
Vital and Health Statistics

Trends in Hospital Utilization: United States, 1965-86

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No. 101

This report presents statistics on the utilization of non-Federal short-stay hospitals based on data collected through the National Hospital Discharge Survey from 1965 through 1986. The survey is a national sample of records of discharged patients. Estimates are provided on demographic characteristics of patients discharged, selected conditions diagnosed and procedures performed, and by geographic region of the hospital. Measurements of hospital utilization include frequency, rate, percent, and average length of stay.

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Cooperation of the U.S. Bureau of the Census

Under the legislation establishing the National Health Survey, the Public Health Service is authorized to use, insofar as possible, the services or facilities of other Federal, State, or private agencies.

In accordance with specifications established by the National Center for Health Statistics, the U.S. Bureau of the Census, under a contractual arrangement, participated in planning the survey and collecting the data.

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Symbols

- Data not available
 - ... Category not applicable
 - Quantity zero
 - 0.0 Quantity more than zero but less than 0.5
 - Z Quantity more than zero but less than 500 where numbers are rounded to thousands
 - * Figure does not meet standards of reliability or precision (see Technical notes)
-

Trends in Hospital Utilization: United States, 1965–86

by Robert Pokras, Lola Jean Kozak, Eileen McCarthy, and Edmund J. Graves, Division of Health Care Statistics

Introduction

The National Hospital Discharge Survey (NHDS) has been conducted annually since 1965, and reports have been published regularly that present hospital utilization statistics for individual years. Because more than 20 years of data are available, there has been an increased demand for NHDS data on trends in hospital use. Although the National Center for Health Statistics (NCHS) has published a number of reports that include selected trend estimates using NHDS data, the purpose of this report is to present general statistics on hospital utilization and patient characteristics from 1965 through 1986 and trends for selected diagnoses and procedures.

Data for the NHDS are collected annually from the face sheets of a sample of inpatient medical records from a sample of short-stay non-Federal hospitals in the 50 States and the District of Columbia. A brief description of the sample design and survey methods can be found in appendix I. A detailed report on the design of the NHDS has been published (1). Familiarity with the definitions used in the NHDS is important for interpreting the data and for making comparisons with data on hospital utilization available from other sources. Definitions of terms used in this report are presented in appendix II. Information on short-stay hospital utilization also is collected in another program of the National Center for Health Statistics, the National Health Interview Survey (NHIS). Estimates from this survey generally differ from those of the NHDS because of differences in collection procedures, the population sampled, and definitions. Data from the NHIS are published in Series 10 of the *Vital and Health Statistics* reports; data from the NHDS are published in Series 13. A list of NCHS publications from the National Hospital Discharge Survey is provided in appendix III.

In deciding which diagnoses and procedures to present, careful consideration was given to consistency of codes across three versions of the International Classification of Diseases (ICD) used from 1965 through 1986. The International Classification of Diseases, Adapted (ICD-7) (2), was used from 1965 through 1968. The NHDS was conducted in 1969, but because of budgetary restrictions, only demographic data were coded. From 1970 through 1978, the Eighth Revision International Classification of Diseases, Adapted (ICDA-8) (3), was used; and from 1979

through 1986, the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) (4), was used. In addition to consistency of coding, frequency of occurrence and public interest were used as criteria for selecting diagnoses and procedures.

Many estimates in this report are presented graphically and again in a table (see list of detailed tables). Graphs are presented for their visual advantage, and the corresponding tables provide more precision than can be obtained from inspection of the graphs.

Estimates of hospital utilization from the NHDS have been affected by periodic updates of the sample. The universe and sample of hospitals remained constant from 1965 through 1971, but beginning in 1972, and every 2–3 years after (see appendix I), the sample was updated to include hospitals that came into being after the previous update. This process often resulted in small “jumps” in estimates of hospital utilization, but it produced a more current sample of hospitals (5).

Except where otherwise noted, rates presented in this report are based on the civilian resident population of the United States. Before 1981, rates in the published NHDS reports were calculated using estimates of the civilian noninstitutionalized population. The change in base population was made to more accurately reflect the population using short-stay hospitals. Therefore, rates in this publication may differ slightly from figures published before 1981. Regional rates for 1965–80 are based on the civilian noninstitutionalized population, because appropriate estimates of the civilian resident population by region were not available for this period.

The estimates in this report on hospital utilization in 1965–67 differ slightly from those published earlier in Series 13 reports for these years. In some of the first publications from the National Center for Health Statistics on the NHDS, only well newborns were excluded from the analysis, whereas in later publications all newborns were excluded from estimates of hospital utilization. This different exclusion criterion affected estimates for total hospital utilization and utilization for persons under 15 years of age.

In addition, there is a discrepancy between estimates for 1970 in this report and estimates in the publication of 1970 nonmedical statistics (6). In 1969 and 1970, a shortfall

of funds limited the amount of information that could be coded from the more than 200,000 records sampled each year in the NHDS; nonmedical data were coded for these years with the funds that were available. Several years later, funds were provided to code the medical data for 1970.

Recoding and reprocessing of these records produced small discrepancies in estimates of hospital utilization for 1970. The new file produced an estimate of total discharges that was 0.2 percent less than the estimate from the original file.

Highlights

- The number of discharges rose steadily from the early 1970's until 1983 and then declined by 11.7 percent from 1983 to 1986.
- The number of discharges increased 19.2 percent from 1965 through 1986, but the number adjusted for age and sex decreased by 12.5 percent.
- The median age of all inpatients increased from 36.1 years in 1965 to 46.7 years in 1986. Although the average length of hospitalization tends to increase with age, it dropped by about 2.5 days from the late 1960's to the mid-1980's.
- The total number of days of care rose from 224.5 million in 1965 to 277.2 million in 1981 and declined to 218.5 million in 1986. Age- and sex-adjusted number of days of care decreased by 30.2 percent from 1965 through 1986.
- If use rates had remained unchanged from 1965 through 1986, there would have been 308 million days of inpatient care provided in 1986, rather than the 218.5 million actually provided.
- From 1965 to 1983, the rise in hospital discharge rates for the elderly was larger than for any other age group. The rate increased 56.3 percent for patients 65–74 years of age and 68.6 percent for patients 75 years of age and over.
- After the implementation of the Medicare prospective payment system (PPS), hospital discharge rates decreased for all age groups from 1983 through 1986: 24.4 percent for children, 15.3 percent for persons 15–44 years of age, 16.9 percent for persons 45–64 years of age, and 11 percent for the elderly.
- During the 1970's, the discharge rate in the Midwest was generally higher than the rates in the other three regions, but by 1985–86, there were no statistically significant differences in the rates for the four regions.
- In most years from 1965 to 1986, the average length of stay was longest in the Northeast and shortest in the West.
- The Midwest and Northeast had relatively high rates of days of care; the West had the lowest.
- In 1965 the leading diagnostic category for inpatient admission was deliveries and complications of pregnancy, childbirth, and the puerperium. In 1986, it was diseases of the circulatory system.
- For children under 15 years of age, the discharge rate for pneumonia decreased 40 percent, and the rate for fractures decreased by a fourth from 1965 to 1986.
- The discharge rate for mental disorders increased by more than 80 percent for patients 15–44 years of age from 1965 to 1986.
- The discharge rate for acute myocardial infarction increased 36 percent from 1965 to 1986 for patients 45–64 years of age and 57 percent for patients 65 years of age and over.
- The discharge rate for malignant neoplasms for patients 45 years of age and over increased from 1965 to 1983, but it decreased from 1983 to 1986.
- The discharge rate for fracture of the neck of the femur for patients 65 years of age and over increased by almost a third from 1965 to 1986.
- The number of tonsillectomies with or without adenoidectomies for patients under 15 years of age in 1965 was more than five times the number in 1986.
- The number and rate of cesarean sections increased more than 400 percent from 1965 to 1986.
- The number and rate of lens extractions increased from 1965 to 1983 but declined sharply as an inpatient procedure after 1983.
- The number of cardiac catheterizations increased from 77,000 in 1970 to 775,000 in 1986.
- The number of coronary bypass procedures performed in 1986 was 20 times the number reported in 1970.

Hospital utilization

Overview

This section presents trends in general measures of hospital utilization available from the National Hospital Discharge Survey: numbers and rates of discharges, numbers and rates of days of care, and average length of stay. The growth and aging of the population of the United States play an important part in hospital utilization; therefore, in addition to crude estimates, estimates adjusted to a constant age-sex population will be presented to provide a perspective on trends without the confounding effects of population changes.

Hospital utilization in the United States has gone through dramatic change from the 1960's to the 1980's, with major influences from technology, health care policy, and population dynamics. Improved technology has provided advances in medical and surgical care, medical technology, and pharmacology. Changes in Federal health care policy included the introduction of Medicare in 1966 and the change in Medicare reimbursement from fee-for-service to prospective payment in 1983. In addition, throughout the period covered by this report, the increasing and aging U.S. population has put additional demand on much of the health care system.

Of all these influences, one of the strongest appears to have been the introduction of the prospective payment system. However, changing patterns in some measures of hospital utilization were evident prior to the implementation of this program. This will be seen in the examination of various measures of hospital utilization and in the examination of changes in diagnoses and procedures handled in community hospitals across the country.

Tables 1-3 present estimates of the number and rate of discharges, number and rate of days of care, and average length of stay for patients discharged from non-Federal short-stay hospitals. Annually the number of discharges from the mid-1960's through the early 1970's was stable at about 28 to 29.5 million discharges. Beginning in the early 1970's, the number of discharges began to rise, and it rose steadily to 38.8 million in 1983. From 1983 to 1986, there was a decline of about 4.5 million discharges per year, a total decrease of 11.7 percent (figure 1).

Hospital discharge rates for all inpatients followed the trend of number of discharges: steadily rising from the early 1970's to a peak in the early 1980's and declining after 1983 (figure 2). The discharge rate was about 167 per 1,000 population from 1980 through 1983, but then it declined to

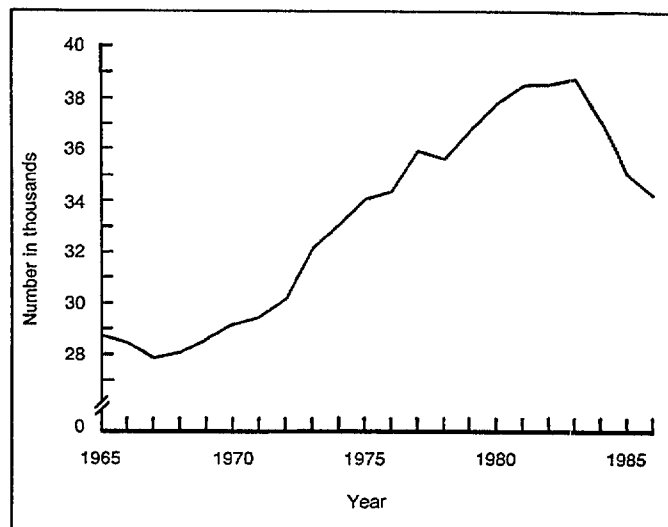


Figure 1. Number of discharges from short-stay hospitals: United States, 1965-86

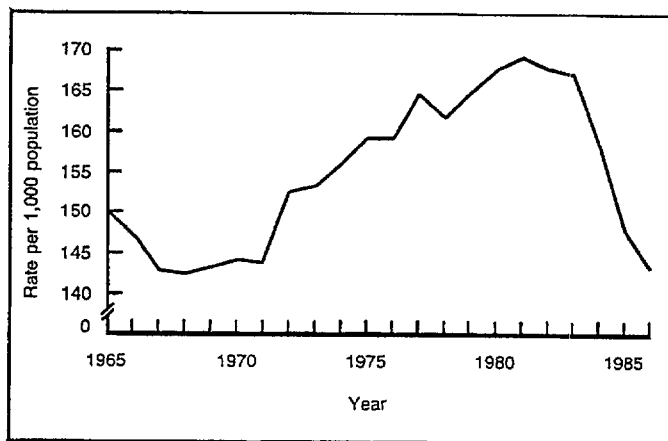


Figure 2. Rate of discharges from short-stay hospitals: United States, 1965-86

143.1 by 1986, presumably as a result of the prospective payment system. However, the reduction in hospital discharge rates after 1983 was not unique to the population 65 years of age and over, those most likely to be affected by the new Medicare reimbursement system. This is discussed in more detail below.

Overall, the average length of stay declined steadily from over 8 days in the late 1960's to about 6.5 days in the mid 1980's (figure 3). Although the overall number and

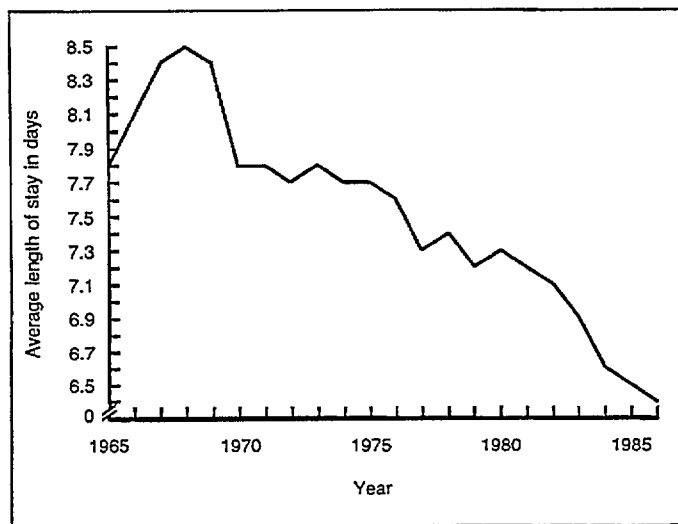


Figure 3. Average length of stay of patients discharged from short-stay hospitals: United States, 1965-86

rate of discharges and days of care have fluctuated, the average length of stay has edged steadily downward from the late 1960's to the present. This reduction occurred in spite of the fact that average length of stay is directly related to age and that the median age of the inpatient population increased dramatically in the 22 years covered by this report (figure 4). In 1965 the median age of all inpatients was 36.1 years, and by 1986 it had risen to 46.7 years. This increase, 10.6 years, was far greater than that seen in the aging of the general population, whose median age rose by 3.6 years (table 4).

The number of days of care for all inpatients rose from 224.5 million to 277.2 million from 1965 to 1981, an increase of 23.5 percent during this 16-year period (figure 5). For the 5-year period 1981 to 1986, the total number of inpatient days dropped 21.1 percent to 218.5 million. The total number of days of care was at about the same level in 1986 as it had been over 20 years earlier because of counterbalancing factors: The population of the United States increased and aged, factors that increased inpatient

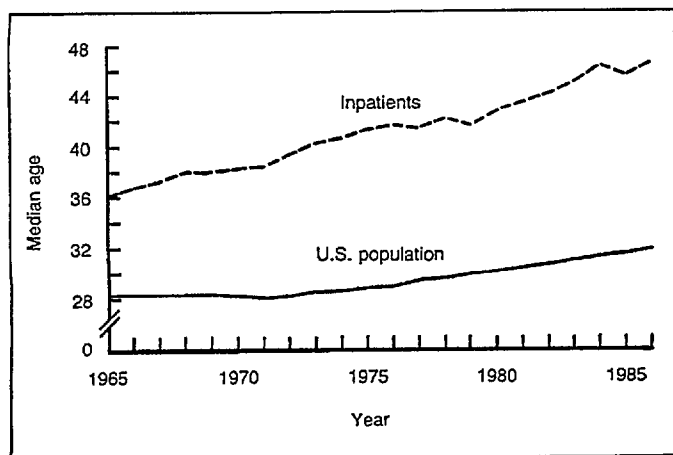


Figure 4. Median age of patients discharged from short-stay hospitals and median age of population: United States, 1965-86

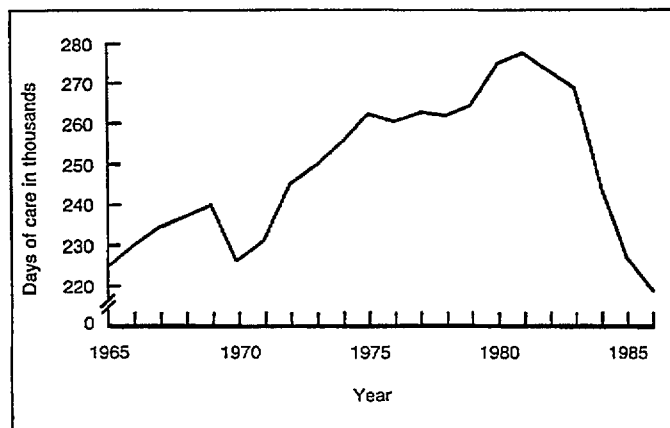


Figure 5. Number of days of care for patients discharged from short-stay hospitals: United States, 1965-86

days of care, but the rate of admissions to hospitals and the average length of stay declined, factors that reduced total days of care.

One effect of this rapid reduction in total inpatient days is a lower occupancy rate. The overall occupancy rate in short-stay non-Federal hospitals was relatively stable from 1965 through 1983 at about 75 percent (table 4), but it then declined to just under 65 percent in a matter of 2 years.

To compare aggregate statistics over time without the confounding effects of changes in population, direct standardization was employed. Using the 1965 census resident population as the standard population, adjusted estimates of hospital utilization are presented in table 5. Standardization was by sex and age group: under 15 years of age, 15-44 years of age, 45-64 years of age, 65-74 years of age, and 75 years of age and over.

These data show that if the age and sex structure of the population of the United States had remained constant during the period 1965-86, admissions would have declined by 12.5 percent and the average length of stay would have declined from 7.8 to 6.2 days. As a result of these changes, the total number of inpatient days of care would have declined from 224.5 million in 1965 to 156.8 million in 1986, a drop of 30.2 percent. In addition, although the crude rate of hospitalization shows a drop from 150.0 per 1,000 population in 1965 to 143.1 in 1986, the age- and sex-adjusted rate shows a larger drop, to 131.2 per 1,000 population in 1986.

It is evident from the adjusted estimates that when changes in the population are accounted for, overall hospital utilization has declined even more rapidly than is evident from an examination of crude rates (7). If the population had not been increasing and aging over the past 22 years, hospital utilization would have shown even more dramatic declines.

Utilization by age

Much has been written about the effects of PPS and diagnosis-related groups (DRG's) on hospital utilization and the subsequent decline in number and rate of admissions seen after 1983 (8). However, when discharge rates by

age are examined, there is seen to have been at least as great a decline in hospital utilization for persons under 65 years of age—the vast majority of whom are not covered by Medicare.

The hospital discharge rate for children under 15 years of age was about 68 to 72 per 1,000 population for the 19-year period 1965–83. This rate fell to 62.0 in 1984, 57.2 in 1985, and to 53.5 in 1986 (table 1). For children under 15 years of age, the hospital discharge rate declined by 24.4 percent from 1983 to 1986.

As mentioned earlier, some changes in hospital utilization were evident before the advent of the prospective payment system in 1983. The hospital discharge rate for persons 15–44 years of age declined from 175.1 per 1,000 population in 1965 to about 150–155 during the period 1968 through 1980. From 1980 to 1983, the discharge rate for this age group dropped again, to 140.4 per 1,000 population in 1983, a reduction of 6.5 percent. After 1983, the drop was more rapid, resulting in a rate 15.3 percent lower in 1986 than in 1983. This trend is not attributable to a decline in the number of females admitted for childbirth, which generally accounts for over 10 percent of all hospital admissions. In fact, the rate of admissions for delivery for females 15–44 years of age was 66.6 per 1,000 population in 1977 (9), and 9 years later, in 1986, it was 65.6 (10).

The discharge rate for persons 45–64 years of age was about 160–170 per 1,000 population in the 1960's, rose to about 190–195 during 1977–83, and then dropped to 162.2 per 1,000 in 1986, a fall of 16.9 percent. From 1965 to 1983, the rise in hospital discharge rates for the elderly was larger than for any other age group. Rates rose from 213.9 to 334.3 per 1,000 population (56.3 percent) for persons 65–74 years of age and from 313.8 to 529.2 per 1,000 population for persons 75 years of age and over (an increase of 68.6 percent). Following the implementation of PPS for Medicare inpatients, admission rates dropped by just over 11 percent for the elderly from 1983 to 1986.

Many factors can influence hospital discharge rates, and factors that affect one age group may not affect another. But the prospective payment system, which directly affects only reimbursement for Medicare recipients, seems to have had an indirect effect on hospital admission rates for other age groups. The declines in discharge rates from 1983 to 1986 for persons under 15 years of age, 15–44 years, and 45–64 years were 24.4 percent, 15.3 percent, and 16.9 percent, respectively. The rates for persons 65 years of age and over dropped about 11 percent, after a rise of over 50 percent from 1965 to 1983. It appears that the introduction of the prospective payment system has had at least as great an effect on inpatient admissions for persons under 65 years of age as for persons 65 years of age or over.

