fracture except jaw .76.70, 76.78,79.0–79.1,79.4	192	107	85	49	61	32	50
Excision or destruction of intervertebral disc and spinal fusion .80.5,81.0	355	204	151	*5	186	128	36
Arthroplasty and replacement of knee[1] .81.41–81.47, 81.54–81.55	228	123	106	*	91	41	93
Operations on muscles, tendons, fascia, and bursa .82–83.1, 83.3–83.9	312	191	120	39	131	90	52
Operations on the integumentary system .85–86	1,428	633	795	94	526	380	427
Mastectomy .85.4	120	*	118	*	14	48	58
Excision or destruction of lesion or tissue of skin or subcutaneous tissue .86.2–86.4	542	303	239	34	197	131	180
Skin graft (except lip or mouth) .86.6–86.7	124	75	49	12	45	28	39
Miscellaneous diagnostic and therapeutic procedures .87–99	11,544	5,644	5,900	719	2,436	3,204	5,186
Computerized axial tomography .87.03,87.41,87.71, 88.01,88.38	1,519	721	798	83	354	355	727
Pyelogram .87.73–87.75	288	161	127	*9	110	75	93
Arteriography and angiocardiography using contrast material .88.4–88.5	1,620	1,000	620	30	184	685	721
Diagnostic ultrasound .88.7	1,558	628	930	82	465	379	633
Circulatory monitoring .89.6	777	388	390	32	128	188	429
Radioisotope scan .92.0–92.1	635	287	347	20	119	187	310

[1]Includes addenda to the ICD–9–CM effective October 1, 1989.

Table 8. Rate of all-listed procedures for inpatients discharged from short-stay hospitals, by procedure category, sex, and age: United States, 1989

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

Procedure category and ICD–9–CM code	Total	Sex		Age			
		Male	Female	Under 15 years	15–44 years	45–64 years	65 years and over
	Rate of all-listed procedures per 100,000 population						
All procedures	16,241.1	13,466.7	18,849.2	3,987.7	13,719.3	19,083.7	42,677.0
Operations on the nervous system .01–05	368.8	397.3	342.0	419.8	249.7	425.5	638.1
Spinal tap .03.31	153.1	170.2	136.9	319.5	84.5	101.4	196.1
Operations on the endocrine system .06–07	46.0	25.6	65.1	*	36.7	96.5	79.1
Operations on the eye .08–16	181.6	165.6	196.7	52.0	86.4	216.2	709.7
Extraction of lens .13.1–13.6	32.1	21.0	42.6	*	*	29.0	194.6
Insertion of prosthetic lens (pseudophakos) .13.7	29.1	19.7	38.0	–	*	27.0	181.9
Operations on the ear .18–20	68.2	78.0	58.9	177.9	34.2	36.5	51.0
Operations on the nose, mouth, and pharynx .21–29	297.8	323.4	273.7	335.9	271.7	292.3	336.5
Rhinoplasty and repair of nose .21.8	36.4	38.1	34.8	*8.7	51.6	32.9	*33.5
Tonsillectomy with or without adenoidectomy .28.2–28.3	62.9	57.5	67.9	190.5	41.2	*	*
Operations on the respiratory system .30–34	426.2	509.3	348.1	149.7	168.0	660.8	1,515.7
Bronchoscopy .33.21–33.23	55.6	70.9	41.2	37.2	20.5	79.8	181.9
Operations on the cardiovascular system .35–39	1,509.4	1,871.6	1,168.9	278.8	378.9	2,840.7	5,858.6
Removal of coronary artery obstruction .36.0	105.0	148.2	64.3	*	16.4	285.9	345.5
Direct heart revascularization .36.1	149.3	226.8	76.6	*	10.4	355.5	615.2
Cardiac catheterization .37.21–37.23	388.4	503.1	280.7	41.8	82.9	915.6	1,337.4
Pacemaker insertion, replacement, removal, repair .37.7–37.8	111.5	118.9	104.5	*	*8.9	93.2	712.3
Operations on the hemic and lymphatic system .40–41	156.1	159.3	153.1	37.0	71.4	225.9	573.7
Operations on the digestive system .42–54	2,174.0	1,932.5	2,400.9	419.2	1,341.8	2,820.2	7,352.7
Esophagoscopy and gastroscopy (natural orifice) .42.23,44.13	37.0	35.9	38.1	*16.8	17.4	38.9	142.7
Partial gastrectomy and resection of intestine .43.5–43.8,45.6–45.8	119.2	114.2	123.9	*	30.1	171.5	568.7
Colonoscopy and sigmoidoscopy .45.23–45.24	165.7	131.3	198.0	*	56.2	200.7	798.2
Appendectomy, excluding incidental .47.0	102.5	117.8	88.1	112.7	129.1	61.6	47.4
Hemorrhoidectomy .49.43–49.46	30.6	37.8	23.8	–	24.1	69.5	49.6
Cholecystectomy .51.2	204.2	120.8	282.7	*	155.6	349.7	516.4
Repair of inguinal hernia .53.0–53.1	98.6	183.8	18.5	61.6	43.1	133.9	316.8
Division of peritoneal adhesions .54.5	133.4	49.6	212.1	*	142.0	143.7	306.5
Operations on the urinary system .55–59	646.7	804.8	498.0	79.9	333.7	831.2	2,520.0
Endoscopies (natural orifice) .55.21–55.22,56.31,57.32,58.22	214.8	318.0	117.8	*14.2	81.0	290.6	947.8
Operations on the male genital organs .60–64	262.8	542.4	...	91.5	41.9	278.6	1,358.5
Prostatectomy .60.2–60.6	152.6	315.0	...	...	*	152.7	982.7
Operations on the female genital organs .65–71	967.5	...	1,877.0	*14.5	1,460.6	1,012.3	725.3
Oophorectomy and salpingo-oophorectomy .65.3–65.6	170.6	...	331.0	*	197.8	309.1	156.1
Bilateral destruction or occlusion of fallopian tubes .66.2–66.3	157.6	...	305.8	–	335.3	*	...
Hysterectomy .68.3–68.7	219.3	...	425.4	*	275.2	355.2	188.3
Dilation and curettage of uterus .69.0	107.3	...	208.2	*	181.7	89.7	42.3
Repair of cystocele and rectocele .70.5	54.8	...	106.3	–	32.6	111.1	148.3
Obstetrical procedures .72–75	2,588.8	...	5,022.5	22.9	5,527.6	*	...
Episiotomy with or without forceps or vacuum extraction .72.1,72.21,72.31,72.71,73.6	691.0	...	1,340.5	*9.3	1,474.0	*	...
Cesarean section .74.0-74.2,74.4,74.99	380.4	...	738.0	*	812.3	*	...
Repair of current obstetric laceration .75.5–75.6	309.1	–	599.7	*	659.7	*	...
Operations on the musculoskeletal system .76–84	1,286.1	1,403.0	1,176.1	398.1	1,146.1	1,625.9	2,841.8
Open reduction of fracture except jaw .76.79, 79.2–79.3,79.5–79.6	194.2	197.3	191.3	62.7	151.7	199.0	573.8
Other reduction of fracture except jaw .76.70, 76.78,79.0–79.1,79.4	77.9	89.4	67.2	91.4	53.2	68.2	161.2
Excision or destruction of intervertebral disc and spinal fusion .80.5,81.0	144.1	170.9	118.9	*9.7	161.6	275.2	116.1
Arthroplasty and replacement of knee[1] .81.41–81.47, 81.54–81.55	92.7	102.6	83.3	*	78.8	89.3	299.9
Operations on muscles, tendons, fascia, and bursa .82–83.1, 83.3–83.9	126.3	159.9	94.8	72.2	113.8	193.2	167.0
Operations on the integumentary system .85–86	579.1	530.0	625.2	174.8	456.5	818.7	1,379.2
Mastectomy .85.4	48.9	*	92.7	*	12.1	103.5	188.3
Excision or destruction of lesion or tissue of skin or subcutaneous tissue .86.2–86.4	219.7	253.3	188.1	62.2	171.3	281.9	580.3
Skin graft (except lip or mouth) .86.6–86.7	50.4	62.7	38.9	22.5	39.2	59.9	126.8
Miscellaneous diagnostic and therapeutic procedures .87–99	4,682.1	4,723.9	4,642.9	1,332.7	2,114.2	6,897.3	16,737.2
Computerized axial tomography .87.03,87.41,87.71,88.01,88.38	616.0	603.6	627.6	153.1	307.0	765.0	2,346.6
Pyelogram .87.73–87.75	116.6	134.4	100.0	*17.4	95.6	160.6	301.6
Arteriography and angiocardiography using contrast material .88.4–88.5	657.2	836.9	488.2	56.1	159.8	1,474.7	2,326.7
Diagnostic ultrasound .88.7	632.0	525.7	732.0	151.5	403.3	815.1	2,044.4
Circulatory monitoring .89.6	315.3	324.5	306.7	58.9	111.4	405.5	1,384.5
Radioisotope scan .92.0–92.1	257.5	240.6	273.4	37.0	102.9	402.1	999.1