The larger percent decline in discharge rates for persons under 65 years of age than for persons 65 years of age and over following the inception of PPS could be the result of several factors. The incentives of the prospective payment system may have changed how medicine is practiced for all inpatients, not just for those covered by Medicare. That is, it may have influenced the way hospitals and

physicians deal with patients in general. Other factors that have received considerable attention are patient “dumping” (early or premature transfer of uninsured patients from private to public hospitals) and reduced access to inpatient care now that costs for the uninsured are not readily recouped through cost shifting (shifting costs for uninsured to insured patients). Additional factors that probably affected the drop in admission rates were the shifting of many types of diagnostic and surgical procedures to outpatient departments, surgery centers, or physician's offices and the increased use of health maintenance organizations (HMO's) and managed care (8).

The average length of stay started declining well before the implementation of prospective payment. For all patients, average length of stay was about 8 days in the 1960's and has declined steadily to 6.4 days in 1986. This measure of hospital utilization has declined for all ages (table 3). Elderly inpatients showed the greatest drop in average length of stay per hospital episode from 1965 through 1986: patients 65–74 years of age and those 75 years of age and over stayed 4.2 and 5.0 fewer days, respectively.

There have been dramatic declines in length of hospitalization for some surgical procedures; examples are hysterectomy and extraction of lens. The average length of stay for women undergoing hysterectomy was 11 days in 1965 and 7 days in 1984 (11). Likewise, for persons having a lens extraction in 1965, the average length of stay was 8.9 days, declining to 2.6 days in 1984. Lens extraction is also a good example of how improvements in surgical technology have reduced the need for hospitalization. Other such surgeries abound and include herniorrhaphy, tonsillectomy, dilation and curettage of the uterus, and other procedures that in many instances are now done in a surgery center, in a physician's office, or in the outpatient department of a hospital.

The medical advances that allowed these changes have helped to reduce the rate of admissions to short-stay hospitals and subsequently the total number of hospital inpatient days used by the population. Without reduced rates of admission and shorter lengths of stay from the levels of 1965, there would have been almost 1.5 times as many patient days in 1986. This is seen by applying 1965 sex- and age-specific rates of days of care to the 1986 U.S. population. The resulting 308 million days of care, although hypothetical, is the number of days of care short-stay hospitals would have had in 1986 had age- and sex-adjusted admission rate and average length of stay remained constant during this period.

Utilization by sex and age

Rates of hospital admissions for males and females were generally comparable, except for the age group 15–44 years. The large number of admissions for childbirth and complications of pregnancy resulted in a higher rate of admissions for women in this age group, but a shorter average length of stay because of the relatively short stay associated with childbirth. In 1986, childbirth alone

accounted for 40.1 percent of all admissions for women 15–44 years of age, and the average length of stay for these women was 3.2 days. In other age groups, differences in admission rates and average length of stay were not as pronounced, although some differences were present.

The discharge rate for boys was consistently lower than that for girls—by about 15 per 1,000 population. This is about a 20-percent lower discharge rate for boys. However,

average lengths of stay for boys and girls under 15 years of age were about the same. Men and women 45–64 years of age had similar discharge rates and average lengths of stay. For the elderly, discharge rates for women tended to run about 15 per 1,000 population lower than those for men, but elderly women tended to stay in the hospital slightly longer than their male counterparts.

Utilization by region and age

Trends in hospital use in the four census geographic regions of the country are discussed in this section. The States that comprise each region are listed in appendix III. Tables 6-9 show the numbers of discharges, rates of discharges and days of care, and average lengths of stay by age for each region from 1965 to 1986.

It should be noted that, unlike rates in other sections of this report, the rates of discharges and days of care for 1965-80 were based on the civilian noninstitutionalized population. Estimates of the civilian resident population by age and region were not available from the U.S. Bureau of the Census for these years. Beginning with 1981, data for the civilian resident population were available and were used to calculate rates.

This change primarily affected the rates for patients 65 years of age and over. The rates for the elderly were overestimated somewhat when the institutionalized population (of which people in nursing homes were a substantial part) was excluded from the population base (5). Another difference is that the region referred to as the Midwest in this report was known as North Central before 1985.

Discharge rates

The patterns of change in discharge rates were generally similar for the four regions over the last two decades (figure 6). During the first years of the survey, discharge rates either did not change significantly (Midwest and



Figure 6. Discharge rates, by region: United States, 1965-86

Northeast) or decreased (South and West). In the 1970's, the discharge rates rose in each region. From 1971 to 1977, the discharge rate increased 27 percent in the West and 17 percent in the Midwest. In the Northeast, the discharge rate rose 22 percent from 1969 to 1977; and in the South, the rate increased 22 percent from 1969 to 1979.

In the 1980's, the discharge rate for each region has been declining. A decrease of 14 percent was reported both for the West (from 1977 to 1986) and the Northeast (from 1980 to 1986). The discharge rate fell 20 percent in the Midwest from 1981 to 1986 and 18 percent in the South from 1983 to 1986. By 1986, each region had returned to a discharge rate not significantly different from the rate it had in 1965.

During the 1970's, the discharge rate in the Midwest was generally higher than the rates in the other three regions, and the Midwest rate remained significantly higher than the rate in the West through 1984. The discharge rate in the South was also significantly higher than the rate in the West during the majority of the years from 1970 to 1984. Rate differences between the West and the Northeast and the South and the Northeast were generally not significant. As discharge rates declined during the 1980's, re-

gional differences diminished, so that, in 1985 and 1986, no significant differences remained among the rates for the four regions (12).

Unlike discharge rates for all patients, rates for children under 15 years of age were generally stable during the 1960's and 1970's (figure 7). The only significant increase was a 28 percent rise in the discharge rate for children in the South from 1978 to 1983. In recent years, discharge rates for children have decreased dramatically. From 1977 to 1986, rates for children fell 38 percent in the Midwest and 36 percent in the West. Although they did not begin to decline until 1983, discharge rates for children fell 32 percent in the Northeast and 24 percent in the South by 1986. The 1986 discharge rates for children were significantly lower than 1965 rates in every region but the South.

In 1965, discharge rates for children were higher in the Midwest and Northeast than in the West and South. By 1977, the rate for the Midwest was significantly higher than the rate for any other region, but this soon changed as the rate for the Midwest declined and the rate for the South increased. In 1986, the discharge rate for children in the South was higher than rates in the Northeast and West, but not significantly different from the rate in the Midwest.

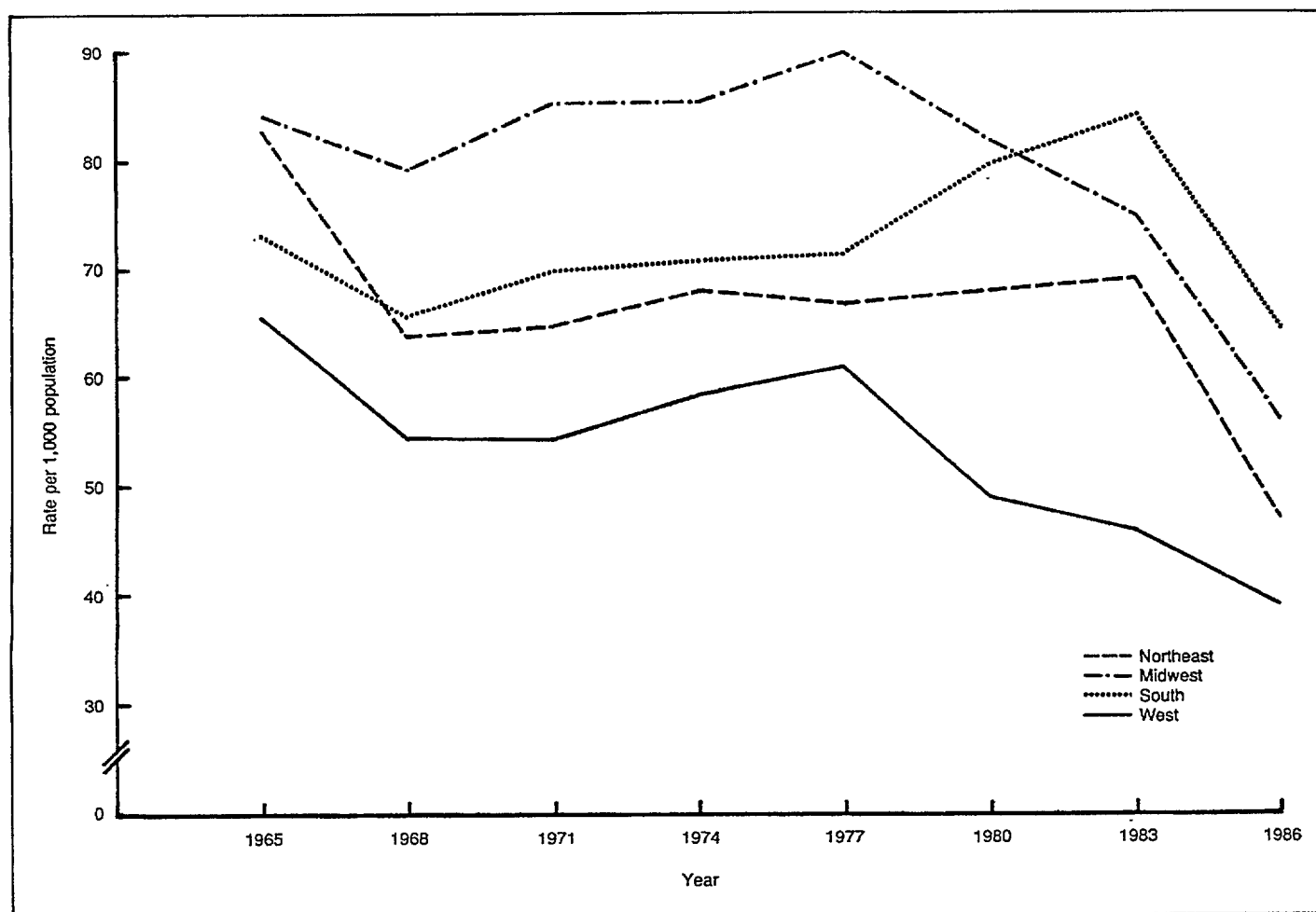


Figure 7. Discharge rates for patients under 15 years of age, by region: United States, 1965-86

The discharge rates for patients 15–44 years of age decreased significantly in each of the four regions from 1965 to 1986, and the regional rates for this age group became much more alike in recent years (figure 8). The discharge rate declined 36 percent in the South, 33 percent in the Midwest and West, and 26 percent in the Northeast from 1965 to 1986.

The declines took place primarily in two periods: 1965 to 1971–72 and 1977 to 1986. During the first of these periods, birth rates were declining, but changes in birth rates cannot explain the decreases in the second period (13). Patients in the Northeast Region who were 15–44 years of age did not demonstrate the decrease in discharge rates during the first period that was seen in the other three regions. The second period of decline in discharge rates in the South did not begin until 1979.

In 1965 the discharge rate in the South for patients 15–44 years of age was higher than rates in the Northeast and West, but not significantly different from the rate in the Midwest. By 1986, the regional rates did not differ significantly.

The general pattern in discharge rates for patients 45–64 years of age in each region was a sizable increase in

discharge rates in the 1970's followed by a substantial decrease in rates during the 1980's (figure 9). In the Midwest, the discharge rates for patients 45–64 years of age increased by a third from 1967 to 1975, then decreased 22 percent from 1975 to 1986. The discharge rate for the Northeast grew 35 percent from 1967 to 1977 and dropped 20 percent from 1977 to 1986.

In the South and West, discharge rates for patients 45–64 years of age decreased from 1965 to 1971. Rates then increased 28 percent from 1971 to 1979 in the South and 33 percent from 1971 to 1977 in the West, and decreased again during the remainder of the period. In the West, the 1986 discharge rate for patients 45–64 years of age was 15 percent lower than the 1965 rate, but the 1986 discharge rates for the other three regions were not significantly different from rates in 1965.

In 1965 the discharge rate for patients 45–64 years of age was lower in the Northeast than in the other three regions, and in 1977 the rate in the Midwest was higher than rates in the other regions. In 1986, however, the rates in the four regions did not differ significantly.

Discharge rates for patients 65 years of age and over rose steadily in each region from 1965 until the early 1980's

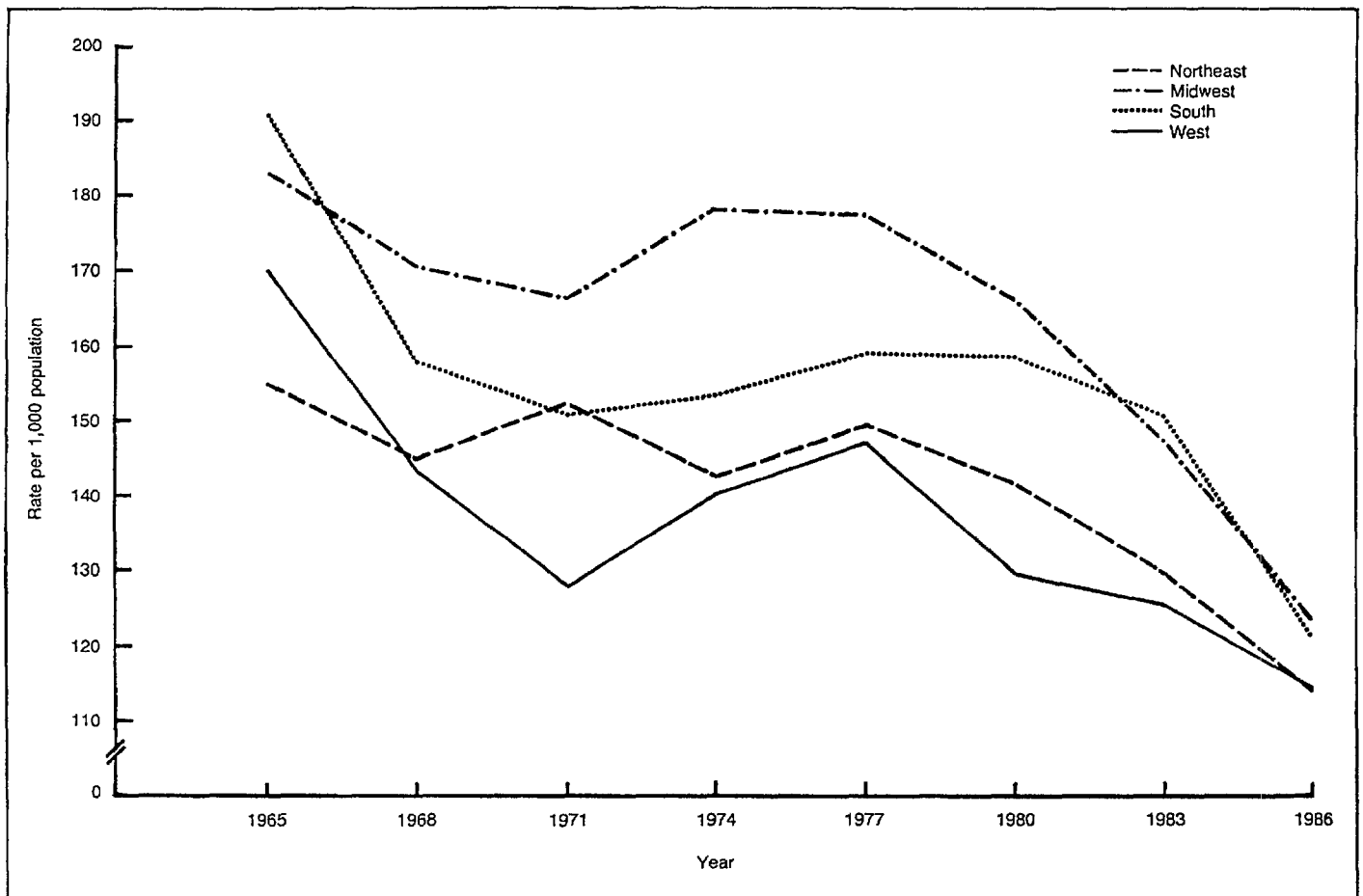


Figure 8. Discharge rates for patients 15–44 years of age, by region: United States, 1965–86



Figure 9. Discharge rates for patients 45-64 years of age, by region: United States, 1965-86

(figure 10). The discharge rate for the elderly increased 57 percent in the Midwest and 71 percent in the Northeast from 1965 to 1980. Rate increases of 51 and 53 percent were recorded for the South and West, respectively, from 1965 to 1983. The growth in discharge rates for the elderly appears to have ended in the early 1980's. In the Midwest, the discharge rate for the elderly decreased 15 percent from 1980 to 1986. Declines in the rates for the other three regions were not statistically significant, but the rates have not increased in the Northeast since 1980 or in the South or the West since 1983.

As was the case for the group 45-64 years of age, the discharge rate for those 65 years of age and over was lower in the Northeast than in the other three regions in 1965. In 1986, though, none of the regional differences in discharge rates of the elderly was statistically significant.

Average lengths of stay

Trends in average length of stay were similar in each of the four regions from 1965 to 1986 (figure 11). In the Northeast, the average stay decreased by 19 percent, from 9.1 days in 1965 to 7.4 days in 1986. In the Midwest, there was a 20-percent decline, from 8.2 to 6.6 days. The average length of stay in the South decreased 15 percent, from 7.2

days to 6.1 days; and in the West, it decreased 19 percent from 6.8 to 5.5 days.

Unlike regional differences in discharge rates, which have diminished in recent years, regional differences in average lengths of stay were relatively constant from 1965 to 1986. In most years, the average length of stay in the Northeast was significantly longer than the average stays in the other three regions. Hospitals in the West usually had significantly shorter average lengths of stay than did hospitals in the other regions. The average lengths of stay for the Midwest and South fell between those for the Northeast and the West.

From 1965 to 1986, average lengths of stay decreased significantly in all four regions for patients in age groups 15-44 years, 45-64 years, and 65 years of age and over (figure 12). For children under 15 years of age, average stays decreased in the Northeast and South during this period. In the Midwest, the average stay for children declined 22 percent from 1965 to 1977 but then rose 23 percent from 1977 to 1986. For children in the West, average lengths of stay ranged from 3.6 days in the early 1970's to 4.6 days in 1986.

In 1965, average lengths of stay were longer in the Northeast than in the other three regions for patients aged 15-44 years, 45-64 years, and 65 years of age and over. In

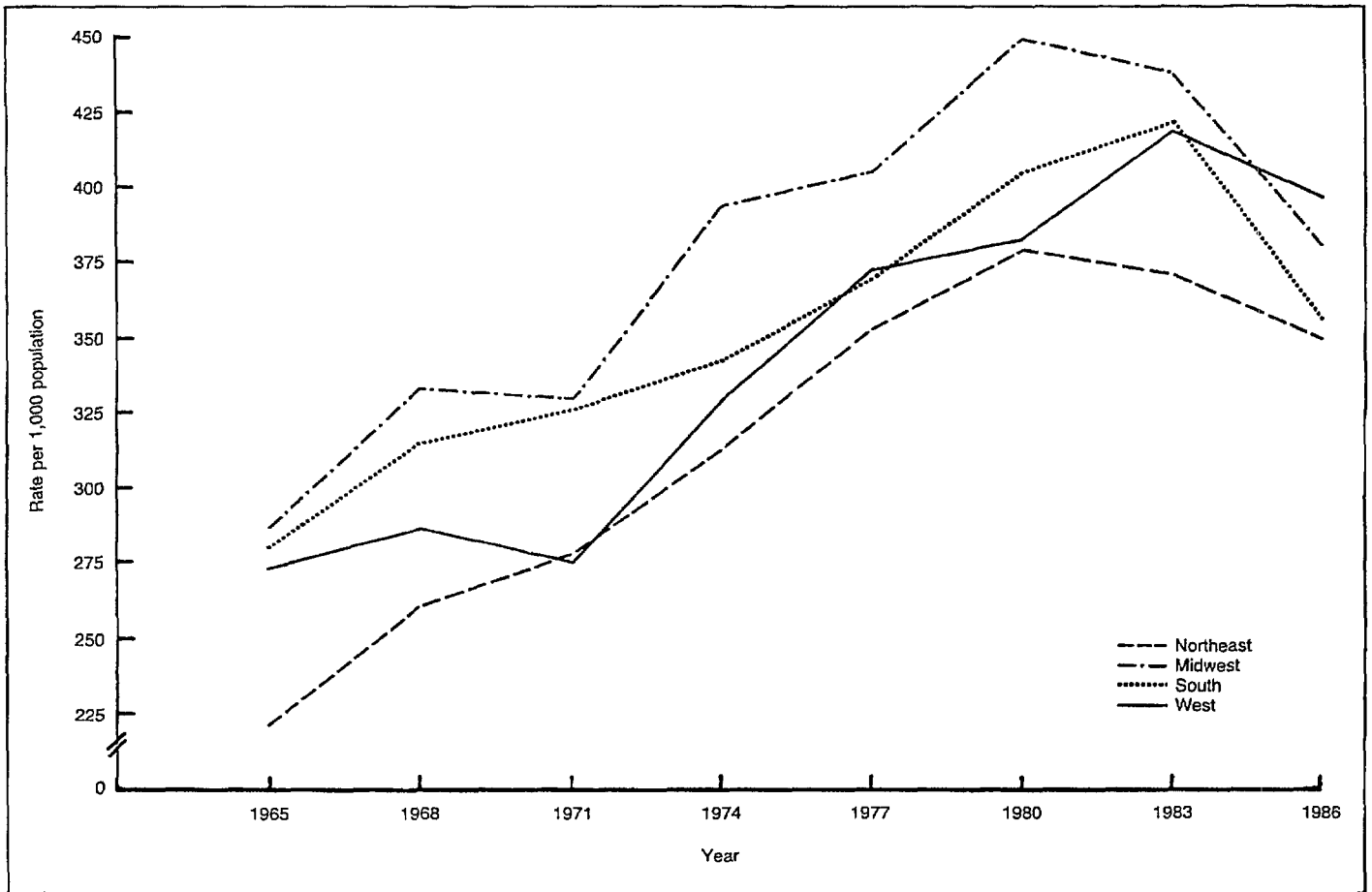


Figure 10. Discharge rates for patients 65 years of age and over, by region: United States, 1965-86

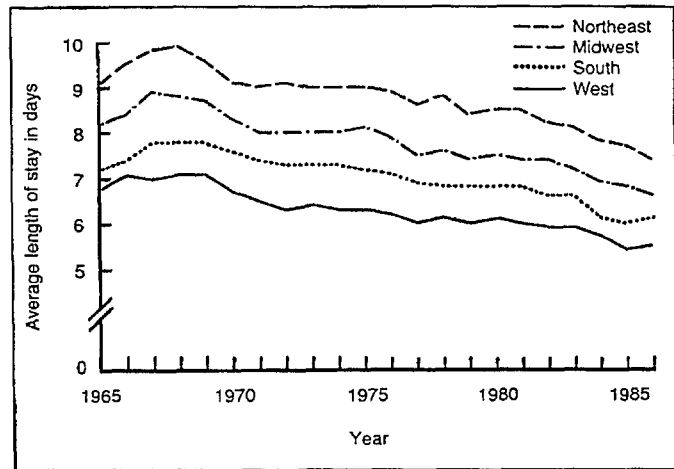


Figure 11. Average lengths of stay, by region: United States, 1965-86

1986, the longest average length of stay for the elderly continued to be in the Northeast. The West had the shortest average length of stay for children under 15 years of age in 1965 and for patients 45-64 years and 65 years of age and over in 1986. Average lengths of stay in the Midwest and South usually fell between the average stays in the Northeast and the West, but not all the differences for

the various age groups were statistically significant. One exception to the general pattern was that in 1986 the average length of stay for children under 15 years of age was significantly higher in the Midwest than in the Northeast or South.

Rates of days of care

Rates of days of care decreased in each region between 1965 and 1986, but the patterns were somewhat different (figure 13). In the Midwest, the rate increased 15 percent from 1965 to 1975 and then decreased 34 percent from 1975 to 1986. In the Northeast, the decline took place from 1980 to 1986, when the rate dropped 26 percent. The main rate change in the South, a 24-percent decrease, was seen between 1983 and 1986. The rate in the West fell slowly: 22 percent from 1977 to 1986.

High rates of days of care were reported for the Midwest, where discharge rates were highest, and for the Northeast, which had the longest average lengths of stay. Rates of days of care in the South were intermediate. In the West, where both discharge rates and average lengths of stay were low, the rates of days of care were usually the lowest of the four regions. Despite the recent decreases, regional differences in rates of days of care remained statistically significant in 1986. Because discharge rates had

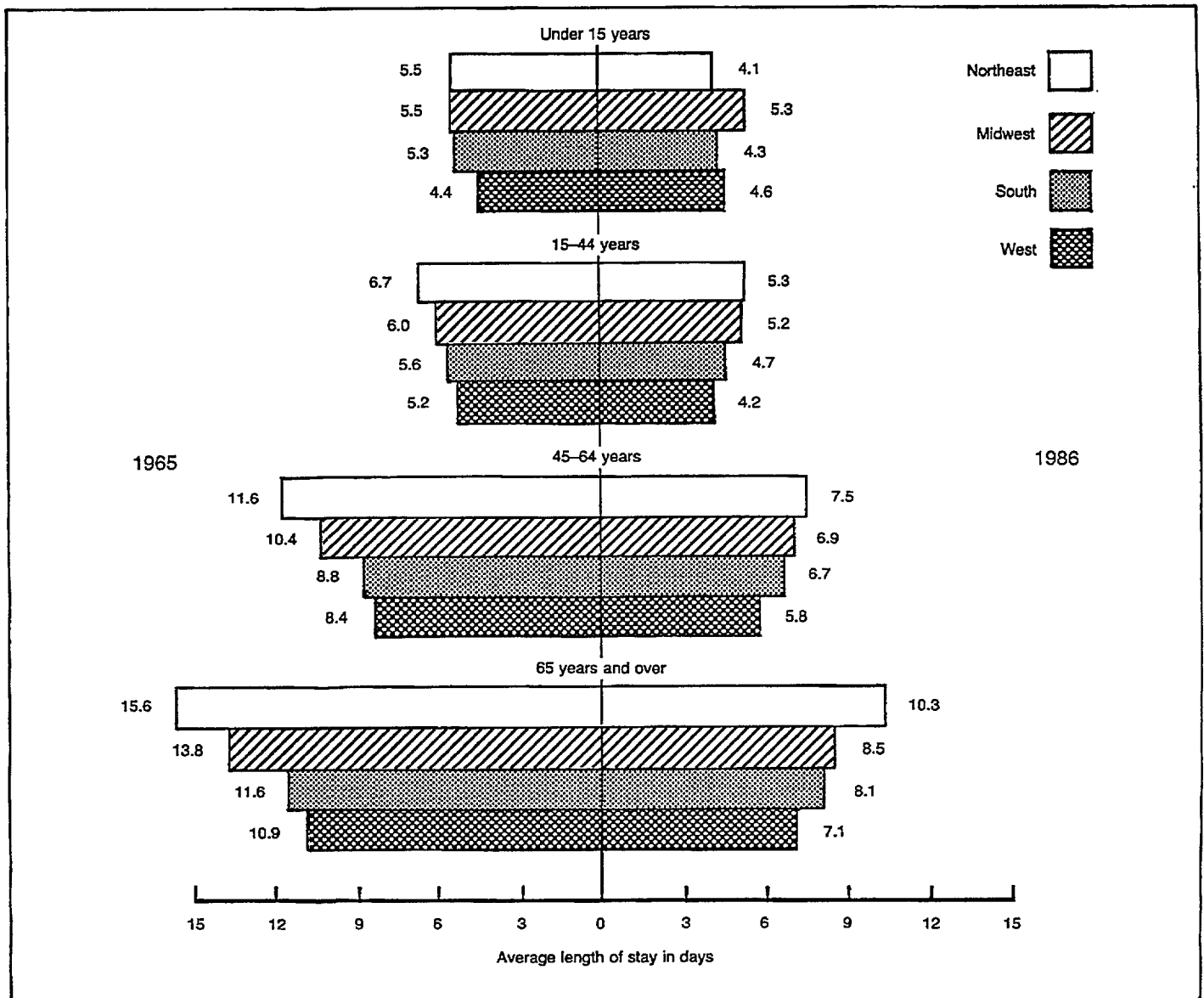


Figure 12. Average lengths of stay, by region and age: United States, 1965 and 1986

become similar across the regions by 1986, these differences were due primarily to variations in average lengths of stay.

From 1965 to 1986, each of the four regions reported significant decreases in rates of days of care for patients under 15 years, 15-44 years, and 45-64 years of age (figure 14). Rates for these age groups decreased 32-57 percent. The only significant change in rates of days of care for patients 65 years of age and over was an 18-percent decline in the Midwest rate from 1965 to 1986.

The lowest rates of days of care for the individual age

groups were seen mostly in the West. Differences in rates among the other three regions were not statistically significant for children under 15 years in 1965 or for patients 15-44 and 45-64 years of age in either 1965 or 1986. Children under 15 years of age had higher rates of days of care in the Midwest and South than in the Northeast and West in 1986. For the elderly, the highest rate of days of care was in the Midwest in 1965. However, in 1986, the rate in the Midwest was not significantly different from that for the Northeast, which was higher than those in the South and West.

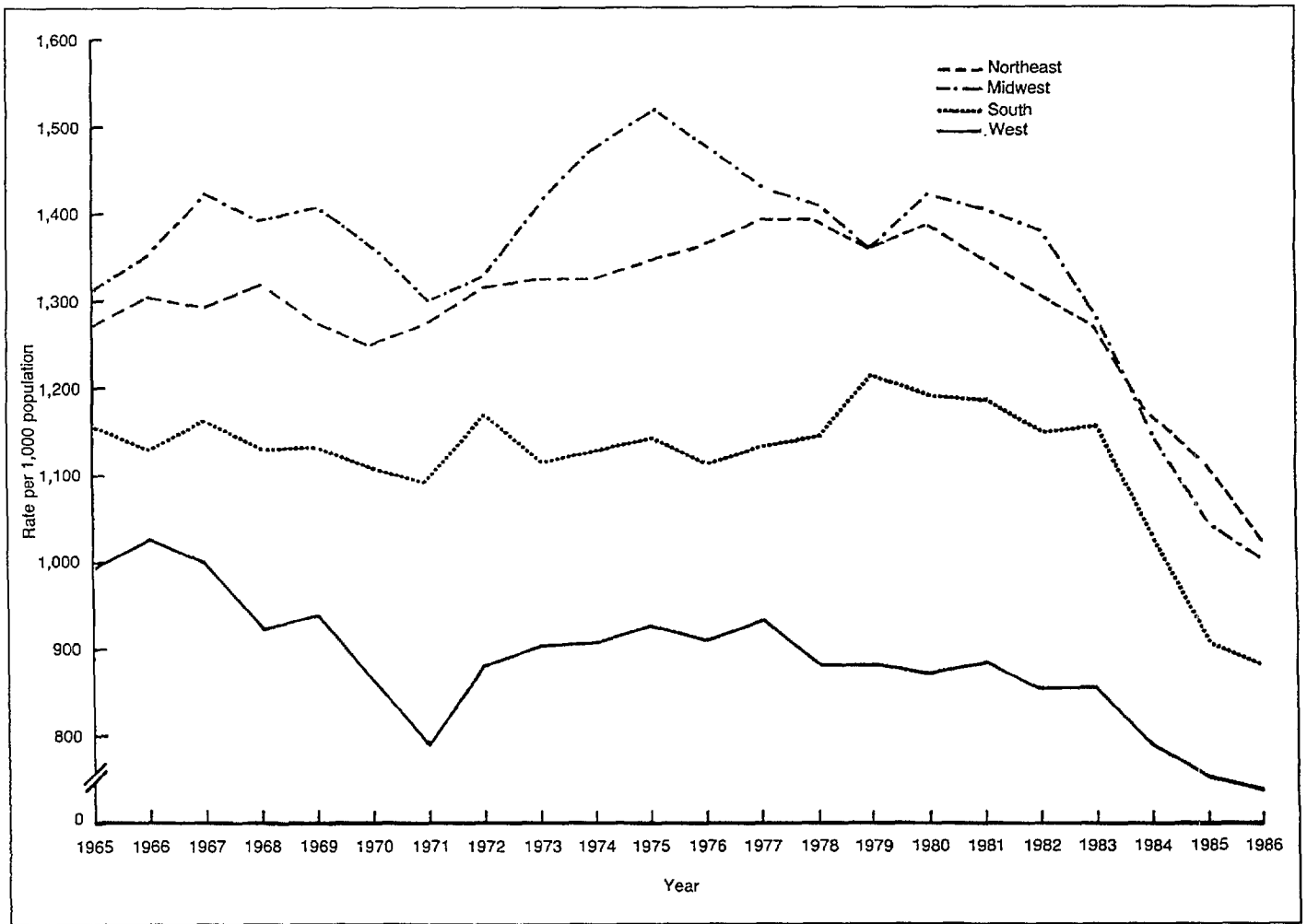


Figure 13. Rates of days of care, by region: United States, 1965-86

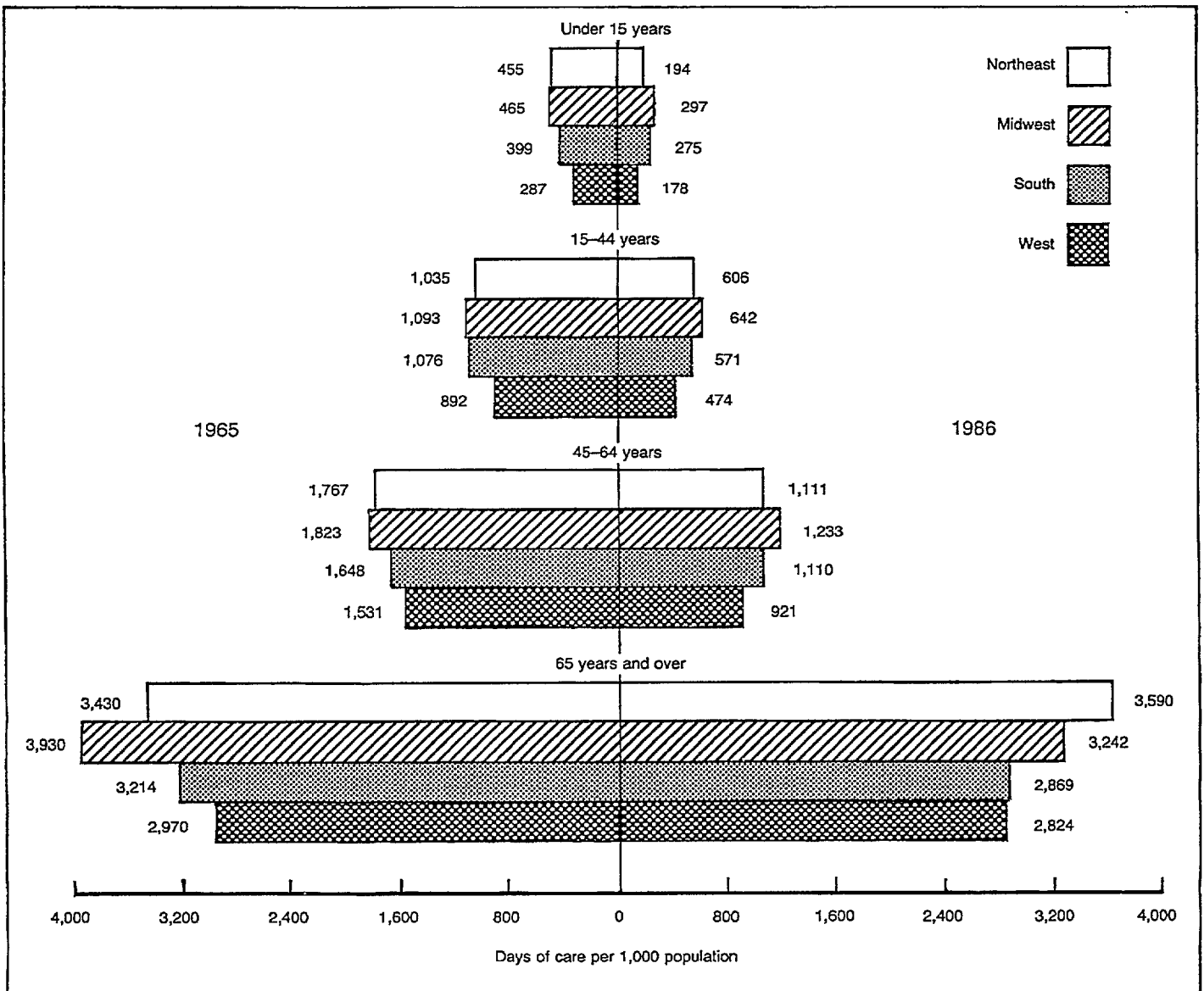


Figure 14. Rates of days of care, by region and age: United States, 1965 and 1986

Utilization by diagnosis

In 1965, the International Classification of Diseases category representing the most discharges was deliveries and complications of pregnancy, childbirth, and the puerperium. Other leading categories were diseases of the digestive system, diseases of the respiratory system, and injuries and adverse effects of chemical and other external causes. Together these four categories accounted for 54 percent of the discharges in 1965.

In 1986, the leading category was diseases of the circulatory system, which ranked only sixth in 1965. Complications of pregnancy, childbirth, and the puerperium including deliveries (ICD-9-CM code V27), diseases of the digestive system, and injury and poisoning were also major categories in 1986. These four categories made up 50 percent of the discharges in 1986. Even though individual codes in many of the categories underwent some changes with each revision of the ICD, the categories themselves have remained generally comparable.

In this section trends of discharge rates for selected diagnoses are discussed. Diagnostic data are presented for four age groups—under 15 years, 15–44 years, 45–64 years, and 65 years and over. The diagnoses presented were chosen based on their importance to a particular age group and because the diagnostic codes over three revisions of the International Classification of Diseases were comparable. Except where noted otherwise, the trends are based on the first-listed or principal diagnosis.

Under 15 years

Trends in hospital discharge rates for pneumonia, fractures, and diseases of the ear and mastoid process for patients under 15 years of age are shown in table 10. For children with pneumonia, the discharge rate decreased 40 percent, from 63.3 per 10,000 population in 1965 to 37.4 in 1986 (figure 15). Discharge rates were relatively high in 1968, 1972, 1979, and 1982, which closely corresponded to epidemic years for influenza (14). Children under 5 years of age had higher discharge rates for pneumonia than did children 5–14 years of age (15).

The discharge rate for fractures decreased by a fourth, from 33.9 per 10,000 population in 1965 to 25.7 in 1986 (figure 16). Older children had higher discharge rates for fractures than did younger children, in contrast to pneumonia, for which younger children had higher rates (16).

The discharge rates for patients under 15 years with a diagnosis of diseases of the ear and mastoid process tripled

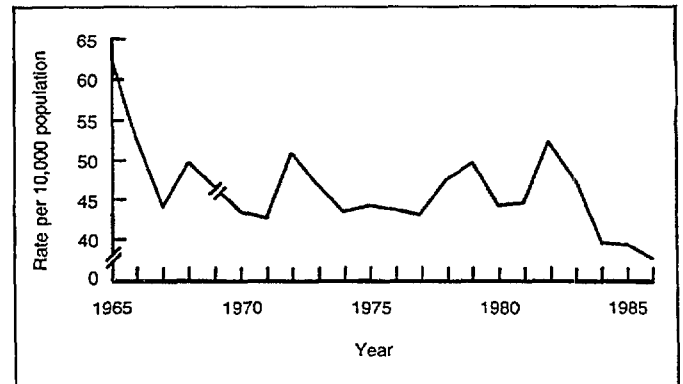


Figure 15. Discharge rates for patients under 15 years of age with pneumonia: United States, 1965–86

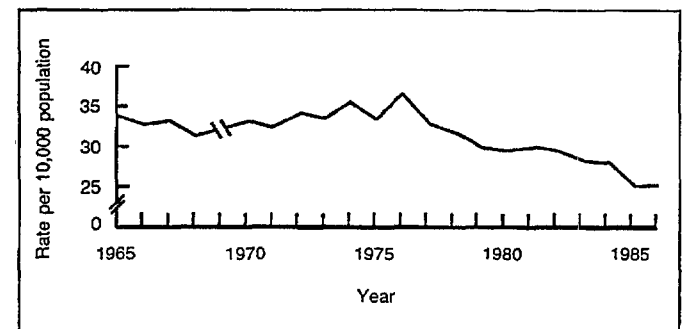


Figure 16. Discharge rates for patients under 15 years of age with fractures: United States, 1965–86

from 1965 to 1980, then decreased by over 50 percent from 1980 to 1986 (figure 17). The significant decrease in the discharge rates for this condition was most likely due to treatment of the condition on an outpatient basis in recent years. For example, there has been a significant decrease in inpatient myringotomies, which are now being performed in ambulatory settings. This is a treatment for otitis media, which was the diagnosis for about 90 percent of the discharges for diseases of the ear and mastoid process. The discharge rate for otitis media, like the rate for pneumonia, was higher for younger children.