[1]Includes addenda to the ICD–9–CM effective October 1, 1989.

Technical notes

Survey methodology

Source of data

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

Beginning with 1988, the NHDS sampling frame consists of hospitals that were listed in the April 1987 SMG Hospital Market Tape (3), met the above criteria, and began accepting patients by August 1987. For 1989, the sample consisted of 542 hospitals. Of the 542 hospitals, 16 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 526 in-scope (eligible) hospitals, 408 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 27 percent of the respondent hospitals in 1989, that involved the purchase of data tapes from abstracting service organizations.

In the manual system, the sample selection and the transcription of information from the hospital records to abstract forms were performed at the hospitals. The completed forms, along with sample selection control sheets, were forwarded to NCHS for coding, editing, and weighting. A few of these hospitals submitted their data via computer printout or tape. Of the hospitals using the manual system in 1989, about two-thirds had the work performed by their own medical records staff. In the remaining hospitals using the manual system, personnel of the U.S. Bureau of the Census did the work on behalf of NCHS.

For the automated system, NCHS purchased tapes containing machine-readable medical record data from abstracting service organizations. Records were systematically sampled by NCHS.

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

Presentation of estimates

The relative standard error of the estimate and the number of sample records on which the estimate is based (referred to as the sample size) are used to identify estimates with relatively low reliability. Based on consideration of the complex sample design of the NHDS, the following guidelines are used for presenting the NHDS estimates:

- If the relative standard error of an estimate is larger than 30 percent, the estimate is not shown. Only an asterisk (*) appears in the tables.
- If the sample size is less than 60, the value of the estimate should not be assumed to be reliable. The estimate is preceded by an asterisk (*) in the tables.

Sampling errors and rounding of numbers

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

Estimates of sampling variability were calculated with SESUDAAN software, which computes standard errors by using a first-order Taylor approximation of the deviation of estimates from their expected values. A description of the software and the approach it uses has been published (4).

Table I. Approximate relative standard errors of estimated numbers of discharges and diagnoses: United States, 1989

Size of estimate	All ages
5,000	31.4
10,000	22.5
50,000	11.2
100,000	8.8
500,000	6.7
1,000,000	5.8
3,000,000	5.5
5,000,000	5.5
10,000,000	5.4
20,000,000	5.4
30,000,000	5.4
40,000,000	5.4

Table I provides the estimate of sampling variability for discharges and first-listed diagnoses. Table II provides the estimates of sampling variability by all-listed procedures for patients under 15 years of age and all other variables.

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

Tests of significance

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

Terms relating to hospitalization

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

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

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

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

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

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

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

Terms relating to diagnoses

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

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

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

Terms relating to procedures

Procedure—A surgical or nonsurgical operation, diagnostic procedure, or special treatment reported on the medical record of a patient. The following ICD–9–CM procedure codes are not used in the the NHDS:

08.19, 16.21, 18.01, 18.11, 18.19, 21.21, 21.29, 22.19, 24.19, 25.09, 25.91, 26.19, 27.29, 27.91, 29.19, 31.48–31.49, 37.29, 41.38–41.39, 42.29, 44.19, 45.19, 45.28–45.29, 48.23, 48.29, 49.21, 49.29, 49.41, 58.29, 61.19, 64.19, 64.91, 64.94, 69.92, 70.21, 73.91–73.92, 75.35, 85.19, 86.19, 86.92, 87.09–87.12, 87.16–87.17, 87.22–87.29, 87.36–87.37, 87.39,

Table II. Approximate relative standard errors of estimated numbers of all-listed procedures: United States, 1989

Size of estimate	Under 15 years of age	All other ages
5,000	32.1	30.8
10,000	25.0	22.3
50,000	16.2	11.6
100,000	14.7	9.4
500,000	13.4	7.3
1,000,000	13.3	7.0
3,000,000	13.1	6.7
5,000,000	...	6.7
10,000,000	...	6.7
20,000,000	...	6.6
30,000,000	...	6.6
40,000,000	...	6.6

87.43–87.49, 87.69, 87.79, 87.85–87.89, 87.92, 87.95–87.99, 88.09, 88.16–88.31, 88.33, 88.35, 88.37, 88.39, 89.01–89.13, 89.15–89.16, 89.26–89.31, 89.33–89.39, 89.45–89.53, 89.55–89.59, 89.66, 89.7, 90.01–91.99, 93.01–93.25, 93.27–93.28, 93.31–93.39, 93.42–93.44, 93.61–93.91, 93.94, 93.96, 93.99–94.23, 94.25, 94.29–95.03, 95.05–95.11, 95.14–95.15, 95.31–95.49, 96.09–96.19, 96.26–96.28, 96.34–97.04, 97.14–97.69, 97.72–97.89, 99.02–99.24, 99.26–99.59, 99.71–99.79, 99.82–99.99.