15–44 years

Discharge rates for patients 15–44 years of age are shown in table 11 for appendicitis, mental disorders, and

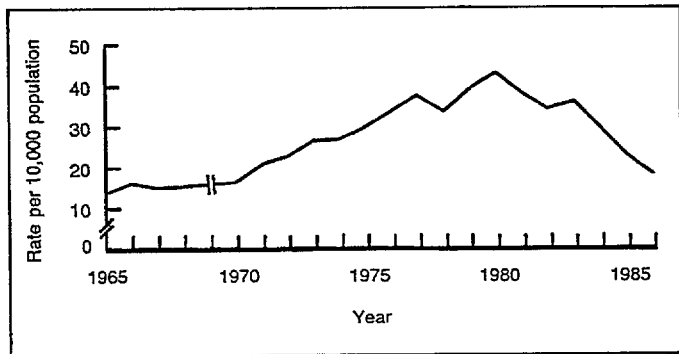


Figure 17. Discharge rates for patients under 15 years of age with diseases of the ear and mastoid process: United States, 1965-86

intervertebral disc disorders. The discharge rate for patients with appendicitis decreased 45 percent, from 24.2 per 10,000 population in 1965 to 13.5 in 1986 (figure 18). Patients aged 15-44 years made up from 50 percent to 60 percent of all appendicitis discharges during this period.

For mental disorders, the discharge rate increased by more than 80 percent during this period, from 50.5 per 10,000 population in 1965 to 98.1 in 1986 (figure 19). Hospitalizations for alcoholism made up a significant part of the discharges in the mental disorders category during this period.

The discharge rate for patients aged 15-44 years with intervertebral disc disorders increased by over 50 percent,

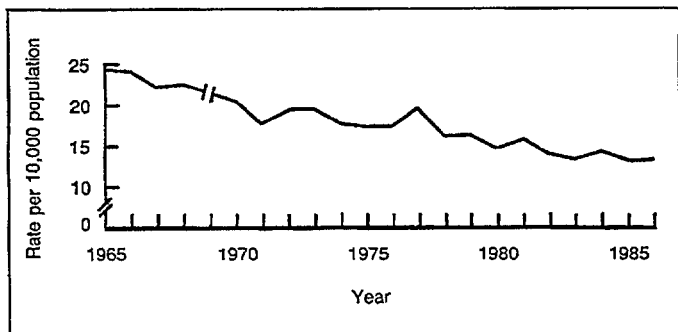


Figure 18. Discharge rates for patients 15-44 years of age with appendicitis: United States, 1965-86

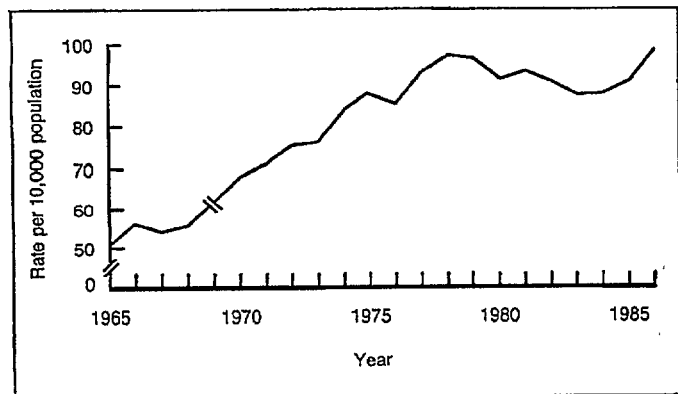


Figure 19. Discharge rates for patients 15-44 years of age with mental disorders: United States, 1965-86

from 15.8 per 10,000 population in 1965 to 24.1 in 1986 (figure 20). The rate of surgical treatment for the disorder also increased during this time period. Patients in this age group accounted for about one-half of all discharges for intervertebral disc disorders.

45-64 years

Numbers and rates of discharges for malignant neoplasms, acute myocardial infarction, cholelithiasis, and ulcers of the stomach and small intestine are shown in table 12 for patients 45-64 years of age.

During the 19-year period from 1965 to 1983, the discharge rate for malignant neoplasms increased 55 percent, from 104.6 per 10,000 population in 1965 to 165.8 per 10,000 population in 1983 for patients 45-64 years of age (figure 21). During the next 3 years the rate decreased 14 percent, from 165.8 per 10,000 population in 1983 to 140.2 in 1986.

The discharge rate for malignant neoplasm of the trachea, bronchus, and lung increased 200 percent from 1965 to 1983, then decreased 21 percent by 1986. Malignant neoplasm of the breast had a 75-percent increase in discharge rates from 1965 to 1983 but an 18-percent decrease from 1983 to 1986. There was no significant change in the discharge rates for malignant neoplasm of the large intestine and rectum during the 22-year period. Patients 45-64 years of age accounted for 33 to 40 percent of all discharges with a diagnosis of malignant neoplasms in the period.

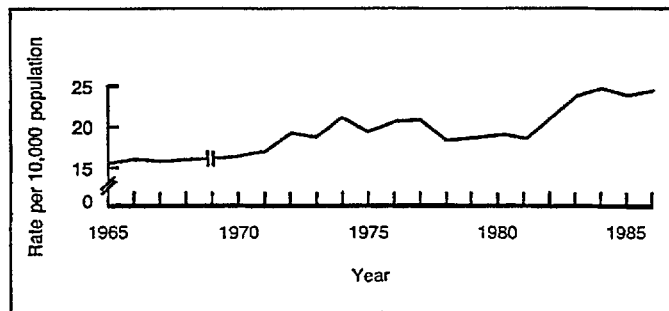


Figure 20. Discharge rates for patients 15-44 years of age with intervertebral disc disorders: United States, 1965-86

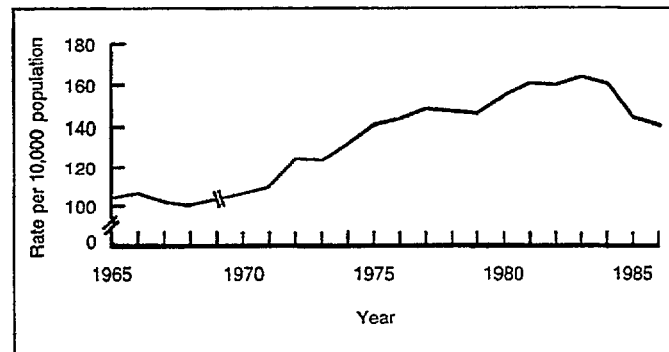


Figure 21. Discharge rates for patients 45-64 years of age with malignant neoplasms: United States, 1965-86

Figure 22 shows the trend in discharge rates for acute myocardial infarction for patients 45–64 years of age. The discharge rate for acute myocardial infarction increased 36 percent, from 42.9 per 10,000 population in 1965 to 58.4 in 1986.

In 1982, the National Center for Health Statistics made a decision to reorder circulatory diagnoses that include an acute myocardial infarction. It had been noted that acute myocardial infarction sometimes was not the lead entry in a group of circulatory diagnoses when it should have been. The new procedure is that an acute myocardial infarction should be reordered to the first position whenever it is encountered with other circulatory diagnoses and is not the first entry. This reordering began with 1982 NHDS data, but in this report, the same reordering was carried out on 1965 through 1981 data as well.

The discharge rate for cholelithiasis for patients 45–64 years of age was essentially unchanged from 1965 through 1986 (figure 23). It was 36.6 per 10,000 population in 1965 and 33.4 per 10,000 population in 1986. This age group accounted for at least a third of all discharges for cholelithiasis.

In contrast, the discharge rate for ulcers of the stomach and small intestine, another relatively common diagnosis for patients in this age group, decreased 64 percent, from 49.5 per 10,000 population in 1965 to 17.8 per 10,000 population in 1986 (figure 24). This reduction was due in

part to new drug therapy, such as the use of cimetidine. The need for hospitalization was minimized for some patients treated with the new drugs.

65 years and over

Discharge rates for patients 65 years of age and over are presented in table 13 for four diagnoses: malignant neoplasms, acute myocardial infarction, fracture of neck of the femur, and diabetes. As was the case for patients 45–64 years of age, the discharge rate for malignant neoplasms for patients 65 years of age and over increased from 1965 to 1983. The rate in 1965 was 227.7 per 10,000 population, and by 1983 it had risen 78 percent to 386.7 per 10,000 population (figure 25). The discharge rate for the elderly for malignant neoplasms decreased 13 percent from 1983 to 1986, which was similar to the decrease in the rate for this diagnosis for patients 45–64 years of age during the same period.

The discharge rate for patients 65 years of age and over for acute myocardial infarction increased 57 percent, from 98.5 per 10,000 population in 1965 to 155.0 per 10,000 population in 1986 (figure 26). The reordering procedure for acute myocardial infarction described earlier was also done for patients 65 years of age and over. Patients 65 years of age and over had rates for acute myocardial infarction that were more than twice those for patients 45–64 years of age.

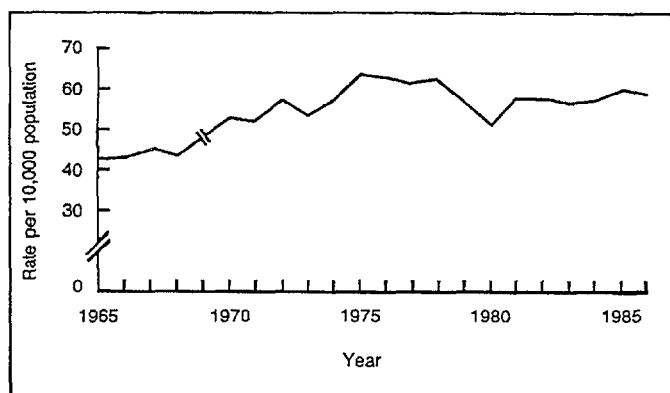


Figure 22. Discharge rates for patients 45–64 years of age with acute myocardial infarction: United States, 1965–86

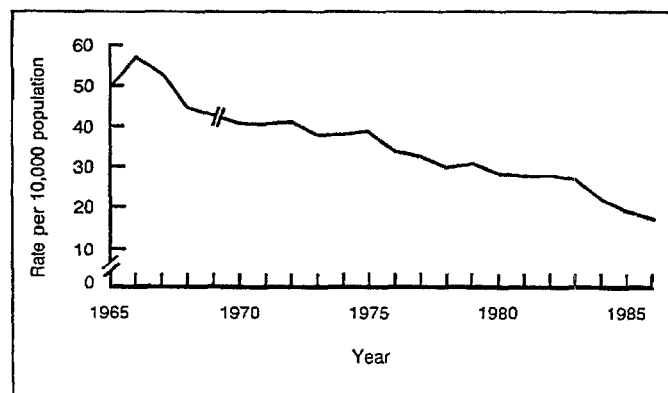


Figure 24. Discharge rates for patients 45–64 years of age with ulcers of the stomach and small intestine: United States, 1965–86

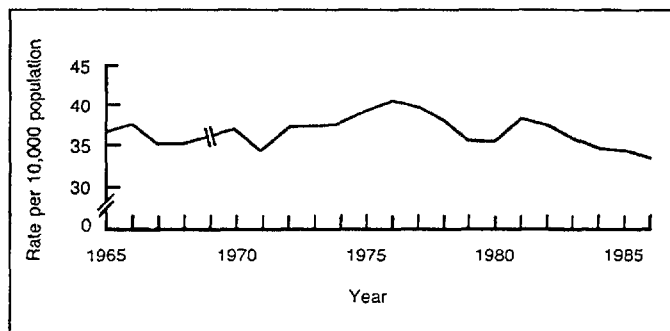


Figure 23. Discharge rates for patients 45–64 years of age with cholelithiasis: United States, 1965–86

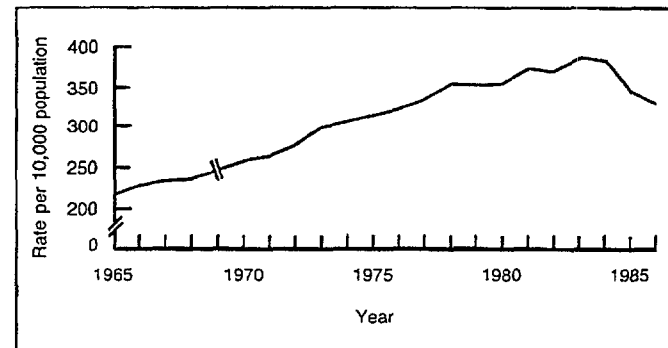


Figure 25. Discharge rates for patients 65 years of age and over with malignant neoplasms: United States, 1965–86

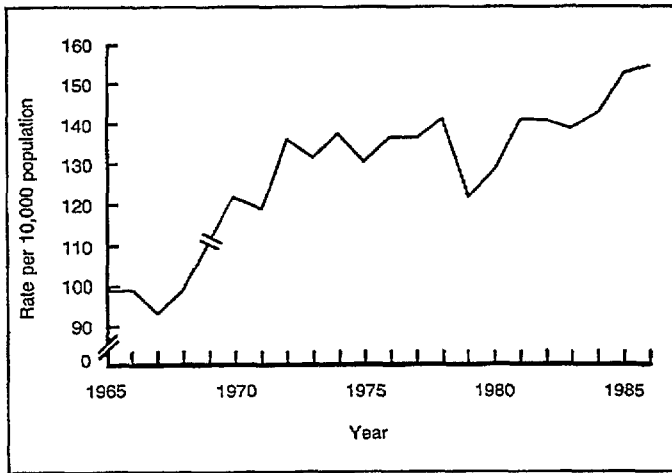


Figure 26. Discharge rates for patients 65 years of age and over with acute myocardial infarction: United States, 1965-86

Discharge rates for fracture of the neck of the femur, another common reason for hospitalization of the elderly, increased by almost a third, from 57.4 per 10,000 population in 1965 to 74.8 in 1986 (figure 27). Patients 85 years of age and over (the oldest old) accounted for 35 percent of the discharges with this condition in this age group. Patients 65 years and over made up nearly 90 percent of all discharges with fracture of the neck of the femur.

The discharge rate for patients 65 years of age and over with a first-listed or principal diagnosis of diabetes increased from 74.8 per 10,000 population in 1965 to 93.2 per 10,000 population in 1983, followed by a sharp decrease to 61.5 per 10,000 population in 1986 (figure 28). The rate for diabetes as an all-listed diagnosis, however, increased by more than 125 percent, from 235.9 per 10,000 population in 1965 to 530.6 per 10,000 population in 1986 (figure 29). All-listed diabetes includes all discharges with diabetes listed on the medical record, whether mentioned as a principal or a secondary diagnosis. The rate of all-listed diabetes did not decrease from 1983 to 1986; thus there may have been a change in reporting practices after the introduction of the prospective payment system, resulting in diabetes being more frequently listed as a secondary diagnosis.

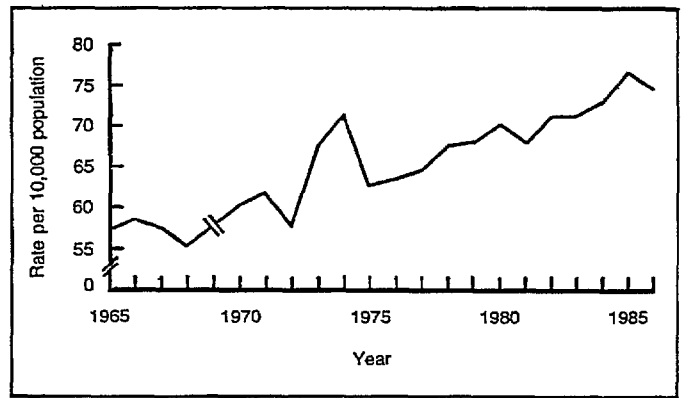


Figure 27. Discharge rates for patients 65 years of age and over with fracture of neck of femur: United States, 1965-86

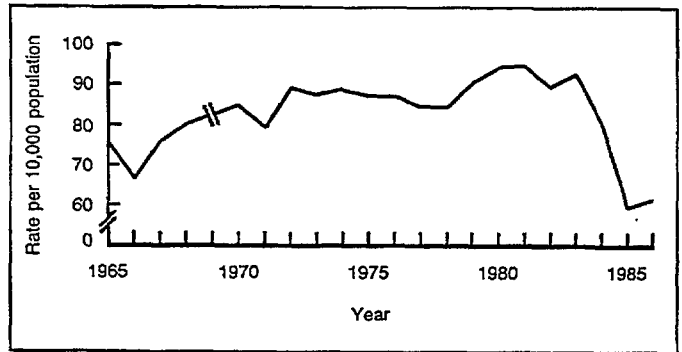


Figure 28. Discharge rates for patients 65 years of age and over with a first-listed diagnosis of diabetes: United States, 1965-86

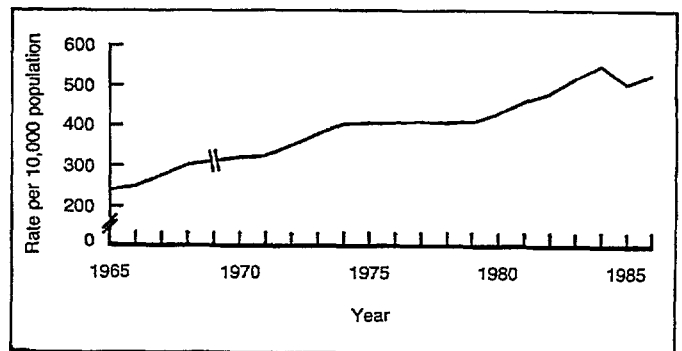


Figure 29. Rates of all-listed diabetes for patients 65 years of age and over: United States, 1965-86

Utilization by surgical procedure

A comparison of the number of patients with and without surgery during the period 1965–86 is presented in table 14; data for nine common surgeries are provided in tables 15–23. These procedures are tonsillectomy, cesarean section, hysterectomy, hemorrhoidectomy, cholecystectomy, lens extraction, prostatectomy, cardiac catheterization, and coronary bypass. They were chosen for their high frequency, the consistency of their definition across versions of the International Classification of Diseases, and the importance of the procedures to the age groups presented. The trend data for the nine specific surgical procedures were based on the number of each reported as principal or secondary procedures. The first seven procedures were studied for the years 1965–86, and the two heart procedures were studied for the years 1970–86. Previous to 1970, cardiac catheterizations and coronary bypass procedures were not frequently reported.

Patients who had surgery during their hospitalization made up 38–42 percent of all discharges during the period 1965–78 and 45–46 percent from 1979 to 1986. The increase in percent of discharges with surgery from 1978 to 1979 was due largely to the changes in coding and reporting practices instituted in 1979. The ICD-9-CM was used to code procedures beginning in 1979, and it was organized differently than earlier versions of the classification system, resulting in a broader definition of surgical procedures. In addition, procedures that had not been coded previously, such as certain procedures assisting delivery, were included in the data beginning in 1979 (17,18).

The total number of surgical procedures and the average number per patient with surgery increased during the period 1965–86 (table 14). The increase after 1978 was due in part to the changes in coding and reporting practices discussed above and to an increase in the maximum number of surgeries that could be coded for each patient from three to four in 1979.

The increase in the average number of surgical procedures per patient with surgery may also be related to the growth in ambulatory surgery programs, which handle the less complex procedures.

The average length of stay decreased 17.3 percent for patients with surgery and 19.5 percent for patients without surgery from 1965 through 1986. The decrease for patients with surgery was partially due to advances in surgical techniques during the last two decades. For example, the average length of stay for lens extraction decreased 70.8

percent from 1965 through 1984 (19). Technological advances have also allowed many surgeries to be done on an ambulatory basis.

Tonsillectomy

The number of tonsillectomies with and without adenoidectomies has declined significantly since 1965 (table 15). An estimated 1,215,000 tonsillectomies were done in 1965, which was more than four times the number (281,000) done in 1986. Almost all tonsillectomies were performed on patients under 45 years of age, and 60–80 percent were on children under 15 years of age. The number of tonsillectomies for children under 15 years of age in 1965 was more than five times the number in 1986 (981,000 compared with 176,000). For patients 15–44 years of age, the number in 1965 was more than twice the number in 1986 (218,000 compared with 100,000).

Similar patterns were noted for tonsillectomy rates. The 1965 tonsillectomy rate per 10,000 population was more than five times the rate in 1986 (63.4 compared with 11.7). The 1965 rate per 10,000 population for children under 15 years of age was nearly five times the rate in 1986 (165.6 compared with 33.9), and the 1965 rate for the group 15–44 years of age was more than three times the 1986 rate (29.0 compared with 8.9). Figure 30 illustrates the decline over time in the rate of tonsillectomies with and without adenoidectomies for patients under 15 years of age.

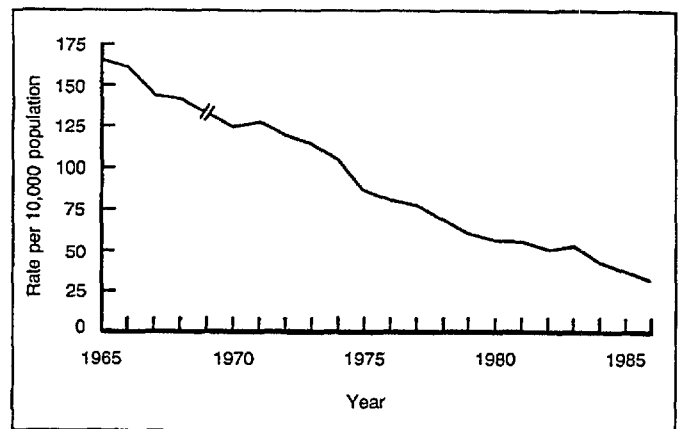


Figure 30. Rates of tonsillectomies with or without adenoidectomies for patients under 15 years of age: United States, 1965–86

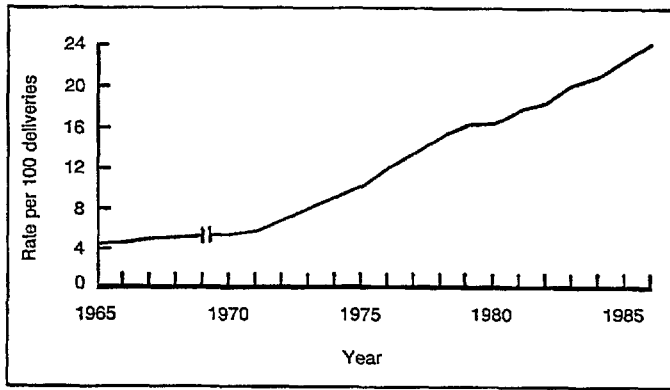


Figure 31. Rates of cesarean sections per 100 deliveries: United States, 1965-86

Cesarean section

Cesarean section rates for all women and for selected age groups are presented in table 16. The rate of cesarean sections per 100 deliveries for all women grew from 4.5 in 1965 to 24.1 in 1986, an increase of more than 400 percent. This increase is shown graphically in figure 31.

The cesarean section rate generally increased with age. In 1965, it ranged from 3.1 per 100 deliveries for women under 20 years of age to 7.9 per 100 deliveries for women 35 years of age and over. In 1986, the range was from 18.3 for women under 20 years of age to 32.6 for women 35 years of age and over.

However, the growth in cesarean section rates was greater for the younger age groups. Rates per 100 deliveries increased approximately 500 percent from 1965 to 1986 for the three age groups under 30 years of age, compared with increases of approximately 300 percent for the two age groups 30 years of age and over. Detailed studies of the increase in cesarean section rates have been published (20-22).

Hysterectomy

Data on hysterectomy are presented in table 17. The total number of hysterectomies increased from 424,000 in 1965 to 725,000 in 1975. From 1976 to 1986 the number of hysterectomies was generally lower, but it varied widely from year to year. The rate of hysterectomies per 10,000 female population ranged from 43.0 in 1965 to 65.6 in 1975. In 1986, the rate was 52.1 per 10,000 female population.

Approximately two-thirds of hysterectomies were performed on women 30-49 years of age, one-fourth on women 50 years of age and over, and fewer than 10 percent on women 15-29 years of age. Trends in the numbers and rates of hysterectomies were generally similar for each of the three age groups. Women 30-49 years of age, for example, had their lowest number (287,000) and rate (119.8 per 10,000 female population) of hysterectomies in 1965. In the mid-1970's, women in this age group had approximately 450,000 hysterectomies a year, a rate of

about 180 per 10,000 female population. In 1986, they had 433,000 hysterectomies, or 130.3 per 10,000 female population. Further information about trends in hysterectomies has been published (11).

Hemorrhoidectomy

As can be seen in table 18, hemorrhoidectomy has declined as an inpatient procedure over the last two decades. The total number of hemorrhoidectomies decreased 60 percent, from 285,000 in 1965 to 114,000 in 1986. Almost no hemorrhoidectomies were performed on children under 15 years of age. Patients 15-44 years of age accounted for about half of the hemorrhoidectomies done in hospitals. They had 138,000 hemorrhoidectomies in 1965 but only 54,000 in 1986, a drop of 61 percent. Between 35 and 40 percent of hemorrhoidectomies were on patients 45-64 years of age. They had 121,000 hemorrhoidectomies in 1965 but only 40,000 in 1986, a 67 percent decrease. For patients 65 years of age and over, there was little change in the number of hemorrhoidectomies, from 25,000 in 1965 to 19,000 in 1986.

The rate of hemorrhoidectomies per 10,000 population declined 68 percent from 1965 to 1986. For patients 15-44 years, the rate declined 74 percent, from 18.4 in 1965 to 4.8 in 1986. The rate for patients 45-64 years of age dropped 71 percent, from 31.2 in 1965 to 9.0 in 1986; and the rate for patients 65 years of age and over declined 51 percent, from 13.4 in 1967 to 6.5 in 1986.

Cholecystectomy

The number of cholecystectomies increased 41 percent, from 355,000 in 1965 to 502,000 in 1986 (table 19). Very few cholecystectomies were done on children under 15 years of age. For patients 15-44 years of age, the rise in the number of cholecystectomies occurred from 1968 to 1982. They had 117,000 cholecystectomies in 1968 and 186,000 in 1982, an increase of 59 percent. The number of cholecystectomies for patients 45-64 years of age was about the same in 1965 (151,000) as in 1986 (157,000). In contrast, the number of cholecystectomies for patients 65 years of age and over grew from 74,000 in 1965 to 166,000 in 1986, an increase of 124 percent.

The increase in the number of cholecystectomies was due mainly to the growth of the population. The rate for all ages did not change significantly from 1965 to 1986. Rates for patients 15-44 and 45-64 years of age also were much the same in 1965 and 1986. However, there was an increase in the rate of cholecystectomies for patients 65 years of age and over. From 39.9 per 10,000 population in 1965, the cholecystectomy rate for patients 65 years of age and over rose to 57.0 per 10,000 in 1986, an increase of 43 percent.

In 1965, about half as many cholecystectomies were performed on patients 65 years of age and over as on patients 45-64 years of age (74,000 compared with 151,000). By the year 1986, the number of cholecystectomies performed on patients 65 years of age and over was slightly greater than the number performed on patients

45–64 years of age. Rates of cholecystectomies per 10,000 population were similar for patients 45–64 years and those 65 years of age and over in 1965, but by 1986 the rate for patients 65 years of age and over was 60 percent higher.

Lens extraction

The number and rate of lens extractions increased from 1965 through 1983 and declined sharply thereafter (table 20). The number of lens extractions in 1983 (630,000) was more than four times the number in 1965 (142,000), and the 1983 rate (27.1 per 10,000 population) was more than three times the rate in 1965 (7.4 per 10,000 population). From 1983 to 1986, both the number and the rate of lens extractions decreased by 81 percent. As a result, the 1986 rate was 31 percent lower than the rate in 1965 (5.1 compared with 7.4 per 10,000 population), although the numbers of lens extractions were not significantly different between 1965 and 1986.

More than 90 percent of lens extractions were performed on patients 45 years of age and over. From 1965 to 1982, the rate of lens extractions per 10,000 population more than doubled for patients 45–64 years of age and tripled for patients 65–74 years of age. The 1983 rate for patients 75 years of age and over was more than four times the 1965 rate. These increases were followed by declines of 80 percent or more in the rates of lens extractions for each

age group by 1986 (figure 32). The sharp drop in the number and rate of lens extractions done on hospital inpatients was due to advances in technology that enabled the procedure to be done on an outpatient basis and to changes in the payment system for Medicare patients.

The numbers of lens extractions performed in 1965 were fairly similar among the three age groups, but in 1983 the number performed on patients 75 years of age and over was 86 percent higher than the number performed on patients 65–74 years of age and 186 percent higher than the number performed on patients 45–64 years of age.

Prostatectomy

The number and rate of prostatectomies have increased in the past two decades (table 21). The number rose from 191,000 in 1965 to 367,000 in 1986, a 92 percent increase. The rate of prostatectomies increased 54 percent, from 20.6 per 10,000 male population in 1965 to 31.7 per 10,000 male population in 1986.

Almost all prostatectomies were performed on patients 45 years of age and over. For patients 45–64 years of age, there was an increase in prostatectomies from 1967 to 1982. The number of prostatectomies for this age group doubled (47,000 to 96,000) from 1967 to 1982, and the rate per 10,000 male population rose from 24.4 to 45.5, an increase of 86 percent.

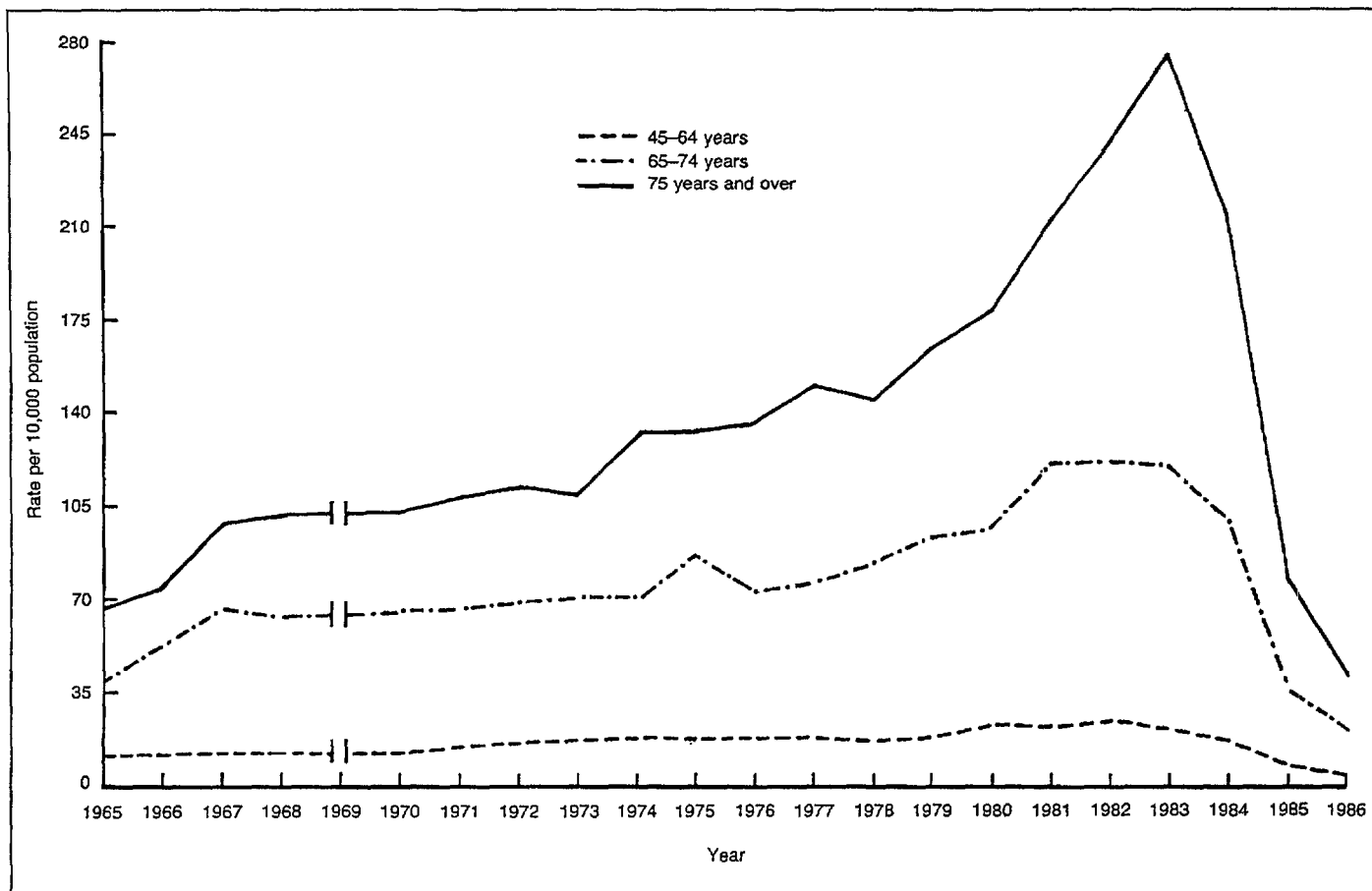


Figure 32. Rates of lens extractions by age: United States, 1965–86

The number of prostatectomies for patients 65–74 years of age increased 123 percent, from 69,000 in 1965 to 154,000 in 1983. The rate of prostatectomies increased 67 percent during this time period, from 129.5 to 216.4 per 10,000 men 65–74 years of age.

For patients 75 years of age and over, the number of prostatectomies increased 121 percent, from 61,000 in 1967 to 135,000 in 1986. The rate of prostatectomies per 10,000 male population for this age group grew from 218.4 in 1967 to 331.2 in 1985, an increase of 52 percent.

Cardiac catheterization

The numbers and rates of cardiac catheterizations are shown in table 22. Use of this procedure has increased dramatically in recent years. The number of cardiac catheterizations increased tenfold, from 77,000 in 1970 to 775,000 in 1986. The 1986 rate of cardiac catheterizations per 10,000 population was 8.5 times the rate in 1970 (32.4, compared with 3.8). The number and rate of the procedures increased for each of the four age groups shown in table 22, but the increases were greater for the older age groups.

For children under 15 years of age, the number of cardiac catheterizations rose from 18,000 in 1970 to 32,000 in 1986, an increase of 78 percent. Their rate of cardiac catheterizations per 10,000 population doubled from 1970 (3.1) to 1986 (6.2). Patients 15–44 years of age had nearly four times the number of cardiac catheterizations in 1986 (82,000) than they had had in 1970 (21,000), and their cardiac catheterization rate nearly tripled from 1970 (2.6 per 10,000 population) to 1986 (7.3 per 10,000 population).

The number of cardiac catheterizations for patients 45–64 years of age increased twelvefold, from 30,000 in 1970 to 386,000 in 1986. For patients 65 years of age and over, the number of cardiac catheterizations in 1986 (275,000) was 34 times the number in 1970 (8,000). The rates of cardiac catheterization per 10,000 population followed the same pattern from 1970 to 1986, increasing from 7.3 to 85.8 for patients 45–64 years of age and from 3.8 to 94.1 for patients 65 years of age and over. The increase in the rate of cardiac catheterizations for patients 45 years of age and over is shown in figure 33.

Coronary bypass

As can be seen in table 23, the growth in the use of coronary bypass procedures, like the increase in cardiac catheterizations, has been explosive. The number of coro-

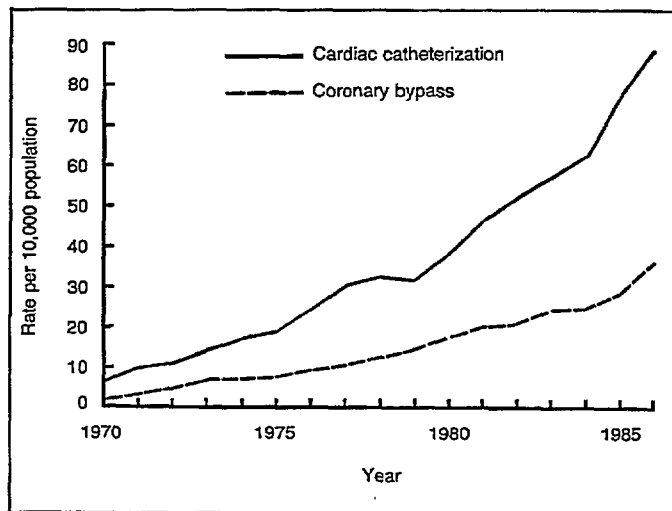


Figure 33. Rates of cardiac catheterizations and coronary bypass procedures for patients 45 years of age and over: United States, 1970–86

nary bypass procedures performed in 1986 (284,000) was 20 times the number (14,000) reported for 1970. The increase in the rate of the procedure was almost as large, from 0.7 per 10,000 population in 1970 to 11.9 per 10,000 population in 1986.

Part of the increase in the last few years has been because more than one bypass has been reported for many individual patients. Bypass procedures using saphenous vein and mammary artery grafts, which are coded separately, are being done in one operation. In 1986, the 284,000 bypass procedures represented 228,000 discharged patients.

Approximately 90 percent of coronary bypass procedures were done on patients 45 years of age and over during the 1970–86 period. The trend in the rates for this group is shown in figure 33. Patients 45–64 years of age had 79 percent of all coronary bypass procedures in 1970 but only 50 percent in 1986. This was in spite of the twelvefold to thirteenfold increases in the number and rate of coronary bypass procedures for this age group from 1970 to 1986.

Data on coronary bypass procedures for patients 65 years of age and over are presented only for 1974 and after because the estimates for earlier years were too small to be reliable. In 1974 patients 65 years of age and over accounted for only 15 percent of coronary bypass procedures, but by 1986, 44 percent of the procedures were being done on the elderly. The number of coronary bypass procedures increased from 8,000 in 1974 to 125,000 in 1986 for patients 65 years of age and over, and the rates increased from 3.5 to 42.9 per 10,000 population during this period.

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Table 1. Number and rate of patients discharged from short-stay hospitals, by age and sex: United States, 1965-86