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

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

Demographic terms

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

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

Geographic region—Hospitals are classified by location in one of the four geographic regions of the United States 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

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Advance Data

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

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

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Changes in sexual behavior in response to acquired immunodeficiency syndrome (AIDS) were quite common in 1988. About 6.8 million sexually experienced unmarried women (31 percent) had made one or more changes in their sexual behavior since hearing of AIDS. Misconceptions concerning some of the means of HIV (human immunodeficiency virus) transmission were fairly common among women of reproductive age in 1988: for example, 11 million women thought that they could become infected with HIV (the virus that causes AIDS) by giving blood. For most of the items discussed in this report, low-income women and non-Hispanic black women were more likely to have misinformation concerning the means of HIV transmission, and to say they had a greater chance of contracting the disease. These groups were also the most likely to have reported making some change in their sexual behavior since hearing of AIDS.

These findings are from Cycle IV of the National Survey of Family Growth (NSFG), conducted in 1988 by the National Center for Health Statistics (NCHS). The survey was based on personal interviews conducted between January and August of 1988 with 8,450 women 15–44 years of age in the civilian noninstitutionalized population of the United States. The NSFG interview included information on a number of topics related to childbearing, family planning, and maternal and infant health. The design of the 1988 survey and estimates of sampling errors are discussed further in the Technical notes.

In response to requests from public health agencies for more information on knowledge and behavior related to HIV, the NSFG included a series of questions concerning the woman's knowledge of the means of HIV transmission, changes in sexual behavior to avoid infection, and the woman's own estimate of her chance of becoming infected. Including these questions in Cycle IV was considered important because the NSFG obtains information concerning the woman's marital history, sexually transmitted disease (STD) history, and number of lifetime sexual partners. Because these variables are not available from any other nationally representative source, the NSFG provides an important means for analyzing the level of knowledge and behavior change among women in groups at risk of HIV infection.

This report covers three topics related to HIV: a) misinformation about HIV transmission, b) changes made in sexual behavior since hearing of HIV, and c) perceptions of the chances of becoming infected with the AIDS virus.

Prior research suggests that knowledge and behavior related to the transmission of HIV differs between white and black women, and the findings of this report are consistent with that (1–4). The number of Hispanics in the NSFG sample (641) is much smaller than the 2,771 black women or the 5,354 white women in the sample. This smaller sample size makes it impossible to look at the data for Hispanic women in the same detail as

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that for non-Hispanic black and white women. Thus, detailed data are shown here for white and black women, and summary data for Hispanic women are cited in the text. Data on AIDS related knowledge and attitudes have been collected in another NCHS survey, the National Health Interview Survey (NHIS). The wording and purpose of the AIDS related questions in the NHIS, and the population covered by it, were different than those in the NSFG. These differences, and the comparability of the results, are discussed in more detail in the Technical notes, under "Other sources of data."

The overall level of misinformation is quite low for most of the measures shown in this report; more than 85 percent of women gave correct answers on most items. With one exception, which will be discussed later, the number of women reporting that they did not know whether a means of transmission could spread the virus was less than 1 percent. This suggests that at least some of the women giving correct answers may have been guessing, so the proportion of women with correct information may be lower than the percent giving correct answers. The estimates in this report may be viewed, then, as minimum estimates of the percent with misinformation in 1988.

Findings

In the 1988 NSFG, all women, including both married and unmarried women were asked "Which activities listed on card 25 are ways in which a person can get the AIDS virus? Just read me the letter for those activities in which you think a person can get the AIDS virus." The card listed the following possible means of transmission:

A. Shaking hands or hugging?

B. Sharing hypodermic needles?

C. Sharing an apartment, classroom, or office?

D. Receiving a blood transfusion?

E. Sexual intercourse between men?

F. Sexual intercourse between a man and a woman?

G. Giving a blood donation?

H. Being bitten by an insect that has bitten someone with the AIDS virus?

I. Sharing personal items like dishes, toilets, etc?

For all of these means of transmission a response of "Yes," "No," or "I don't know" was recorded. If she reported that one of the above activities could cause HIV transmission but, in fact, it cannot, or if she reported that an activity could not cause infection when, in fact, it could, she is classified as having "misinformation." Tables 1 and 2 show the percent of women who had misinformation. Measures are not included for item A, "shaking hands or hugging" or item C, "sharing an apartment, classroom, or office" because the proportion of women holding misinformation on these items was less than 5 percent of the population and most of the differences in the subgroups were too small to be statistically significant.

HIV cannot be contracted by donating blood (item G, above) (5). Almost 20 percent of all women 15–44 years of age reported in 1988 that they could contract HIV if they donated blood. This misbelief was especially common among non-Hispanic black women (32 percent, table 1) and Hispanic women (32 percent, not shown in tables) compared with 15 percent of non-Hispanic white women. Low-income women were also more likely to believe that they could contract HIV by donating blood: 29 percent compared with 17 percent of high-income women. Among low-income non-Hispanic black women this misinformation was even more common (36 percent). This mistaken belief could have public health consequences if it deters women from donating blood.

HIV cannot be transmitted by the bite of an insect (item H, above) (5). Although holding the belief that HIV can be transmitted in this manner does not put women at increased risk of HIV infection, it does illustrate the range of uncertainty that often existed in 1988 about how the virus is spread. Almost 22 percent of women 15–44 years of age reported that the AIDS virus could be spread by the bite of an infected insect. Strong differences were found by both race and income: 30 percent of non-Hispanic black women said HIV could be spread in this way, compared with 19 percent of non-Hispanic whites. Similarly, 27 percent of low-income women and 20 percent of high-income women had this misinformation.

HIV cannot be spread by casual contact such as sharing dishes or toilets (item I, above) (5) and over 94 percent of women reported this knowledge. Less than 6 percent of all women reported a belief that a person could be infected by HIV through this kind of contact. This misinformation is important because it increases unwarranted concerns about the way in which the disease can be passed from one person to another and thus, can affect the way a person deals with others. Reducing the level of this misinformation is a major aspect of public education efforts on the virus, and these results reflect substantial success in this regard. Differences by race, income, and marital status are small, and all groups showed levels of misinformation at or below 8 percent. Currently married women appear to be more knowledgeable about blood donations and insect bites than women not currently married. These differences are both statistically significant for women of all races.

Table 2 shows the percents of unmarried women with misinformation about behaviors that can transmit HIV infection. Married women were not included in table 2 because their average risk of contracting HIV is generally lower than the risk for unmarried women, and because the behavior change items in table 3 are shown only for unmarried women. All unmarried women are included in table 2 because most become sexually active at young ages (6).

Table 1. Number of women 15–44 years of age and percent with misinformation about selected means of HIV/AIDS transmission, by marital status, poverty level income, and selected characteristics: United States, 1988

[Statistics are based on samples of the female population of the conterminous United States. See Technical notes for estimates of sampling variability and definitions of demographic terms]

Characteristics and means of transmission	All women	Marital status			Poverty level income	
		Currently married	Formerly married	Never married	Less than 150 percent	150 percent or more
				Number in thousands		
All women[1]	57,900	29,147	7,695	21,058	13,561	44,339
Unmarried women	28,753	...	7,695	21,058	9,861	18,892
Race:						
Non-Hispanic white	42,575	23,367	5,212	13,996	7,274	35,301
Non-Hispanic black	7,408	2,102	1,355	3,951	3,501	3,907
Receiving a blood transfusion				Percent		
All women[1]	8.1	7.3	7.8	9.3	11.6	7.1
Unmarried women	8.9	...	7.8	9.3	11.9	7.4
Race:						
Non-Hispanic white	6.5	6.1	6.4	7.1	*8.1	6.2
Non-Hispanic black	12.7	11.1	10.8	14.2	16.6	9.2
Giving a blood donation						
All women[1]	19.5	16.9	21.6	22.3	28.8	16.7
Unmarried women	22.1	...	21.6	22.3	28.8	18.6
Race:						
Non-Hispanic white	15.4	13.8	17.5	17.3	23.6	13.7
Non-Hispanic black	32.1	28.3	31.5	34.4	35.9	28.6
Being bitten by an infected insect						
All women[1]	21.6	18.6	22.7	25.3	27.3	19.8
Unmarried women	24.6	...	22.7	25.3	28.4	22.6
Race:						
Non-Hispanic white	19.2	17.3	19.9	22.1	22.9	18.4
Non-Hispanic black	29.8	26.9	29.5	31.5	32.6	27.3
Sharing dishes, toliet, food						
All women[1]	5.8	5.8	6.2	5.7	7.9	5.2
Unmarried women	5.8	...	6.2	5.7	8.1	4.6
Race:						
Non-Hispanic white	4.9	4.8	5.9	4.5	*7.3	4.4
Non-Hispanic black	7.2	7.9	5.8	7.4	7.7	6.8

[1] Includes non-Hispanic white, non-Hispanic black, Hispanic, and other races; Hispanics and other races not shown separately. Also includes currently married women.

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

The measure "number of lifetime sexual partners" in table 2 is derived from the NSFG question "Thinking back, with how many men have you had intercourse in your life?". The number of lifetime sexual partners has at least two analytic limitations: first, it is not the same as the number of current sexual partners. Only about 7 percent of unmarried women in most subgroups had 2 sexual partners or more in the 3 months prior to the survey. However, about 17 percent of unmarried women with 10 lifetime partners or more had more than one partner in the last 3 months (not shown in tables). The second limitation of this measure of the number of lifetime partners is that it does not reveal when women had those partners. For example, a woman with 10 lifetime partners or more may have had all of them prior to the introduction of HIV into the United States; she may not be at high risk.

Three means of transmission account for most adult HIV cases: the sharing or using of tainted hypodermic needles used to inject illegal drugs, homosexual intercourse, and heterosexual intercourse (1,5,7–9). Data on misinformation about these means of transmission are shown in table 2. The use of contaminated needles is a special public health concern because HIV is transmitted through both the needle itself and through sexual activity with persons infected by the needle (7). About 10 percent of unmarried women reported the belief that the AIDS virus cannot be spread through sharing hypodermic needles (item B, above), and differences by race and income were large. Only 7 percent of non-Hispanic white women reported this misinformation compared with 16 percent of non-Hispanic black women and 17 percent of Hispanic women. About 8 percent of high-income women reported this belief compared with 14 percent of low-income women. The level of misinformation about transmission by needles varied little by number of sexual partners for unmarried women with 1–9 lifetime partners, but unmarried women with 10 lifetime partners or more were less likely to be misinformed (5 percent compared with 10–12 percent). This was true in each race and income group (but the

Table 2. Number of unmarried women 15–44 years of age and percent with misinformation about selected means of HIV/AIDS transmission, by number of lifetime sexual partners and selected characteristics: United States, 1988

[Statistics are based on samples of the female population of the conterminous United States. See Technical notes for estimates of sampling variability and definitions of demographic terms]

Characteristics and means of transmission	All unmarried women[1]	Never had intercourse	1 partner	2–4 partners	5–9 partners	10 partners or more
			Number in thousands			
All unmarried women[2]	28,753	6,735	4,296	7,742	5,165	4,121
Race:						
Non-Hispanic white	19,208	4,612	2,887	4,923	3,318	3,035
Non-Hispanic black	5,306	719	582	1,848	1,298	645
Poverty level income:						
Less than 150 percent	9,861	2,028	1,510	2,797	1,811	1,408
150 percent or more	18,892	4,707	2,785	4,945	3,353	2,713
Sharing hypodermic needles			Percent			
All unmarried women[2]	10.0	9.5	12.2	11.2	10.2	5.4
Race:						
Non-Hispanic white	6.8	6.1	8.3	7.6	6.4	4.1
Non-Hispanic black	16.0	10.1	21.1	17.4	17.1	13.2
Poverty level income:						
Less than 150 percent	14.1	16.0	18.8	14.1	13.8	*6.1
150 percent or more	7.9	6.6	8.6	9.6	8.3	5.0
Homosexual intercourse						
All unmarried women[2]	5.7	5.2	4.9	8.4	5.1	3.0
Race:						
Non-Hispanic white	3.7	3.4	*2.6	6.2	3.6	*1.4
Non-Hispanic black	11.1	10.8	11.2	12.7	9.7	9.5
Poverty level income:						
Less than 150 percent	8.0	*5.5	7.8	11.9	6.9	*5.9
150 percent or more	4.4	5.0	*3.3	6.4	4.1	*1.5
Heterosexual intercourse						
All unmarried women[2]	6.9	5.4	9.2	9.0	5.7	4.7
Race:						
Non-Hispanic white	5.4	3.8	6.6	8.1	4.1	3.9
Non-Hispanic black	12.0	10.2	18.3	12.3	10.6	9.4
Poverty level income:						
Less than 150 percent	8.5	7.5	11.1	10.4	*5.5	*6.8
150 percent or more	6.1	4.5	8.1	8.3	5.8	*3.6
Getting AIDS from an HIV positive person						
All unmarried women[2]	29.0	27.5	30.8	31.7	30.2	22.6
Race:						
Non-Hispanic white	24.5	24.6	24.0	27.6	25.2	18.7
Non-Hispanic black	37.8	42.0	40.0	37.3	39.6	30.4
Poverty level income:						
Less than 150 percent	36.6	36.6	42.8	38.1	36.6	28.1
150 percent or more	24.9	23.6	24.4	28.1	26.7	19.8

[1] Includes women whose number of lifetime sexual partners was not ascertained, not shown separately.
[2] Includes non-Hispanic white, non-Hispanic black, Hispanic, and other races; Hispanic and other races not shown separately.

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

differences were not statistically significant in each group). Thus, unmarried women who are at greatest risk also seem to be more knowledgeable about the dangers associated with sharing hypodermic needles.