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

Year	Both sexes						Male						Female					
	All ages	Under 15 years	15-44 years	45-64 years	65-74 years	75 years and over	All ages	Under 15 years	15-44 years	45-64 years	65-74 years	75 years and over	All ages	Under 15 years	15-44 years	45-64 years	65-74 years	75 years and over
Number in thousands																		
1965	28,741	4,278	13,149	6,712	2,542	2,060	11,158	2,414	3,478	3,143	1,205	918	17,583	1,864	9,671	3,569	1,337	1,143
1966	28,425	4,225	12,702	6,589	2,678	2,231	11,203	2,390	3,479	3,088	1,270	976	17,222	1,835	9,223	3,502	1,408	1,255
1967	27,892	4,017	12,283	6,382	2,816	2,394	10,957	2,259	3,333	3,007	1,336	1,023	16,935	1,758	8,950	3,376	1,481	1,370
1968	28,070	3,988	12,036	6,517	2,960	2,569	11,232	2,245	3,369	3,119	1,398	1,101	16,838	1,743	8,667	3,398	1,562	1,468
1969	28,534	3,980	12,221	6,639	3,080	2,614	11,419	2,223	3,455	3,141	1,490	1,110	17,115	1,757	8,766	3,498	1,590	1,504
1970	29,125	3,872	12,664	6,692	3,163	2,734	11,430	2,173	3,486	3,104	1,512	1,155	17,695	1,699	9,178	3,588	1,651	1,579
1971	29,459	4,029	12,605	6,840	3,200	2,785	11,664	2,253	3,473	3,238	1,525	1,175	17,795	1,776	9,132	3,602	1,675	1,610
1972	31,627	4,174	13,331	7,488	3,581	3,053	12,609	2,357	3,763	3,490	1,731	1,268	19,018	1,817	9,568	3,998	1,850	1,785
1973	32,124	3,933	13,482	7,772	3,728	3,209	12,843	2,232	3,876	3,639	1,796	1,300	19,281	1,701	9,606	4,133	1,932	1,909
1974	33,019	3,912	13,855	8,067	3,841	3,344	13,131	2,191	4,018	3,730	1,836	1,356	19,888	1,721	9,837	4,337	2,005	1,988
1975	34,043	3,825	14,171	8,392	4,058	3,597	13,519	2,143	4,107	3,870	1,940	1,459	20,524	1,682	10,064	4,522	2,118	2,138
1976	34,373	3,745	14,272	8,444	4,139	3,773	13,752	2,103	4,248	3,918	1,991	1,492	20,621	1,642	10,024	4,526	2,148	2,281
1977	35,902	3,775	15,180	8,604	4,353	3,990	14,385	2,137	4,553	4,042	2,065	1,588	21,517	1,638	10,627	4,562	2,288	2,402
1978	35,617	3,488	15,037	8,384	4,467	4,241	14,367	1,946	4,565	3,981	2,162	1,713	21,250	1,542	10,472	4,403	2,305	2,528
1979	36,747	3,641	15,488	8,532	4,613	4,473	14,705	2,053	4,680	4,017	2,200	1,755	22,042	1,588	10,808	4,515	2,413	2,718
1980	37,832	3,672	15,636	8,660	4,943	4,921	15,145	2,063	4,687	4,127	2,358	1,910	22,687	1,609	10,949	4,533	2,585	3,011
1981	38,543	3,733	15,725	8,677	5,244	5,164	15,378	2,101	4,672	4,098	2,510	1,997	23,165	1,632	11,053	4,579	2,734	3,167
1982	38,594	3,654	15,554	8,688	5,232	5,466	15,470	2,098	4,615	4,143	2,475	2,139	23,124	1,556	10,939	4,545	2,757	3,327
1983	38,784	3,654	15,269	8,559	5,469	5,833	15,573	2,084	4,524	4,159	2,568	2,238	23,211	1,570	10,745	4,400	2,901	3,595
1984	37,162	3,208	14,533	8,195	5,352	5,874	14,900	1,831	4,305	3,964	2,526	2,274	22,262	1,377	10,228	4,231	2,826	3,600
1985	35,057	2,972	13,966	7,610	5,012	5,497	14,161	1,698	4,153	3,776	2,389	2,145	20,896	1,274	9,813	3,834	2,623	3,352
1986	34,255	2,782	13,458	7,300	5,141	5,574	13,949	1,603	4,100	3,569	2,475	2,202	20,306	1,179	9,358	3,731	2,666	3,372
Rate per 1,000 population																		
1965	150.0	72.2	175.1	172.9	213.9	313.8	120.0	80.1	96.5	167.8	226.4	340.8	178.2	64.0	247.8	177.6	203.7	295.1
1966	147.0	71.3	167.2	167.1	223.3	329.8	119.8	79.2	95.8	162.8	238.1	355.5	172.4	63.1	232.4	171.2	211.5	312.3
1967	142.8	68.0	159.4	159.2	233.1	342.5	116.4	75.1	90.8	156.3	249.6	364.4	167.5	60.6	221.8	161.9	220.0	327.8
1968	142.4	68.0	153.7	160.0	243.1	357.5	118.4	75.1	90.4	159.9	260.5	385.5	164.7	60.5	211.1	160.0	229.3	339.0
1969	143.3	68.3	153.0	160.5	250.4	354.3	119.2	74.9	90.8	158.9	276.1	382.9	165.6	61.5	209.7	162.1	230.3	335.8
1970	144.3	66.8	154.6	159.6	253.2	359.1	117.5	73.6	88.7	155.1	276.9	391.3	169.1	59.8	215.2	163.8	234.8	338.8
1971	143.8	69.8	149.8	161.3	252.3	353.5	118.0	76.6	85.5	160.1	275.4	388.8	167.8	62.7	209.7	162.3	234.4	331.5
1972	152.4	73.2	153.9	174.8	277.1	377.0	125.8	81.0	89.5	171.0	307.6	412.8	177.3	65.0	214.8	178.2	253.6	355.2
1973	153.3	70.0	152.0	180.0	281.4	387.7	126.8	77.9	89.8	176.9	312.1	418.7	178.0	61.8	210.9	182.7	257.9	369.1
1974	156.0	70.9	152.4	185.5	282.9	394.0	128.4	77.8	90.6	180.2	311.7	430.5	181.8	63.7	211.3	190.4	260.9	372.5
1975	159.2	70.4	152.4	191.8	291.6	409.7	130.9	77.2	90.4	185.9	321.4	452.0	185.7	63.2	211.8	197.2	268.8	385.2
1976	159.2	70.2	149.8	192.1	290.7	417.3	131.9	77.2	91.1	187.3	322.4	452.7	184.8	62.8	206.1	196.4	266.4	397.0
1977	164.6	71.8	155.7	195.1	297.4	431.2	136.6	79.6	95.3	192.7	325.5	474.6	190.8	63.6	213.7	197.3	275.9	406.6
1978	161.6	67.1	150.7	189.5	297.9	446.1	135.0	73.3	93.3	189.2	332.8	501.2	186.4	60.7	206.1	189.7	271.2	415.2
1979	164.8	70.8	151.8	192.4	300.8	456.7	136.6	78.1	93.4	190.6	330.9	500.7	191.1	63.1	208.2	194.0	277.7	432.1
1980	167.7	71.6	150.2	194.8	315.9	489.1	139.1	78.7	91.5	195.4	347.4	534.0	194.5	64.2	206.9	194.3	291.7	464.4
1981	169.3	72.9	148.7	195.3	330.0	498.5	139.8	80.2	89.8	194.1	364.1	544.6	196.7	65.2	205.8	196.4	303.8	473.2
1982	167.9	71.2	145.0	195.5	324.3	511.4	139.4	79.9	87.4	196.3	353.4	566.8	194.5	62.0	201.0	194.8	301.9	481.2
1983	167.0	70.8	140.4	192.2	334.3	529.2	138.8	79.0	84.3	196.6	361.4	575.8	193.2	62.3	194.8	188.3	313.4	503.9
1984	158.5	62.0	132.2	183.3	319.6	520.1	131.6	69.2	79.6	185.9	345.2	571.2	183.6	54.5	183.1	181.0	299.7	492.3
1985	147.9	57.2	125.1	169.5	294.9	476.5	123.6	63.8	75.4	176.2	319.9	528.1	170.7	50.2	173.4	163.4	275.3	448.5
1986	143.1	53.5	118.9	162.2	296.7	470.5	120.5	60.2	73.4	166.1	323.7	527.0	164.3	46.5	163.2	158.7	275.4	439.7

Table 3. Average length of stay of patients discharged from short-stay hospitals, by age and sex: United States, 1965-86

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

Year	Both sexes						Male						Female					
	All ages	Under 15 years	15-44 years	45-64 years	65-74 years	75 years and over	All ages	Under 15 years	15-44 years	45-64 years	65-74 years	75 years and over	All ages	Under 15 years	15-44 years	45-64 years	65-74 years	75 years and over
Average length of stay in days																		
1965	7.8	4.9	5.9	9.8	12.2	14.0	8.4	4.9	7.0	10.0	12.2	12.5	7.4	4.9	5.5	9.7	12.2	15.3
1966	8.1	4.8	6.1	10.2	12.5	14.4	8.7	4.9	7.1	10.3	12.4	13.3	7.7	4.6	5.7	10.1	12.7	15.2
1967	8.4	5.0	6.2	10.1	13.3	15.1	9.0	5.1	7.3	10.2	12.9	14.2	8.0	4.8	5.8	10.1	13.6	15.8
1968	8.5	5.0	6.1	10.0	13.2	15.3	9.0	5.2	7.3	10.0	13.0	14.2	8.1	4.8	5.7	10.0	13.5	16.1
1969	8.4	5.0	5.9	10.0	13.2	15.0	9.1	5.1	7.1	10.2	13.0	14.4	7.9	4.9	5.5	9.9	13.4	15.4
1970	7.8	4.7	5.7	9.3	12.0	13.3	8.4	4.8	6.8	9.5	11.7	12.6	7.4	4.6	5.2	9.2	12.3	13.8
1971	7.8	4.7	5.7	9.4	12.0	13.3	8.4	4.7	6.9	9.5	11.7	12.6	7.5	4.6	5.3	9.3	12.3	13.8
1972	7.7	4.5	5.7	9.3	11.7	12.9	8.3	4.6	6.7	9.4	11.5	12.2	7.4	4.3	5.3	9.2	11.9	13.4
1973	7.8	4.5	5.7	9.1	11.4	13.0	8.3	4.5	6.8	9.3	11.0	12.4	7.4	4.6	5.2	9.0	11.7	13.4
1974	7.7	4.6	5.7	9.0	11.2	12.6	8.3	4.7	6.9	9.2	11.1	12.1	7.4	4.5	5.3	8.9	11.4	12.9
1975	7.7	4.6	5.7	9.0	11.1	12.2	8.2	4.6	6.8	9.0	10.9	11.8	7.4	4.5	5.2	8.9	11.2	12.4
1976	7.6	4.4	5.5	8.8	11.0	12.0	8.1	4.4	6.5	8.8	10.9	11.9	7.2	4.5	5.1	8.8	11.0	12.1
1977	7.3	4.2	5.3	8.5	10.5	11.7	7.8	4.3	6.3	8.6	10.3	11.4	7.0	4.1	4.9	8.4	10.7	12.0
1978	7.4	4.4	5.3	8.5	10.4	11.5	7.8	4.5	6.3	8.4	10.1	11.0	7.1	4.4	4.9	8.5	10.7	11.9
1979	7.2	4.3	5.2	8.2	10.1	11.4	7.7	4.4	6.3	8.1	9.9	11.1	6.9	4.3	4.7	8.3	10.3	11.6
1980	7.3	4.4	5.2	8.2	10.0	11.4	7.7	4.3	6.3	8.1	9.7	11.1	7.0	4.5	4.8	8.3	10.2	11.6
1981	7.2	4.6	5.2	8.0	9.9	11.1	7.7	4.6	6.4	7.9	9.8	10.8	6.9	4.7	4.7	8.1	9.9	11.3
1982	7.1	4.6	5.1	7.9	9.6	10.6	7.5	4.6	6.3	7.8	9.4	10.3	6.8	4.6	4.6	8.0	9.7	10.8
1983	6.9	4.6	5.0	7.6	9.2	10.2	7.4	4.5	6.2	7.6	9.1	10.2	6.6	4.6	4.6	7.6	9.3	10.2
1984	6.6	4.5	4.9	7.2	8.5	9.3	7.0	4.4	6.0	7.1	8.4	9.3	6.3	4.6	4.4	7.2	8.5	9.3
1985	6.5	4.6	4.8	7.0	8.2	9.2	6.9	4.5	6.1	6.9	8.1	8.8	6.2	4.6	4.3	7.1	8.3	9.4
1986	6.4	4.6	4.8	6.8	8.0	9.0	6.8	4.5	6.1	6.7	7.9	8.6	6.1	4.6	4.3	6.9	8.0	9.3

Table 4. Median age of patients discharged from short-stay hospitals, median age of the U.S. population, and percent occupancy of short-stay hospitals: United States, 1965-86

[Discharges from non-Federal hospitals. Discharges exclude newborn infants. Civilian resident population used]

Year	Median age of hospital inpatients	Median age of U.S. population	Hospital occupancy ¹
	Age in years		Percent
1965	36.1	28.3	76.0
1966	36.7	28.3	76.5
1967	37.2	28.3	77.6
1968	38.0	28.3	78.2
1969	38.0	28.3	78.8
1970	38.2	28.2	78.0
1971	38.3	28.1	76.7
1972	39.3	28.2	75.2
1973	40.2	28.5	75.4
1974	40.6	28.7	75.3
1975	41.3	28.8	74.8
1976	41.7	29.0	74.4
1977	41.4	29.4	73.6
1978	42.1	29.6	73.5
1979	41.7	29.9	73.8
1980	42.8	30.2	75.4
1981	43.4	30.4	75.9
1982	44.2	30.7	75.2
1983	45.1	31.0	73.4
1984	46.4	31.4	68.9
1985	45.6	31.6	64.8
1986	46.7	31.9	64.2

¹SOURCE: American Hospital Association. 1972 and 1987. Hospital Statistics, 1972 and 1987 Editions. Chicago: American Hospital Association. (Copyright 1972 and 1987: Used with the permission of the American Hospital Association.)

Table 5. Adjusted number and rate of discharges, adjusted number and rate of days of care, and adjusted average length of stay for patients discharged from short-stay hospitals: United States, 1965–86

[Direct adjustment by age and sex to 1965 civilian resident population. Discharges from non-Federal hospitals. Excludes newborn infants]

Year	Adjusted discharges		Adjusted days of care		Adjusted average length of stay
	Number in thousands	Rate per 1,000 population	Number in thousands	Rate per 1,000 population	Number of days
1965.....	28,741	150.0	224,538	1,171.9	7.8
1966.....	28,061	146.5	226,610	1,182.7	8.1
1967.....	27,162	141.8	227,441	1,187.0	8.4
1968.....	26,976	140.8	226,794	1,183.7	8.4
1969.....	27,050	141.2	225,243	1,175.6	8.3
1970.....	27,134	141.6	209,451	1,093.1	7.7
1971.....	26,996	140.9	209,848	1,095.2	7.8
1972.....	28,514	148.8	218,695	1,141.4	7.7
1973.....	28,511	148.8	218,819	1,142.0	7.7
1974.....	28,886	150.8	220,895	1,152.9	7.6
1975.....	29,315	153.0	222,855	1,163.1	7.6
1976.....	29,158	152.2	217,384	1,134.5	7.5
1977.....	29,994	156.5	215,406	1,124.2	7.2
1978.....	29,246	152.6	211,438	1,103.5	7.2
1979.....	29,756	155.3	209,711	1,094.5	7.0
1980.....	30,180	157.5	214,428	1,119.1	7.1
1981.....	30,396	158.6	214,140	1,117.6	7.0
1982.....	30,050	156.8	207,784	1,084.4	6.9
1983.....	29,786	155.5	201,556	1,051.9	6.8
1984.....	28,051	146.4	180,873	944.0	6.4
1985.....	26,125	136.3	165,103	861.7	6.3
1986.....	25,136	131.2	156,758	818.1	6.2

Table 6. Number and rate of discharges, rate of days of care, and average length of stay for patients discharged from short-stay hospitals, by age: Northeast Region, 1965–86

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

Year	Age of patient									
	All ages	Under 15 years	15–44 years	45–64 years	65 years and over	All ages	Under 15 years	15–44 years	45–64 years	65 years and over
	Number of discharges in thousands					Discharge rate per 1,000 population				
1965	6,569	1,130	2,829	1,548	1,032	140.3	82.6	154.9	151.9	220.3
1966	6,449	1,082	2,688	1,512	1,155	137.3	79.2	148.4	144.0	246.1
1967	6,221	1,017	2,564	1,452	1,175	131.8	74.6	141.0	136.6	247.0
1968	6,279	862	2,669	1,504	1,242	132.1	63.6	144.8	139.7	259.1
1969	6,311	847	2,658	1,523	1,283	132.2	63.1	143.2	140.2	263.6
1970	6,637	842	2,880	1,596	1,320	137.2	63.3	149.1	147.6	265.9
1971	6,912	851	3,006	1,665	1,390	141.6	64.4	152.5	153.3	276.3
1972	7,120	871	2,935	1,806	1,507	145.3	67.3	146.2	164.8	299.3
1973	7,208	837	2,961	1,828	1,582	147.3	66.6	145.7	166.8	310.9
1974	7,216	825	2,928	1,851	1,612	148.1	67.9	142.7	169.9	312.7
1975	7,351	773	2,970	1,923	1,685	150.8	65.4	142.8	176.7	320.8
1976	7,517	782	3,012	1,951	1,773	154.1	68.3	142.7	179.6	330.8
1977	7,811	739	3,182	1,982	1,908	161.0	66.7	149.6	184.2	352.0
1978	7,664	680	3,079	1,926	1,979	158.6	63.4	143.6	180.9	359.5
1979	7,786	725	3,122	1,920	2,018	161.4	69.6	144.0	182.2	360.7
1980	7,868	700	3,107	1,886	2,176	162.3	67.8	141.6	180.8	377.7
1981	7,822	690	3,084	1,846	2,201	158.9	67.9	137.5	177.2	355.3
1982	7,847	672	3,060	1,832	2,283	159.0	67.0	134.9	177.2	363.0
1983	7,793	682	2,955	1,783	2,373	157.7	68.8	129.3	174.2	370.6
1984	7,408	573	2,739	1,711	2,385	149.3	58.2	118.8	167.7	366.0
1985	7,168	529	2,673	1,614	2,353	144.1	53.8	115.6	157.8	357.9
1986	6,955	458	2,657	1,500	2,341	139.4	46.9	114.0	147.6	349.5
	Rate of days of care per 1,000 population					Average length of stay in days				
1965	1,270.0	455.1	1,035.2	1,766.7	3,430.1	9.1	5.5	6.7	11.6	15.6
1966	1,308.9	446.0	1,022.8	1,761.9	3,885.0	9.5	5.6	6.9	12.2	15.8
1967	1,293.3	465.5	962.3	1,651.5	4,091.1	9.8	6.2	6.8	12.1	16.6
1968	1,310.5	357.2	1,002.6	1,640.5	4,447.5	9.9	5.6	6.9	11.7	17.2
1969	1,275.6	348.2	949.5	1,612.3	4,326.7	9.6	5.5	6.6	11.5	16.4
1970	1,252.0	344.7	922.5	1,620.2	4,162.5	9.1	5.4	6.2	11.0	15.7
1971	1,275.8	336.7	934.5	1,681.3	4,204.3	9.0	5.2	6.1	11.0	15.2
1972	1,319.9	333.3	917.8	1,791.8	4,432.8	9.1	5.0	6.3	10.9	14.8
1973	1,329.1	339.3	915.2	1,786.6	4,441.3	9.0	5.1	6.3	10.7	14.3
1974	1,333.0	355.3	891.5	1,776.2	4,457.0	9.0	5.2	6.2	10.5	14.3
1975	1,353.6	320.4	872.5	1,867.9	4,517.8	9.0	4.9	6.1	10.6	14.1
1976	1,366.8	335.5	853.3	1,848.1	4,618.0	8.9	4.9	6.0	10.3	14.0
1977	1,389.6	300.2	872.4	1,818.5	4,794.0	8.6	4.5	5.8	9.9	13.6
1978	1,394.1	311.9	815.6	1,822.3	4,929.1	8.8	4.9	5.7	10.1	13.7
1979	1,362.5	329.5	809.3	1,707.5	4,780.1	8.4	4.7	5.6	9.4	13.3
1980	1,387.3	309.3	801.7	1,704.6	4,976.7	8.5	4.6	5.7	9.4	13.2
1981	1,347.1	329.3	774.8	1,602.1	4,660.0	8.5	4.8	5.6	9.0	13.1
1982	1,306.1	312.5	746.6	1,575.3	4,467.7	8.2	4.7	5.5	8.9	12.3
1983	1,277.7	309.0	694.0	1,503.4	4,500.8	8.1	4.5	5.4	8.6	12.1
1984	1,169.3	259.2	629.5	1,362.2	4,152.8	7.8	4.5	5.3	8.1	11.3
1985	1,115.8	243.5	603.4	1,295.0	3,944.1	7.7	4.5	5.2	8.2	11.0
1986	1,028.7	194.1	606.2	1,110.5	3,589.5	7.4	4.1	5.3	7.5	10.3

NOTE: Discharges whose age was not stated were included only in the "all ages" category for 1965–68. Imputations were made for missing age data for 1969–86. 1965–80 rates were based on the civilian noninstitutionalized population, as estimated before the 1980 census. 1981–86 rates were based on the civilian resident population, as estimated after the 1980 census.

Table 7. Number and rate of discharges, rate of days of care, and average length of stay for patients discharged from short-stay hospitals, by age: Midwest Region, 1965-86

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

Year	Age of patient									
	All ages	Under 15 years	15-44 years	45-64 years	65 years and over	All ages	Under 15 years	15-44 years	45-64 years	65 years and over
	Number of discharges in thousands					Discharge rate per 1,000 population				
1965	8,553	1,424	3,731	1,919	1,445	160.4	84.0	183.1	175.8	285.2
1966	8,654	1,457	3,719	1,930	1,532	160.4	85.7	179.7	174.9	293.6
1967	8,710	1,440	3,654	1,910	1,687	160.2	85.1	174.3	170.6	319.6
1968	8,678	1,327	3,631	1,951	1,767	158.5	79.2	170.3	172.0	332.2
1969	8,943	1,352	3,758	2,019	1,814	162.0	81.5	172.9	175.9	337.0
1970	9,202	1,348	3,943	2,056	1,855	164.6	82.1	174.5	180.4	339.1
1971	9,171	1,385	3,838	2,133	1,815	162.9	85.1	166.3	186.5	328.4
1972	9,434	1,375	3,874	2,237	1,948	166.3	86.1	163.6	194.4	349.4
1973	9,975	1,318	4,110	2,438	2,110	175.7	84.8	166.5	211.7	374.4
1974	10,417	1,285	4,352	2,542	2,238	183.7	85.2	178.0	221.6	392.3
1975	10,677	1,300	4,409	2,627	2,340	187.9	88.4	177.3	229.4	403.7
1976	10,663	1,227	4,432	2,612	2,392	187.5	85.9	175.3	228.8	406.0
1977	10,835	1,251	4,567	2,594	2,424	189.9	89.7	177.5	227.8	404.2
1978	10,682	1,171	4,461	2,533	2,517	186.2	85.5	170.2	222.7	413.9
1979	10,647	1,148	4,506	2,400	2,594	185.1	85.5	169.5	211.8	420.9
1980	10,878	1,105	4,465	2,488	2,820	187.4	81.5	166.5	218.6	448.3
1981	11,132	1,112	4,512	2,553	2,955	189.5	82.7	166.2	225.9	432.1
1982	10,938	1,068	4,356	2,506	3,008	186.1	80.0	159.7	224.2	430.8
1983	10,492	987	4,042	2,366	3,097	178.4	74.5	147.6	213.6	437.1
1984	9,899	839	3,734	2,233	3,093	167.9	63.6	135.7	202.2	428.3
1985	9,111	754	3,538	1,996	2,823	154.3	57.2	128.6	180.7	386.9
1986	8,931	720	3,434	1,967	2,810	150.9	55.7	123.5	178.0	380.0
	Rate of days of care per 1,000 population					Average length of stay in days				
1965	1,317.7	465.0	1,093.3	1,823.4	3,930.4	8.2	5.5	6.0	10.4	13.8
1966	1,355.5	472.5	1,113.2	1,873.7	4,078.2	8.4	5.5	6.2	10.7	13.9
1967	1,421.1	473.1	1,125.3	1,832.8	4,726.5	8.9	5.6	6.5	10.7	14.8
1968	1,389.8	410.3	1,090.1	1,769.9	4,863.1	8.8	5.2	6.4	10.3	14.6
1969	1,405.2	411.9	1,055.8	1,833.7	4,964.9	8.7	5.1	6.1	10.4	14.7
1970	1,360.5	403.9	1,061.3	1,782.3	4,590.5	8.3	4.9	6.1	9.9	13.5
1971	1,304.4	393.2	993.7	1,789.9	4,278.3	8.0	4.6	6.0	9.6	13.0
1972	1,329.1	395.4	980.2	1,864.4	4,379.3	8.0	4.6	6.0	9.6	12.5
1973	1,408.9	383.5	1,006.8	1,992.5	4,653.7	8.0	4.5	6.0	9.4	12.4
1974	1,472.0	387.0	1,083.4	2,073.0	4,796.3	8.0	4.5	6.1	9.4	12.2
1975	1,517.9	416.2	1,089.6	2,158.1	4,884.1	8.1	4.7	6.1	9.4	12.1
1976	1,476.1	398.1	1,032.1	2,103.1	4,780.8	7.9	4.6	5.9	9.2	11.8
1977	1,429.2	386.2	1,012.2	2,022.7	4,517.5	7.5	4.3	5.7	8.9	11.2
1978	1,411.3	380.6	982.4	1,957.5	4,559.9	7.6	4.5	5.8	8.8	11.0
1979	1,361.0	377.0	952.9	1,781.2	4,494.3	7.4	4.4	5.6	8.4	10.7
1980	1,412.5	369.8	937.3	1,870.1	4,859.1	7.5	4.5	5.6	8.6	10.8
1981	1,400.2	373.1	919.5	1,863.1	4,562.6	7.4	4.5	5.5	8.2	10.6
1982	1,380.3	375.5	898.6	1,840.9	4,445.0	7.4	4.7	5.6	8.2	10.3
1983	1,281.3	355.0	816.1	1,660.3	4,220.0	7.2	4.8	5.5	7.8	9.7
1984	1,151.7	312.9	734.7	1,503.1	3,734.5	6.9	4.9	5.4	7.4	8.7
1985	1,041.8	298.1	690.1	1,301.5	3,319.0	6.8	5.2	5.4	7.2	8.6
1986	1,002.0	297.0	642.1	1,233.3	3,241.5	6.6	5.3	5.2	6.9	8.5

NOTE: Discharges whose age was not stated were included only in the "all ages" category for 1965-68. Imputations were made for missing age data for 1969-88. 1965-80 rates were based on the civilian noninstitutionalized population, as estimated before the 1980 census. 1981-86 rates were based on the civilian resident population, as estimated after the 1980 census. The Midwest Region was known as the North Central Region before 1985.