Homosexual intercourse (item E, above) can be a means of transmitting HIV, and, as reflected in table 2, about 94 percent of unmarried women reported a correct answer for this question; only 6 percent did not. Knowing that sexual intercourse between men can transmit the AIDS virus is important for women because it points to the importance of knowing their sexual partners. Knowledge about this risk was very high, but misinformation concerning it varied significantly by race and income. Only 4 percent of unmarried non-Hispanic white women thought that homosexual intercourse could not result in HIV transmission, but 11 percent of non-Hispanic black and 8 percent of Hispanic women thought that it could not spread the virus. There is no clear pattern by number of lifetime sexual partners, but misinformation about homosexual transmission is rare among unmarried white and high-income women with 10 partners or more.

HIV can also be transmitted by heterosexual intercourse (item F) (5,8) and this was reported correctly by 93 percent of unmarried women (table 2). Only 7 percent reported that a person could not be infected in this way. Again, however, the differences in misinformation by race are notable: Only 5 percent of non-Hispanic white women, 7 percent of Hispanic women, and 12 percent

of non-Hispanic black women said that heterosexual intercourse could not spread HIV. The proportion with misinformation was about 9 percent for unmarried women with one to four lifetime sexual partners and 5 percent for those women with 10 lifetime partners or more. Thus, unmarried women at greatest risk of HIV infection—those with the highest number of sexual partners (10)—were the least likely to be misinformed.

The most striking finding in table 2 concerns the responses to the question: "Can a person get AIDS from someone who has only the AIDS virus but does not have the disease?". This question is important because the population of HIV-positive individuals is much larger than the population with recognized symptoms of AIDS (11). About 29 percent of unmarried women either reported that HIV could not be transmitted in this way, or that they did not know whether it could be transmitted in this way. This represents more than 8 million unmarried women.

The differences by race were large: 25 percent of non-Hispanic white women reported this misbelief, compared with 38 percent of non-Hispanic black women (table 2) and 44 percent of Hispanic women (not shown in tables). The differences by income were also large: 25 percent of those with high income compared with 37 percent of low-income women. For both race groups and both income groups, the percent who had misinformation or did not know was lower for unmarried women with 10 partners or more than for women with 1–9 partners: 30 percent of women with 5–9 lifetime partners reported that HIV could not be contracted from an individual who had only the HIV infection or did not know, compared with 23 percent of women with 10 partners or more.

Table 3 contains results from a series of NSFG questions that examined changes that women have

Table 3. Number of unmarried women 15–44 years of age who have ever had intercourse and percent who have made some change in their sexual behavior since hearing of HIV/AIDS, by marital status, number of lifetime sexual partners, poverty level income, and selected characteristics: United States, 1988

[Statistics are based on samples of the female population of the conterminous United States. See Technical notes for estimates of sampling variability and definitions of demographic terms]

Characteristics and means of transmission	All unmarried women[1]	Marital status		Number of lifetime sexual partners				Poverty level income	
		Formerly married	Never married	1 partner	2–4 partners	5–9 partners	10 partners or more	Less than 150 percent	150 percent or more
	Number in thousands								
All unmarried women who have ever had intercourse[2]	22,018	7,695	14,323	4,296	7,742	5,165	4,121	7,833	14,185
Race:									
Non-Hispanic white	14,596	5,212	9,384	2,887	4,923	3,318	3,035	3,770	10,826
Non-Hispanic black	4,586	1,355	3,231	582	1,848	1,298	645	2,717	1,869
Stopped having intercourse?	Percent								
All unmarried women[2]	5.5	6.2	5.1	6.6	5.9	4.2	5.0	5.4	5.5
Race:									
Non-Hispanic white	4.8	5.7	4.3	4.8	4.4	4.1	5.9	5.9	4.4
Non-Hispanic black	7.2	7.9	6.9	12.1	9.7	*4.0	*2.3	5.7	9.3
Reduced frequency of sex?									
All unmarried women[2]	9.3	9.6	9.1	5.7	8.0	9.2	16.2	13.7	6.9
Race:									
Non-Hispanic white	7.7	8.6	7.2	4.4	5.1	7.0	16.3	12.3	6.1
Non-Hispanic black	14.7	12.0	15.8	12.9	14.8	16.1	14.6	16.1	12.5
Restricted sexual partners to one man?									
All unmarried women[2]	15.6	15.7	15.5	4.2	12.0	18.6	29.1	18.5	13.9
Race:									
Non-Hispanic white	13.7	14.1	13.7	*1.8	9.5	16.0	28.7	16.5	12.7
Non-Hispanic black	20.3	20.8	20.2	10.2	17.2	21.9	33.1	21.5	18.7
Restricted sex to men you know well?									
All unmarried women[2]	11.5	13.7	10.3	*1.8	6.1	12.7	29.1	12.6	10.9
Race:									
Non-Hispanic white	11.8	13.7	10.7	*1.1	4.7	12.7	30 8	13.5	11.2
Non-Hispanic black	11.1	14.3	9.7	*3.3	8.3	13.4	22.0	13.0	8.3
Made one change or more[3]									
All unmarried women[2]	31.0	32.4	30.3	16.5	25.9	34.1	50 4	37.3	27.5
Race:									
Non-Hispanic white	27.6	30.0	26.2	11.3	19.5	30.8	51.0	34.4	25.2
Non-Hispanic black	41.1	40.7	41.3	34.4	40.4	40.5	49.6	43.4	37.8

[1] Includes women whose number of lifetime sexual partners was not ascertained, not shown separately.
[2] Includes Hispanic, non-Hispanic white, non-Hispanic black, and other races; Hispanic and other races are not shown separately.
[3] Includes women who made the changes specified above as well as women who stopped having intercourse with bisexual men or with men who used intravenous drugs, not shown separately.

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

made in their sexual behavior to avoid infection with HIV. All women who had ever had intercourse were asked the question, "To keep people from catching diseases such as genital herpes, chlamydia or AIDS, doctors have suggested several changes people can make in their sexual behavior. In which of the ways shown on card 27, if any, have you changed your sexual behavior?".

Women who reported that they had made changes in their behavior out of concern over these sexually transmitted diseases were then asked a followup question: "Which of these changes, if any, have you made *since* you first heard about AIDS?". The changes that these women could have reported since hearing of AIDS were:

A. Stopped having sexual intercourse?

B. Stopped having other types of sexual relations?

C. Don't have sex as often?

D. Stopped having sex with more than one man?

E. Stopped having sex with men I don't know well?

F. Stopped having sex with men who are bisexual?

G. Stopped having sex with men who use needles to take drugs?
(or) Have made no changes.

Table 3 contains the responses of unmarried women who had ever had intercourse to these questions. The answers were tabulated to show the proportion who made these changes specifically since hearing of AIDS. Women who reported no change in their sexual behavior since hearing of AIDS were not necessarily engaging in any of the listed behaviors when interviewed. All we know is that they have not made changes in their sexual behavior out of a concern about AIDS.

Only 3 percent of married women reported any changes in their behavior, compared with 31 percent of unmarried women, so table 3 includes only unmarried women. Less than 2 percent of unmarried women reported that they had stopped engaging in "other types of sexual relations" (other than heterosexual intercourse), or had stopped having intercourse with bisexual men or men who used intravenous drugs, so these categories are not shown separately in table 3, although women who changed these behaviors are included in the percent who made one or more changes.

The most frequent change reported in table 3 was that of unmarried women reducing their number of sexual partners to one man: 16 percent of unmarried women 15–44 years of age reported this change; 6 percent reported that they had stopped having sexual intercourse entirely, 9 percent had reduced their frequency of intercourse, and 12 percent stopped having intercourse with men they did not know well. The percents of these women add up to more than the percent of women who made one or more changes because some unmarried women made more than one change.

About 20 percent of unmarried non-Hispanic black women compared with 14 percent of non-Hispanic white women had stopped having intercourse with more than one man (table 3).

In table 3 there is a uniform pattern of change by number of sexual partners. With the exception of women who reported that they had stopped having sexual intercourse entirely since hearing of AIDS, there is a dramatic increase in the percent of women changing their sexual behavior as their number of lifetime sexual partners increases. For example, 12 percent of women with 2–4 lifetime partners reported that they had stopped having sex with more than one man, compared with 29 percent of women with 10 partners or more. This is also true for women who reported that they had restricted their sexual partners to men whom they knew well: Only 6 percent of women with 2–4 lifetime partners reported this change compared with 29 percent of women with 10 lifetime partners or more.

The percents of women with one lifetime sexual partner who reported that they had restricted their partners to one man (4 percent) or restricted intercourse to men they knew well (2 percent) since hearing of AIDS are low, but they may be interpreted in one of two ways: (a) they may have understood the question to ask what they will do in the future or may have decided to restrict their sexual activity to their current and only partner, and (b) they may have rejected opportunities to engage in intercourse with other men out of concern about HIV infection. Although 31 percent of unmarried women reported that they had made one or more changes in their sexual behavior since hearing of AIDS, statistically significant differences existed by number of partners, income, and race. Low-income women were more likely to say they had made one or more changes than high-income women (37 percent compared with 28 percent). About 41 percent of non-Hispanic black women and 28 percent of unmarried non-Hispanic white women reported making one or more changes since hearing of AIDS (table 3).

There is a striking increase in the proportion of women reporting one or more changes by number of partners: 17 percent of unmarried women with one lifetime partner reported that they had made one or more changes, compared with 50 percent of women with 10 partners or more. This pattern is also found for non-Hispanic white women: 11 percent of those with one partner had made one or more changes, compared with 51 percent of those with 10 partners or more. Among non-Hispanic black women this pattern was less pronounced: 34 percent of those with one partner versus 50 percent of those with 10 partners or more. As was seen in the other measures of change for those women with one lifetime partner, the percent of these women who report a change may reflect actual change, such as stopping sexual activity entirely, or reporting their expectation to make a change in their future behavior if they find themselves with the choice of having

sex with a potentially high-risk partner.

Table 4 contains the responses of women of all marital statuses to the question "What would you say are the chances that you could get AIDS? Would you say that you have . . .

A. A very strong chance,

B. A strong chance,

C. Some chance,

D. Not much chance, or

E. No chance at all?"

Two of every five women 15–44 years of age (41 percent) said they had "no chance at all" of contracting AIDS, another two in five (40 percent) said they had "not much chance", whereas 17 percent said they had some chance and 2 percent said they had a strong or very strong chance. Women with one lifetime sexual partner were most likely to report that they had no chance at all of contracting HIV (51 percent) compared with 27 percent of women with 10 lifetime sexual partners or more. Non-Hispanic black women were slightly more likely than non-Hispanic white women to report that they had no chance of contracting AIDS (44 percent compared with 39 percent). This perception is not, however, consistent with available evidence that black women are more likely to develop AIDS than white women (1,7,8).

Low-income women and black women were twice as likely as high-income women to say that they had a "strong chance" of contracting the AIDS virus, but the percents were small. The percent of women who had ever had intercourse who reported "some chance" of contracting the AIDS virus increased as the number of lifetime sexual partners increased (13 percent for those with 1 lifetime partner to 23 percent for those with 10 or more).

Currently married women were the most likely of all marital statuses to say that they had "no chance at all" of contracting AIDS (45 percent compared with 36–37 percent of never married or formerly married women). Both categories of unmarried women were more likely to

Table 4. Number of women 15–44 years of age who have ever heard of AIDS and percent distribution by perceived risk of contracting the human immunodeficiency virus (HIV/AIDS), according to selected characteristics: United States, 1988

[Statistics are based on samples of the female population of the conterminous United States. See Technical notes for estimates of sampling variability and definitions of demographic terms]

Characteristics and perceived risk of contracting AIDS	All women[1]	Marital status			Number of lifetime sexual partners					Poverty level income	
		Currently married	Formerly married	Never married	Never had intercourse	1 partner	2–4 partners	5–9 partners	10 partners or more	Less than 150 percent	150 percent or more
					Number in thousands						
All women[2]	57,567	28,978	7,638	20,951	6,691	16,417	17,069	9,367	6,767	13,429	44,138
Unmarried women	28,589	...	7,638	20,951	6,691	4,268	7,676	5,157	4,118	9,781	18,808
Race:											
Non-Hispanic white	42,426	23,297	5,186	13,942	4,575	12,215	12,517	6,855	5,364	7,237	35,189
Non-Hispanic black	7,338	2,086	1,333	3,919	714	1,162	2,728	1,682	786	3,465	3,873
Strong chance					Percent distribution						
All women[2]	2.3	1.2	3.5	3.3	2.7	1.2	2.9	2.3	3.3	4.4	1.7
Unmarried women	3.4	...	3.5	3.3	2.7	*2.2	3.7	3.6	5.0	5.0	2.5
Race:											
Non-Hispanic white	1.7	0.9	3.2	2.6	*2.6	*0.6	*2.4	*1.3	2.8	3.8	1.3
Non-Hispanic black	5.3	3.3	6.8	5.8	*3.9	5.3	4.8	5.2	7.5	5.7	4.9
Some chance											
All women[2]	17.4	14.2	21.7	20.2	17.6	12.5	17.1	21.2	23.4	18.9	16.9
Unmarried women	20.6	...	21.7	20.2	17.6	14.2	19.5	23.5	28.5	20.7	20.6
Race:											
Non-Hispanic white	17.5	14.3	22.7	21.0	18.7	12.8	17.8	20.9	21.6	19.6	17.1
Non-Hispanic black	19.5	18.1	20.8	19.8	14.8	12.8	18.4	22.6	29.8	19.0	20.0
Not much chance											
All women[2]	39.6	39.7	38.6	40.0	37.7	35.6	39.8	43.0	46.1	33.5	41.5
Unmarried women	39.6	...	38.6	40.0	37.7	35.6	39.6	41.4	45.2	35.7	41.6
Race:											
Non-Hispanic white	41.9	41.6	39.8	43.1	41.3	38.1	41.5	44.8	48.1	36.8	43.0
Non-Hispanic black	31.5	31.6	33.8	30.8	24.4	27.9	32.6	34.2	33.0	29.1	33.7
No chance at all											
All women[2]	40.7	44.9	36.2	36.5	42.0	50.7	40.3	33.5	27.2	43.2	39.9
Unmarried women	36.4	...	36.2	36.5	42.0	48.0	37.2	31.5	21.3	38.6	35.2
Race:											
Non-Hispanic white	38.8	43.2	34.3	33.2	37.4	48.6	38.2	33.0	27.4	39.8	38.6
Non-Hispanic black	43.7	47.1	38.6	43.6	57.0	54.0	44.3	38.0	29.7	46.2	41.4