Table 8. Number and rate of discharges, rate of days of care, and average length of stay for patients discharged from short-stay hospitals by age: South Region, 1965–86

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

Year	Age of patient									
	All ages	Under 15 years	15–44 years	45–64 years	65 years and over	All ages	Under 15 years	15–44 years	45–64 years	65 years and over
	Number of discharges in thousands					Discharge rate per 1,000 population				
1965	9,422	1,381	4,433	2,131	1,408	160.8	72.9	190.9	187.4	278.4
1966	9,129	1,354	4,178	2,065	1,506	154.1	70.8	176.7	182.6	291.6
1967	8,908	1,342	3,979	1,979	1,587	148.7	70.3	165.6	172.1	299.7
1968	8,871	1,246	3,868	2,039	1,715	146.3	65.5	157.9	174.7	314.3
1969	8,935	1,225	3,877	2,078	1,755	145.2	64.6	154.3	175.3	314.4
1970	8,983	1,183	3,897	2,018	1,885	146.4	65.5	155.5	162.8	323.9
1971	9,136	1,255	3,887	2,046	1,949	146.5	69.8	150.7	162.3	325.3
1972	10,179	1,343	4,368	2,264	2,204	160.7	75.0	164.4	178.5	355.4
1973	9,905	1,206	4,243	2,250	2,206	153.6	67.8	155.0	173.7	345.9
1974	10,165	1,245	4,324	2,340	2,255	154.8	70.5	153.2	177.8	341.8
1975	10,562	1,209	4,441	2,434	2,477	158.6	69.2	153.4	182.8	362.2
1976	10,670	1,195	4,482	2,492	2,500	158.5	69.4	151.1	186.0	355.7
1977	11,290	1,214	4,843	2,573	2,660	165.4	71.1	159.0	190.1	368.2
1978	11,578	1,108	4,997	2,615	2,858	167.7	65.6	160.7	192.2	383.7
1979	12,425	1,252	5,267	2,836	3,070	177.6	74.7	165.6	207.6	398.5
1980	12,983	1,387	5,416	2,883	3,297	175.3	79.5	158.9	200.8	403.1
1981	13,202	1,435	5,436	2,844	3,488	173.5	81.5	154.7	194.9	398.2
1982	13,435	1,410	5,488	2,906	3,631	173.9	79.5	153.1	197.3	405.4
1983	13,884	1,507	5,517	3,001	3,859	176.5	83.9	150.7	201.2	420.7
1984	13,451	1,351	5,379	2,914	3,807	168.8	74.8	144.8	193.4	404.4
1985	12,274	1,274	5,006	2,650	3,344	151.6	70.3	131.7	174.2	347.2
1986	11,892	1,176	4,681	2,520	3,514	144.9	64.3	121.3	164.8	355.2
	Rate of days of care per 1,000 population					Average length of stay in days				
1965	1,157.1	398.7	1,076.0	1,647.8	3,214.2	7.2	5.3	5.6	8.8	11.6
1966	1,134.3	363.3	1,025.9	1,630.2	3,369.5	7.4	5.1	5.8	8.9	11.6
1967	1,161.1	384.9	1,001.2	1,557.5	3,790.9	7.8	5.5	6.0	9.0	12.7
1968	1,135.9	323.1	913.8	1,587.1	3,991.9	7.8	4.9	5.8	9.1	12.7
1969	1,132.0	325.2	894.1	1,621.5	3,904.2	7.8	5.0	5.8	9.3	12.4
1970	1,112.0	330.9	875.8	1,465.9	3,801.8	7.6	5.1	5.6	9.0	11.7
1971	1,089.0	332.1	857.3	1,417.1	3,668.7	7.4	4.8	5.7	8.7	11.3
1972	1,168.2	331.0	900.3	1,527.0	3,998.5	7.3	4.4	5.5	8.6	11.3
1973	1,119.2	312.3	843.2	1,474.9	3,832.1	7.3	4.6	5.4	8.5	11.1
1974	1,130.9	325.1	857.0	1,513.6	3,697.3	7.3	4.6	5.6	8.5	10.8
1975	1,141.3	309.0	840.2	1,521.6	3,803.6	7.2	4.5	5.5	8.3	10.5
1976	1,118.9	295.9	796.3	1,518.5	3,734.1	7.1	4.3	5.3	8.2	10.5
1977	1,135.5	293.7	798.4	1,526.0	3,812.9	6.9	4.1	5.0	8.0	10.4
1978	1,145.5	277.5	806.6	1,522.4	3,839.1	6.8	4.2	5.0	7.9	10.0
1979	1,210.8	314.6	830.1	1,631.3	3,998.0	6.8	4.2	5.0	7.9	10.0
1980	1,191.0	348.2	796.5	1,554.9	3,994.2	6.8	4.4	5.0	7.7	9.9
1981	1,184.4	379.0	765.9	1,515.2	3,929.8	6.8	4.6	5.0	7.8	9.9
1982	1,155.1	364.1	743.8	1,484.5	3,825.9	6.6	4.6	4.9	7.5	9.4
1983	1,158.2	389.3	726.3	1,498.1	3,834.6	6.6	4.6	4.8	7.4	9.1
1984	1,033.5	318.0	668.9	1,318.0	3,388.8	6.1	4.2	4.6	6.8	8.4
1985	911.6	302.3	610.7	1,174.3	2,830.6	6.0	4.3	4.6	6.7	8.2
1986	882.5	274.6	571.3	1,110.2	2,868.9	6.1	4.3	4.7	6.7	8.1

NOTE: Discharges whose age was not stated were included only in the "all ages" category for 1965–68. Imputations were made for missing age data for 1969–86. 1965–80 rates were based on the civilian noninstitutionalized population, as estimated before the 1980 census. 1981–86 rates were based on the civilian resident population, as estimated after the 1980 census.

Table 9. Number and rate of discharges, rate of days of care, and average length of stay for patients discharged from short-stay hospitals, by age: West Region, 1965–86

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

Year	Age of patient									
	All ages	Under 15 years	15–44 years	45–64 years	65 years and over	All ages	Under 15 years	15–44 years	45–64 years	65 years and over
	Number of discharges in thousands					Discharge rate per 1,000 population				
1965	4,577	666	2,094	1,092	716	147.3	65.5	170.1	182.7	272.8
1966	4,572	658	2,108	1,081	718	145.2	65.1	167.6	175.3	271.0
1967	4,577	676	2,082	1,045	766	142.9	66.5	162.2	165.3	282.7
1968	4,241	552	1,869	1,024	795	130.9	54.4	143.6	158.6	285.7
1969	4,345	556	1,929	1,019	841	131.8	54.8	144.1	154.3	296.2
1970	4,363	549	1,953	1,037	823	128.5	55.4	137.4	151.0	277.5
1971	4,241	538	1,873	996	833	122.6	54.3	127.6	142.7	274.9
1972	4,894	585	2,154	1,180	975	139.3	59.7	142.4	166.3	313.1
1973	5,036	573	2,168	1,256	1,039	141.4	59.3	139.4	174.1	325.6
1974	5,220	557	2,251	1,333	1,080	143.7	58.1	140.0	181.3	328.0
1975	5,454	544	2,351	1,407	1,152	147.6	57.2	142.0	188.5	337.0
1976	5,522	539	2,347	1,389	1,247	146.8	57.2	137.3	183.3	353.4
1977	5,966	571	2,588	1,455	1,352	155.7	60.8	146.9	189.6	371.1
1978	5,693	529	2,500	1,309	1,354	145.4	56.4	137.4	168.0	359.2
1979	5,889	516	2,593	1,376	1,404	146.5	54.4	137.4	173.2	359.3
1980	6,103	480	2,647	1,403	1,572	143.8	48.8	129.3	175.1	381.6
1981	6,388	496	2,694	1,434	1,764	146.4	49.5	128.1	176.7	395.6
1982	6,373	504	2,650	1,444	1,774	143.3	49.3	123.5	176.3	386.1
1983	6,614	478	2,754	1,409	1,974	145.6	45.7	125.5	169.8	417.7
1984	6,405	446	2,681	1,336	1,941	138.7	41.9	120.4	159.3	397.2
1985	6,502	415	2,749	1,350	1,988	137.6	38.4	119.5	160.5	395.4
1986	6,478	429	2,685	1,313	2,051	134.4	38.9	114.3	154.5	395.5
	Rate of days of care per 1,000 population					Average length of stay in days				
1965	994.5	287.2	892.4	1,530.6	2,970.3	6.8	4.4	5.2	8.4	10.9
1966	1,024.9	277.8	883.1	1,531.2	3,350.2	7.1	4.3	5.3	8.7	12.4
1967	994.8	283.1	847.0	1,395.0	3,049.3	7.0	4.3	5.2	8.4	12.1
1968	924.1	210.9	738.3	1,356.3	3,388.8	7.1	3.9	5.1	8.6	11.9
1969	939.3	228.8	726.9	1,311.8	3,613.2	7.1	4.2	5.0	8.5	12.2
1970	860.4	203.0	678.1	1,206.4	3,127.8	6.7	3.7	4.9	8.0	11.3
1971	790.9	197.4	606.4	1,102.7	2,905.6	6.5	3.6	4.7	7.7	10.6
1972	881.3	214.1	675.5	1,259.8	3,116.9	6.3	3.6	4.7	7.6	10.0
1973	903.0	217.9	655.3	1,275.3	3,344.4	6.4	3.7	4.7	7.3	10.3
1974	909.6	208.2	660.7	1,348.7	3,186.8	6.3	3.6	4.7	7.4	9.7
1975	924.8	236.3	672.1	1,352.9	3,130.5	6.3	4.1	4.7	7.2	9.3
1976	912.8	211.4	636.1	1,297.7	3,299.0	6.2	3.7	4.6	7.1	9.3
1977	936.8	228.0	671.0	1,295.5	3,292.6	6.0	3.7	4.6	6.8	8.9
1978	882.7	235.1	639.1	1,125.6	3,169.2	6.1	4.2	4.7	6.7	8.8
1979	883.0	210.5	616.5	1,168.3	3,219.8	6.0	3.9	4.5	6.7	9.0
1980	873.0	194.0	589.3	1,199.5	3,269.8	6.1	4.0	4.6	6.8	8.6
1981	884.3	223.3	576.5	1,186.3	3,271.8	6.0	4.5	4.5	6.7	8.3
1982	849.8	210.8	535.2	1,166.6	3,176.5	5.9	4.3	4.3	6.6	8.2
1983	853.5	183.8	554.5	1,073.9	3,338.0	5.9	4.0	4.4	6.3	8.0
1984	787.6	183.0	521.5	1,014.6	2,926.5	5.7	4.4	4.3	6.4	7.4
1985	748.4	161.8	488.6	959.0	2,847.6	5.4	4.2	4.1	6.0	7.2
1986	735.1	178.4	474.4	920.9	2,824.1	5.5	4.6	4.2	5.8	7.1

NOTE: Discharges whose age was not stated were included only in the "all ages" category for 1965–68. Imputations were made for missing age data for 1969–86. 1965–80 rates were based on the civilian noninstitutionalized population, as estimated before the 1980 census. 1981–86 rates were based on the civilian resident population, as estimated after the 1980 census.

Table 10. Number and rate of discharges for patients under 15 years of age discharged from short-stay hospitals, by selected first-listed diagnosis: United States, 1965–86

[Discharges from non-Federal hospitals. Excludes newborn infants. Medical data for 1969 were not coded]

Year	Number in thousands			Rate per 10,000 population		
	<i>Pneumonia</i>	<i>Fractures</i>	<i>Diseases of the ear and mastoid process</i>	<i>Pneumonia</i>	<i>Fractures</i>	<i>Diseases of the ear and mastoid process</i>
1965	375	201	82	63.3	33.9	13.8
1966	312	195	95	52.7	32.9	16.0
1967	289	196	91	43.9	33.2	15.4
1968	288	184	92	49.1	31.4	15.7
1969	---	---	---	---	---	---
1970	249	192	95	43.0	33.1	16.4
1971	243	187	120	42.1	32.4	20.8
1972	289	195	132	50.7	34.2	23.1
1973	261	189	149	46.5	33.7	26.5
1974	239	199	149	43.3	36.0	27.0
1975	240	182	162	44.1	33.5	29.8
1976	234	199	181	43.8	37.3	33.9
1977	227	174	199	43.2	33.1	37.8
1978	246	166	176	47.3	32.0	33.9
1979	255	155	200	49.6	30.1	38.9
1980	227	152	221	44.3	29.6	43.1
1981	229	155	195	44.7	30.2	38.1
1982	270	153	177	52.5	29.7	34.4
1983	242	147	186	47.0	28.5	36.0
1984	207	146	152	39.9	28.3	29.4
1985	206	132	118	39.7	25.3	22.7
1986	194	134	94	37.4	25.7	18.0

NOTE: See appendix II, table VIII for code numbers.

Table 11. Number and rate of discharges for patients 15–44 years of age discharged from short-stay hospitals, by selected first-listed diagnosis: United States, 1965–86

[Discharges from non-Federal hospitals. Medical data for 1969 were not coded]

Year	Number in thousands			Rate per 10,000 population		
	<i>Appendicitis</i>	<i>Mental disorders</i>	<i>Intervertebral disc disorders</i>	<i>Appendicitis</i>	<i>Mental disorders</i>	<i>Intervertebral disc disorders</i>
1965	182	379	119	24.2	50.5	15.8
1966	182	425	124	24.0	55.9	16.3
1967	171	415	123	22.2	53.9	16.0
1968	176	432	127	22.5	55.2	16.2
1969	---	---	---	---	---	---
1970	166	554	134	20.3	67.6	16.4
1971	150	590	143	17.8	70.1	17.0
1972	168	645	166	19.4	74.5	19.2
1973	172	669	168	19.4	75.4	18.9
1974	163	756	192	17.9	83.2	21.1
1975	162	813	180	17.4	87.4	19.4
1976	166	807	198	17.4	84.7	20.8
1977	191	907	204	19.6	93.0	20.9
1978	164	971	182	16.4	97.3	18.2
1979	168	983	192	16.5	96.3	18.8
1980	154	954	198	14.8	91.6	19.0
1981	169	988	197	16.0	93.4	18.6
1982	151	972	225	14.1	90.7	20.9
1983	148	950	254	13.6	87.3	23.4
1984	158	966	271	14.4	87.8	24.6
1985	148	1,014	265	13.3	90.8	23.7
1986	153	1,111	273	13.5	98.1	24.1

NOTE: See appendix II, table VIII for code numbers.

Table 12. Number and rate of discharges for patients 45–64 years of age discharged from short-stay hospitals, by selected first-listed diagnosis: United States, 1965–86

[Discharges from non-Federal hospitals. Medical data for 1969 were not coded]

Year	Malignant neoplasms	Acute myocardial infarction	Cholelithiasis	Ulcers of stomach and small intestine	Number in thousands				
1965	406	166	142	192					
1966	425	171	149	225					
1967	413	183	142	211					
1968	410	179	144	179					
1969	---	---	---	---					
1970	448	222	155	169					
1971	466	222	147	170					
1972	536	244	160	175					
1973	538	233	161	163					
1974	578	251	165	165					
1975	614	280	171	168					
1976	634	277	179	148					
1977	658	273	176	141					
1978	658	277	168	131					
1979	651	252	159	134					
1980	691	230	159	124					
1981	722	257	170	122					
1982	716	257	167	123					
1983	738	251	160	120					
1984	727	257	155	98					
1985	648	267	154	86					
1986	631	263	150	80					
					Rate per 10,000 population				
1965	104.6	42.9	36.6	49.5					
1966	107.8	43.3	37.8	57.1					
1967	103.0	45.5	35.4	52.6					
1968	100.6	43.9	35.3	43.9					
1969	---	---	---	---					
1970	106.9	53.0	37.0	40.3					
1971	109.9	52.4	34.7	40.1					
1972	125.1	57.6	37.3	40.8					
1973	124.6	53.9	37.3	37.7					
1974	132.9	57.8	37.9	37.9					
1975	140.3	63.9	39.1	38.4					
1976	144.2	63.1	40.7	33.7					
1977	149.2	61.9	39.9	32.0					
1978	148.7	62.5	38.0	29.6					
1979	146.8	56.7	35.9	30.2					
1980	155.5	51.7	35.8	27.9					
1981	162.4	57.9	38.4	27.4					
1982	161.0	57.9	37.5	27.7					
1983	165.8	56.4	36.0	26.9					
1984	162.6	57.5	34.7	21.8					
1985	144.3	59.5	34.3	19.1					
1986	140.2	58.4	33.4	17.8					

NOTE: See appendix II, table VIII for code numbers.

Table 13. Number and rate of discharges for patients 65 years of age and over discharged from short-stay hospitals, by selected first-listed and all-listed diagnoses: United States, 1965-86

[Discharges from non-Federal hospitals. Medical data for 1969 were not coded]

Year	Malignant neoplasms	Acute myocardial infarction	Fracture of neck of femur	First-listed diabetes mellitus	All-listed diabetes mellitus
Number in thousands					
1965	400	182	106	138	435
1966	427	186	110	124	458
1967	441	178	110	144	519
1968	456	192	107	155	574
1969	---	---	---	---	---
1970	520	245	121	170	640
1971	540	246	127	164	658
1972	585	289	122	188	733
1973	641	284	145	188	805
1974	671	304	157	196	884
1975	719	298	142	199	914
1976	753	320	148	204	938
1977	803	326	155	202	973
1978	863	347	166	207	985
1979	884	308	172	228	1,027
1980	916	333	181	242	1,128
1981	1,104	372	179	250	1,217
1982	995	380	192	240	1,292
1983	1,059	382	196	255	1,437
1984	1,070	401	205	227	1,562
1985	991	436	219	171	1,440
1986	964	452	218	179	1,548
Rate per 10,000 population					
1965	216.8	98.5	57.4	74.8	235.9
1966	227.7	99.3	58.7	66.1	244.2
1967	231.2	93.5	57.7	75.5	272.1
1968	235.5	99.3	55.3	80.0	296.4
1969	---	---	---	---	---
1970	258.6	122.0	60.2	84.6	318.3
1971	262.6	119.5	61.8	79.8	320.0
1972	278.3	136.5	58.0	89.4	348.7
1973	297.8	132.0	67.4	87.3	374.0
1974	304.2	137.8	71.2	88.8	400.7
1975	316.8	131.1	62.6	87.7	402.7
1976	323.5	137.6	63.6	87.6	403.0
1977	336.1	136.5	64.9	84.5	407.3
1978	352.2	141.8	67.8	84.5	402.0
1979	351.7	122.4	68.4	90.7	408.6
1980	356.3	129.4	70.4	94.1	438.8
1981	373.9	141.6	68.2	95.1	463.6
1982	370.9	141.5	71.4	89.5	481.7
1983	386.7	139.6	71.5	93.2	524.8
1984	381.5	142.9	73.2	81.1	557.1
1985	347.3	152.7	76.9	59.9	504.7
1986	330.6	155.0	74.8	61.5	530.6

NOTE: See appendix II, table VIII for code numbers.