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

[2] Includes non-Hispanic white, non-Hispanic black, Hispanic, and other races; Hispanic and other races not shown separately. Also includes currently married women.

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

report that they had a strong chance of contracting the AIDS virus than married women (3–4 percent compared with 1 percent), or some chance (20–22 percent compared with 14 percent).

STD history

The number of women who reported to the 1988 NSFG that they had ever had a sexually transmitted disease (STD) was too small to analyze by number of sexual partners and other variables. However, a woman's STD history is an important means of measuring her risk for HIV infection, so summary tabulations using STD history are shown in table 5. A woman was classified as ever having an STD if she responded affirmatively to one of the following questions:

"Has a doctor ever told you that you have genital warts?"
"Has a doctor ever told you that you have gonorrhea?"
"Has a doctor ever told you that you have genital herpes?"
"Has a doctor ever told you that you have chlamydia?"

Women were classified as never having had an STD if they responded negatively to all four of these questions.

A history of STD has a small but consistent effect on the percent with misinformation on the means of HIV transmission (table 5). Only two of the differences are statistically significant at the 5-percent level ("sharing dishes, toilets, and food," and "Heterosexual intercourse," table 5), but the pattern is consistent: In every comparison but one, women who had an STD appear to be less likely to have misinformation about HIV transmission. The data suggest that women with no STD history were more likely to be unaware that HIV can be spread by a person who has the virus but not AIDS (29 percent versus 24 percent).

The differences by STD history in the proportion of unmarried women who changed their sexual behavior since hearing of AIDS are striking. One-fourth of unmarried women with an STD history (26 percent) had "stopped having sex with more than one man," compared with 15 percent of unmarried women with no STD history. Women who had ever had an STD were twice as likely as others to report that they had stopped having intercourse with men they did not know well. (22 percent compared with 10 percent). This may be the result of women with an STD history having more need to make these changes than women with no history. Overall, 43 percent of unmarried women with an STD history made one or more changes in their sexual behavior since hearing of AIDS, compared with 30 percent of unmarried women with no STD history.

Large differences were also seen in a woman's perceived risk of contracting HIV when examined by STD history. Women with a history of STD were more likely to report that they had "some chance" of

Table 5. Number of women 15–44 years of age in selected categories and percent with misinformation about the means of HIV/AIDS transmission, percent who made changes in sexual behavior since hearing of HIV/AIDS, and percent distribution by perceived risk of acquiring AIDS, according to STD history and age: United States, 1988

[Statistics are based on samples of the female population of the conterminous United States. See Technical notes for estimates of sampling variability and definitions of demographic terms]

Selected characteristics	Ever had an STD[1]	Never had an STD[1]	15–19 years	20–44 years
		Number in thousands		
All women	4,226	53,674	9,179	48,721
Misinformation		Percent		
Receiving a blood transfusion?[2]	6.9	8.2	10.3	7.7
Giving a blood donation?[2]	16.0	19.8	24.3	18.6
Being bitten by an infected insect?[2]	21.6	21.6	28.3	20.3
Sharing dishes, toilets, and food?[2]	*3.3	6.0	6.1	5.8
		Number in thousands		
Unmarried women	2,224	26,529	8,867	19,886
		Percent		
Sharing hypodermic needles?[3]	*7.1	10.2	10.7	9.7
Homosexual intercourse?[3]	*3.4	5.8	6.0	5.5
Heterosexual intercourse?[3]	*4.0	7.2	5.5	7.5
Getting AIDS from an HIV positive person?[3,4]	23.8	29.3	29.5	28.6
		Number in thousands		
Unmarried, sexually experienced women	2,224	19,776	4,544	17,456
		Percent		
Changes in behavior				
Stopped having intercourse?[5]	*5.4	5.5	5.6	5.4
Reduced frequency of sex?[5]	12.8	8.9	11.9	8.6
Restricted sex to one man?[5]	25.5	14.5	13.3	16.2
Restricted sex to men you know well?[5]	21.7	10.4	8.4	12.3
Made one or more changes[5]	42.9	29.7	31.7	30.8
		Number in thousands		
Women who have heard of AIDS[6]	2,687	54,881	9,146	48,421
		Percent distribution		
Chances of getting AIDS				
Total	100.0	100.0	100.0	100.0
Strong or very strong?[2]	*3.9	2.2	3.8	2.0
Some chance?[2]	24.5	16.8	18.5	17.2
Not much chance?[2]	45.9	39.1	39.5	39.7
No chance at all?[2]	25.7	41.9	38.2	41.2

[1] Sexually transmitted disease, including gonorrhea, genital herpes, chlamydia, or genital warts.
[2] Includes women of all marital statuses.
[3] Includes only unmarried women.
[4] "HIV positive person" is a person with the AIDS (HIV) virus, but not the disease.
[5] Includes only sexually experienced unmarried women.
[6] Excludes women with missing data on whether they had heard of AIDS.

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

contracting the virus than women who never had an STD (25 percent compared with 17 percent). Conversely, women with a history of STD were also far less likely to report that they had "no chance at all" of contracting the virus compared with women with no history of STD (26 percent compared with 42 percent).

The results of table 5 may be affected by the other characteristics of women with and without a history of STD: These characteristics include race, income, education, and number of lifetime sexual partners. One other factor may be affecting these differences as well. Because the measure of STD history used in this table is based on a woman being told by a doctor that she has an STD, she may have received counseling along with her treatment. If so, she might know more about the means of HIV transmission and the changes in behavior needed to prevent it, and may have a better understanding of her risk of becoming infected with the virus.

Teenage knowledge and behavior

Table 5 also contains the differences in knowledge and behavior for women 15–19 years of age compared with women 20–44 years of age. Preliminary analysis found that differences between age groups were not statistically significant for most categories. As they begin sexual activity, teenagers may be exposed to HIV. Other research has suggested that sexual activity among teenagers is increasing (6), so it is important to have a measure of their awareness of the means of HIV transmission and the ways the risk of infection can be avoided.

Women 15–19 years of age were more likely than women 20–44 years of age to have the mistaken belief that they could contract the AIDS virus by donating blood (24 percent compared with 19 percent). Teenage women were also more likely to have the mistaken belief that HIV can be transmitted by the bite of an insect (28 percent compared with 20 percent, table 5).

Teens and women 20–44 years of age did not differ significantly in the percent with misinformation about the actual means of HIV transmission: sharing hypodermic needles (11 percent versus 10 percent), homosexual intercourse (6 percent in both groups), heterosexual intercourse (6 percent compared with 8 percent), and contracting the AIDS virus from an HIV positive person (30 percent compared with 29 percent). These numbers suggest that the level of knowledge among teenage women (15–19 years of age) is comparable to that for women 20–44 regarding the means by which one can contract the HIV virus.

The proportions of unmarried women who changed their sexual behavior since hearing of AIDS are shown by age in table 5. The differences between teenagers and women 20–44 years of age are generally small. About 32 percent of unmarried teenagers and 31 percent of women 20–44 years of age made one or more changes. These proportions must be interpreted cautiously, however, as women 15–19 years of age have not had as many years to engage in sexual activity as women 20 years of age and older. Differences by age in perceptions of the chances of contracting the AIDS virus were also small (table 5).

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Technical notes

Survey design

The National Survey of Family Growth (NSFG) is a periodic survey conducted by the National Center for Health Statistics (NCHS) to collect data on fertility and infertility, family planning, and related aspects of maternal and infant health. Fieldwork for Cycle I was conducted in 1973 by the National Opinion Research Center. Fieldwork for Cycles II, III, and IV was conducted by Westat, Inc., in 1976, 1982, and 1988.

For Cycle IV of the NSFG, personal interviews were conducted between January and August of 1988 with a national sample of women who were 15–44 years of age as of March 15, 1988. Interviews were completed with 8,450 women. Data have been weighted to be representative of the civilian noninstitutionalized population of the United States, and black women were oversampled in order to yield reliable estimates by race.

Interviews for Cycle IV of the NSFG were conducted in households which had participated in another NCHS survey, the National Health Interview Survey (NHIS), sometime between 1985 and 1987. Respondents were interviewed in person in their own homes by trained female interviewers. The interviews covered the woman's pregnancy history; her past and current use of contraception; her ability to bear children; her use of medical services for family planning, infertility, and prenatal care; her marital history and associated cohabiting unions; her occupation and labor force participation; and a wide range of social, economic, and demographic characteristics.

Reliability of estimates

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

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

and

$$SE_{(P)} = \sqrt{(B \cdot P' \cdot (100 - P')/X')}$$

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

Table I. Preliminary estimates of parameters A and B for estimating standard errors for women, by race

Race	Parameter	
	A	B
Total or white. . . .	–0.00018	10,738
Black.	–0.000626	5,181

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

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

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

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

Other sources of data

This section includes comparisons of the NSFG results with the information on HIV knowledge in the NHIS. There are differences between the two surveys in the way some of the questions are asked, how answers were recorded, and in the populations covered. The NHIS data refer to males and females 20–75 years of age; the NSFG data are for women 15–44 years of age. In addition, the NHIS asked two separate questions concerning whether HIV can be spread through sharing dishes and glasses, and whether it can be spread through the use of public toilets, whereas the NSFG covers both of these issues in a single question.

The questions concerning the spread of HIV by contaminated hypodermic needles also differ. The NHIS asks, "How likely do you think it is that a person will get AIDS or the AIDS virus from sharing needles for drug use with someone who has the AIDS virus?" (reference 2, page 9), directly associating the spread of the virus with the practice by some drug users of sharing their hypodermic needles with each other. The NSFG asks a more general

question of whether or not HIV can be spread by "sharing hypodermic needles" (see text). These wording differences may result in some differences in levels of misinformation reported by the two surveys.

The method of recording responses also differed substantially between the two surveys. The NHIS respondents were asked whether the means of transmission was: "Very likely," "Somewhat likely," "Somewhat unlikely," "Very unlikely," "Definitely not possible," or "Don't know." In contrast, the NSFG simply recorded whether or not the suggested means of transmission could spread the virus as "Yes" or "No." This makes it difficult to compare the results from the two surveys with each other as the distributions differ for some questions and are quite close for other questions.

The results in table 2, on misinformation about contracting HIV from a person who has the AIDS virus but not the disease, differed from those reported by the NHIS, which found that less than 10 percent of females possessed this misinformation (2). However, the wording of the questions in the two surveys differed substantially. The NHIS asked how likely it is that "Any person with the AIDS virus can pass it on to someone else during sexual intercourse," whereas the NSFG asked: "Can a person get AIDS from someone who has only the AIDS virus but does not have the disease?". These wording differences are probably the primary cause of the differences in the results; but NHIS results are for women 20–75 years of age of all marital statuses, and the NSFG results shown here are for unmarried women 15–44 years of age—a much younger and much smaller group.

Because only a small proportion (2 percent) of all women reported either a very strong or a strong chance of contracting AIDS, these two categories are combined into one group in table 4. The question analyzed in table 4 is similar to the one found in NHIS reports on AIDS, but differences exist between the two that result in somewhat different responses. In contrast to the NSFG question quoted in the text, the NHIS asks, "What are your chances of getting the AIDS virus?": "High," "Medium," "Low," "None," "Don't know," or "High chance of already having the AIDS virus."

Definition of terms

Race—Race refers to the race of the woman interviewed and is reported as black, white, or other. In the 1988 NSFG, race was classified according to the woman's own report of the race that best described her.

Hispanic origin—In the 1988 NSFG, a respondent was classified as being of Hispanic origin if she reported that her only or principal national origin was Puerto Rican, Cuban, Mexican American, Central or South American, or other Spanish. For 3 percent of respondents, origin was not ascertained, so values were imputed.

Marital status—In the NSFG, persons were classified by marital status as married, widowed, divorced, separated, or never married. In Cycles I and II, informally married women—women who volunteered that they were sharing living quarters with their sexual partner—were classified as currently married. These women constituted about 2 percent of currently married respondents in Cycle I and 3 percent in Cycle II. In Cycles III and IV, such women were classified according to their legal marital status. In all cycles, women who were married but separated from their spouses were classified as separated if the reason for the separation was marital discord; otherwise, they were classified as currently married. Formal marital status is used throughout this report. In this report, "unmarried" means not legally married—that is, never legally married or formerly married, where formerly married includes widowed, divorced, or separated.

Sexually experienced—This refers to a woman who has had sexual intercourse at least once. Intercourse before the first menstrual period is excluded.

Lifetime sexual partners—This refers to the number of men with whom the woman has had sexual intercourse in her life, as of the date of interview.

Symbols

– – –	Data not available
. . .	Category not applicable
–	Quantity zero
0.0	Quantity more than zero but less than 0.05
*	Figure does not meet standard of reliability or precision

*U.S. Government Printing Office: 1995 — 386-952/20009

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