Table 14. Number of patients discharged from short-stay hospitals with and without surgery, total number of surgeries, average number of surgeries for patients with surgery, and average length of stay for patients with and without surgery: United States, 1965–86

[Discharges from non-Federal hospitals. Excludes newborn infants. Surgical data for 1969 were not coded]

Year	All patients	Patients without surgery	Patients with surgery	All surgeries	Surgeries per patient with surgery	Patients without surgery	Patients with surgery
					Average number	Average length of stay in days	
Number in thousands							
1965	28,792	17,795	10,996	15,008	1.36	7.5	8.2
1966	28,477	17,497	10,980	14,974	1.36	7.8	8.5
1967	27,964	17,021	10,942	14,768	1.35	8.2	8.7
1968	28,070	17,162	10,908	14,708	1.34	8.3	8.7
1969	----	----	----	----	----	----	----
1970	29,127	17,573	11,553	15,613	1.35	7.6	8.0
1971	29,459	17,824	11,635	15,774	1.36	7.7	8.0
1972	31,627	18,984	12,643	17,333	1.37	7.6	7.9
1973	32,125	18,859	13,266	18,426	1.39	7.6	7.9
1974	33,018	19,201	13,817	19,268	1.39	7.6	7.9
1975	34,043	19,854	14,189	20,040	1.41	7.9	7.9
1976	34,372	20,127	14,245	20,086	1.41	7.5	7.9
1977	35,902	20,888	15,014	21,159	1.41	7.2	7.5
1978	35,616	20,932	14,684	20,754	1.41	7.1	7.7
1979	36,747	20,152	16,595	23,858	1.44	7.3	7.1
1980	37,832	20,816	17,005	24,494	1.44	7.4	7.1
1981	39,544	21,103	17,441	25,624	1.47	7.3	7.1
1982	38,593	21,160	17,433	25,824	1.48	7.1	7.1
1983	38,783	21,294	17,488	26,220	1.50	6.9	6.9
1984	37,162	20,324	16,838	25,590	1.52	6.5	6.7
1985	35,056	18,959	16,097	24,799	1.54	6.3	6.7
1986	34,256	18,459	15,797	25,041	1.59	6.2	6.6

Table 15. Number and rate of tonsillectomies with or without adenoidectomies for patients discharged from short-stay hospitals, by age: United States, 1965–86

[Discharges from non-Federal hospitals. Excludes newborn infants. Surgical data for 1969 were not coded]

Year	Age of patient					
	All ages ¹	Under 15 years	15–44 years	All ages ¹	Under 15 years	15–44 years
Number in thousands			Rate per 10,000 population			
1965	1,215	981	218	63.4	165.5	29.0
1966	1,171	954	204	60.5	161.0	26.9
1967	1,067	853	204	54.6	144.4	26.5
1968	1,056	835	213	53.6	142.3	27.2
1969	----	----	----	----	----	----
1970	958	726	224	47.4	124.7	28.0
1971	967	736	224	47.2	127.4	25.8
1972	917	679	232	44.2	119.0	26.9
1973	884	647	232	42.2	115.2	26.2
1974	808	583	220	38.2	105.6	24.8
1975	685	470	209	32.1	86.5	22.5
1976	629	434	191	29.1	81.4	20.1
1977	617	414	199	28.3	78.7	20.4
1978	548	360	182	24.8	69.2	18.2
1979	500	313	181	22.4	60.8	17.7
1980	464	294	162	20.6	57.4	15.5
1981	457	289	102	20.1	56.4	15.3
1982	438	269	163	19.1	52.3	15.2
1983	424	279	140	18.3	54.1	12.8
1984	348	224	118	14.8	43.4	10.7
1985	317	197	114	13.4	37.8	10.2
1986	281	176	100	11.7	33.9	8.9

¹Includes data for age groups not shown in table.

NOTE: See appendix II, table VIII for code numbers.

Table 16. Cesarean section rates for patients discharged from short-stay hospitals, by age: United States, 1965–86

[Discharges from non-Federal hospitals. Excludes newborn infants. Surgical data for 1969 were not coded]

Year	Age of patient					
	All ages	Under 20 years	20–24 years	25–29 years	30–34 years	35 years and over
	Rate per 100 deliveries					
1965	4.5	3.1	3.5	4.3	6.4	7.9
1966	4.7	2.8	3.9	4.9	6.3	8.2
1967	5.1	3.7	3.9	5.2	7.2	10.4
1968	5.3	3.6	4.3	5.4	7.2	10.0
1969	---	---	---	---	---	---
1970	5.5	3.9	4.9	5.9	7.5	8.3
1971	5.8	4.2	4.6	6.5	7.8	11.3
1972	7.0	5.4	5.8	7.8	9.4	11.3
1973	8.0	6.3	7.2	8.1	10.2	13.3
1974	9.2	6.4	8.8	9.7	11.5	13.6
1975	10.4	8.4	9.0	11.1	13.6	15.0
1976	12.1	10.1	11.7	12.3	13.6	16.9
1977	13.7	11.2	12.5	14.8	15.3	17.9
1978	15.2	11.8	13.1	16.4	19.3	21.3
1979	16.4	13.7	15.6	16.4	19.5	21.1
1980	16.5	14.5	15.8	16.7	18.0	20.6
1981	17.9	13.2	16.0	19.4	21.3	24.4
1982	18.5	13.4	17.6	19.9	20.4	23.6
1983	20.3	15.0	19.0	20.5	24.6	25.4
1984	21.1	16.5	19.6	20.8	24.6	28.7
1985	22.7	16.1	21.2	22.9	26.6	30.7
1986	24.1	18.3	21.9	25.3	26.2	32.6

NOTE: See appendix II, table VIII for code numbers.

Table 17. Number and rate of hysterectomies for female patients discharged from short-stay hospitals, by age: United States, 1965–86

[Discharges from non-Federal hospitals. Excludes newborn infants. Surgical data for 1969 were not coded]

Year	Age of patient							
	All ages ¹	15–29 years	30–49 years	50 years and over	All ages ¹	15–29 years	30–49 years	50 years and over
	Number in thousands				Rate per 10,000 female population			
1965	424	34	287	104	43.0	16.0	119.8	42.0
1966	482	40	334	108	48.2	18.2	139.8	42.9
1967	478	44	328	105	47.3	19.6	137.3	41.0
1968	490	48	324	118	48.0	20.5	135.5	45.0
1969	---	---	---	---	---	---	---	---
1970	526	52	349	124	50.2	20.7	145.6	45.2
1971	570	61	375	133	53.7	23.6	155.8	47.8
1972	649	78	429	139	60.5	29.5	177.8	48.7
1973	690	86	449	154	63.4	31.4	183.5	52.8
1974	695	84	451	159	63.5	30.1	182.7	53.4
1975	725	100	450	174	65.6	34.7	180.9	57.6
1976	678	92	417	166	60.7	31.0	166.4	53.9
1977	705	104	441	157	62.5	34.8	170.7	50.0
1978	644	82	418	143	56.5	27.2	157.8	44.8
1979	639	77	420	141	55.4	25.3	154.8	43.3
1980	649	84	409	157	55.7	27.3	147.1	47.5
1981	673	89	421	162	57.1	29.0	147.6	48.5
1982	650	78	418	154	54.7	25.2	142.3	45.8
1983	672	72	454	146	56.0	23.6	149.8	43.0
1984	664	85	424	156	54.8	27.9	135.4	45.4
1985	670	74	440	156	54.8	24.3	136.6	45.2
1986	644	62	433	149	52.1	20.4	130.3	43.0

¹Includes data for age groups not shown in table.

NOTE: See appendix II, table VIII for code numbers.

Table 18. Number and rate of hemorrhoidectomies for patients discharged from short-stay hospitals, by age: United States, 1965–86

[Discharges from non-Federal hospitals. Excludes newborn infants. Surgical data for 1969 were not coded]

Year	Age of patient							
	All ages ¹	15–44 years	45–64 years	65 years and over	All ages ¹	15–44 years	45–64 years	65 years and over
	Number in thousands				Rate per 10,000 population			
1965.	285	138	121	25	14.9	18.4	31.2	13.4
1966.	262	135	110	18	13.6	17.7	27.8	9.7
1967.	250	123	100	26	12.8	15.9	25.0	13.8
1968.	230	111	98	20	11.7	14.2	24.1	10.4
1969.	---	---	---	---	---	---	---	---
1970.	225	104	97	22	11.1	12.7	23.2	10.7
1971.	213	104	90	18	10.4	12.4	21.2	8.9
1972.	218	105	89	24	10.5	12.1	20.7	11.4
1973.	218	108	90	20	10.4	12.2	20.8	9.2
1974.	234	113	96	25	11.1	12.5	22.0	11.3
1975.	201	97	84	20	9.4	10.4	19.1	8.9
1976.	204	99	80	24	9.5	10.4	18.1	10.5
1977.	197	93	78	25	9.0	9.6	17.7	10.6
1978.	190	100	69	20	8.6	10.0	15.7	8.3
1979.	166	84	61	21	7.5	8.2	13.8	8.2
1980.	173	82	66	24	7.7	7.9	14.9	9.4
1981.	173	87	61	25	7.6	8.2	13.8	9.4
1982.	165	80	63	22	7.2	7.5	14.2	8.2
1983.	134	64	50	21	5.8	5.9	11.2	7.6
1984.	131	62	49	21	5.6	5.6	10.9	7.5
1985.	123	55	47	19	5.2	4.9	10.5	6.8
1986.	114	54	40	19	4.8	4.8	9.0	6.5

¹Includes data for age groups not shown in table.

NOTE: See appendix II, table VIII for code numbers.

Table 19. Number and rate of cholecystectomies for patients discharged from short-stay hospitals, by age: United States, 1965–86

[Discharges from non-Federal hospitals. Excludes newborn infants. Surgical data for 1969 were not coded]

Year	Age of patient							
	All ages ¹	15–44 years	45–64 years	65 years and over	All ages ¹	15–44 years	45–64 years	65 years and over
	Number in thousands				Rate per 10,000 population			
1965.	355	128	151	74	18.5	17.1	39.0	39.9
1966.	357	121	157	79	18.5	15.9	38.2	42.1
1967.	369	132	149	88	18.9	17.1	37.2	46.1
1968.	339	117	141	80	17.2	14.9	34.7	41.1
1969.	---	---	---	---	---	---	---	---
1970.	367	134	148	85	18.2	16.4	35.3	42.1
1971.	373	142	145	85	18.2	16.8	34.2	41.6
1972.	399	149	156	93	19.2	17.2	36.4	44.2
1973.	411	154	159	97	19.6	17.4	36.7	45.2
1974.	402	156	159	85	19.0	17.2	36.7	38.5
1975.	442	168	167	106	20.7	18.0	38.1	46.6
1976.	442	165	178	98	20.5	17.3	40.5	45.7
1977.	446	161	173	109	20.4	16.6	39.3	44.2
1978.	432	157	165	108	19.6	15.8	37.3	44.2
1979.	445	165	154	123	20.0	16.2	34.7	49.1
1980.	458	168	159	129	20.3	16.1	35.9	50.1
1981.	482	169	174	138	21.2	16.0	39.1	52.4
1982.	493	186	166	138	21.4	17.4	37.4	51.4
1983.	487	167	162	156	21.0	15.4	36.4	57.0
1984.	485	183	155	145	20.7	16.6	34.6	51.8
1985.	475	167	157	150	20.0	14.9	34.9	52.6
1986.	502	176	157	166	21.0	15.6	34.9	57.0

¹Includes age groups not shown in table.

NOTE: See appendix II, table VIII for code numbers.

Table 20. Number and rate of lens extractions for patients discharged from short-stay hospitals, by age: United States, 1965–86

[Discharges for non-Federal hospitals. Excludes newborn infants. Surgical data for 1969 were not coded]

Year	Age of patient							
	All ages ¹	45–64 years	65–74 years	75 years and over	All ages ¹	45–64 years	65–74 years	75 years and over
	Number in thousands				Rate per 10,000 population			
1965	142	42	47	44	7.4	10.9	39.7	67.5
1966	175	51	63	51	9.1	13.0	52.4	75.1
1967	214	57	79	69	10.9	14.3	65.4	98.3
1968	213	54	78	73	10.8	13.2	64.4	101.3
1969	---	---	---	---	---	---	---	---
1970	230	58	83	79	11.4	13.8	66.2	103.7
1971	243	64	85	86	11.9	15.0	66.9	109.8
1972	260	66	90	92	12.5	15.5	69.9	114.1
1973	279	78	96	92	13.3	18.2	72.7	111.6
1974	306	82	98	112	14.4	18.9	71.9	132.5
1975	333	84	120	118	15.6	19.1	86.3	133.9
1976	322	82	120	124	14.9	18.6	74.9	136.7
1977	350	86	111	139	16.1	19.6	75.7	150.3
1978	357	79	127	139	16.2	17.9	84.4	145.8
1979	418	87	144	161	18.7	19.6	93.9	164.9
1980	467	108	153	182	20.7	24.3	97.9	181.0
1981	540	105	194	221	23.7	23.6	122.0	213.8
1982	599	114	199	259	26.1	25.7	123.5	242.1
1983	630	106	197	303	27.1	23.8	120.6	275.2
1984	506	81	165	244	21.6	18.0	98.5	216.1
1985	211	42	61	96	8.9	9.3	36.1	83.1
1986	122	23	37	50	5.1	5.2	21.4	42.2

¹Includes data for age groups not shown in table.

NOTE: See appendix II, table VIII for code numbers.

Table 21. Number and rate of prostatectomies for male patients discharged from short-stay hospitals, by age: United States, 1965–86

[Discharges from non-Federal hospitals. Excludes newborn infants. Surgical data for 1969 were not coded]

Year	Age of patient							
	All ages ¹	45–64 years	65–74 years	75 years and over	All ages	45–64 years	65–74 years	75 years and over
	Number in thousands				Rate per 10,000 male population			
1965	191	56	69	62	20.6	30.0	129.5	231.9
1966	212	55	84	69	22.6	29.2	157.3	253.1
1967	194	47	84	61	20.6	24.4	156.9	218.4
1968	212	53	88	68	22.3	27.3	164.0	237.6
1969	---	---	---	---	---	---	---	---
1970	223	59	91	68	23.0	29.6	166.7	231.1
1971	207	56	91	68	21.0	27.6	148.8	220.5
1972	231	67	93	70	23.0	32.7	164.4	227.8
1973	249	71	101	74	24.6	34.4	175.5	238.3
1974	253	70	101	79	24.8	34.1	170.7	249.6
1975	266	77	107	80	25.7	36.9	178.0	247.7
1976	269	74	105	87	25.8	35.5	170.1	264.2
1977	299	82	119	97	28.4	39.1	187.2	289.4
1978	297	68	127	99	27.9	32.6	195.2	290.2
1979	293	71	122	96	27.2	33.6	182.9	274.6
1980	335	83	139	112	30.8	39.2	205.1	312.8
1981	348	83	144	119	31.7	39.3	208.3	324.5
1982	358	96	143	119	32.3	45.5	204.0	314.3
1983	357	81	154	120	31.8	38.5	216.4	308.2
1984	361	83	151	124	31.9	38.9	206.9	310.3
1985	367	81	150	134	32.0	37.9	200.7	331.2
1986	367	77	152	135	31.7	35.9	198.7	324.2

¹Includes data for age groups not shown in table.

NOTE: See appendix II, table VIII for code numbers.

Table 22. Number and rate of cardiac catheterizations for patients discharged from short-stay hospitals, by age: United States, 1970–86

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

Year	Age of patient				
	All ages	Under 15 years	15–44 years	45–64 years	65 years and over
	Number in thousands				
1970	77	18	21	30	*8
1971	98	15	22	52	*9
1972	117	19	27	62	*8
1973	151	20	37	83	10
1974	174	20	40	98	17
1975	189	21	41	108	20
1976	232	25	38	134	35
1977	277	24	47	164	43
1978	305	25	51	164	65
1979	298	24	51	174	49
1980	348	26	51	187	84
1981	414	29	54	229	101
1982	471	33	61	262	114
1983	508	32	61	277	138
1984	570	27	85	288	171
1985	681	24	79	350	227
1986	775	32	82	386	275
	Rate per 10,000 population				
1970	3.8	3.1	2.6	7.3	*3.8
1971	4.8	2.6	2.6	12.2	*4.3
1972	5.6	3.3	3.1	14.5	*4.0
1973	7.2	3.5	4.2	19.3	4.7
1974	8.2	3.6	4.4	22.5	7.7
1975	8.8	3.9	4.4	24.4	8.8
1976	10.8	4.7	4.0	30.4	15.2
1977	12.7	4.6	4.8	37.1	17.9
1978	13.8	4.9	5.1	37.1	26.5
1979	13.4	4.7	5.0	39.2	19.5
1980	15.4	5.1	4.9	42.0	32.6
1981	18.2	5.7	5.1	51.5	38.5
1982	20.5	6.5	5.7	59.0	42.4
1983	21.9	6.2	5.6	62.3	50.4
1984	24.3	5.2	7.7	64.4	60.8
1985	28.7	4.6	7.1	77.9	79.7
1986	32.4	6.2	7.3	85.8	85.8

NOTE: See appendix II, table VIII for code numbers.

Table 23. Number and rate of coronary bypass procedures for patients discharged from short-stay hospitals, by age: United States, 1970–86

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

Year	Age of patient					
	All ages ¹	45–64 years	65 years and over	All ages ¹	45–64 years	65 years and over
	Number in thousands			Rate per 10,000 population		
1970	14	11	*	0.7	2.6	*
1971	24	19	*	1.2	4.5	*
1972	31	25	*	1.5	5.9	*
1973	50	40	*	2.4	9.3	*
1974	52	37	*8	2.5	8.5	*3.5
1975	57	42	*8	2.7	9.7	*3.4
1976	74	54	12	3.4	12.3	5.3
1977	82	60	15	3.7	13.6	6.1
1978	95	67	20	4.3	15.1	8.0
1979	114	76	26	5.1	17.1	10.4
1980	137	88	38	6.1	19.9	15.0
1981	159	98	51	7.0	22.1	19.5
1982	170	105	50	7.4	23.7	18.7
1983	191	112	67	8.2	25.2	24.6
1984	202	115	71	8.6	25.8	25.5
1985	230	126	89	9.7	28.2	31.1
1986	284	144	125	11.9	31.9	42.9

¹Includes data for age groups not shown in table.

NOTE: See appendix II, table VIII for code numbers.

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Appendix I

Technical notes on methods

Introduction

These notes describe the scope, design, data collection procedures, and basic operations of the National Hospital Discharge Survey (NHDS) from 1965 through 1986. The overall design of the survey was essentially unchanged during this 22-year period; significant changes to the operation and data collection procedures are documented in these notes.

Estimates for 1965–67 in this report differ slightly from estimates for these 3 years published in early Series 13 reports on hospital utilization. In some of the first publications from the National Center for Health Statistics on the NHDS, only well newborns were excluded from the analysis, whereas in later publications all newborns were excluded from estimates on hospital utilization. This different exclusion criterion affected estimates for total hospital utilization and utilization by persons under 15 years of age.

In addition, there is a discrepancy between estimates in this report for 1970 and estimates in a publication for 1970 covering nonmedical statistics (6). In 1969 and 1970, a shortfall of funds limited the amount of information that could be coded from the more than 200,000 records sampled in the NHDS; nonmedical data were coded for these years with the funds that were available. Several years later, funds were provided to code the medical data for 1970. Recoding and reprocessing of these records produced small discrepancies in estimates of hospital utilization for 1970. The new file produced an estimate of total discharges that was 0.2 percent less than the figure from the original file.

Statistical design of the National Hospital Discharge Survey

Scope of the survey

The National Hospital Discharge Survey encompasses patients discharged from noninstitutional hospitals, exclusive of military and Veterans' Administration hospitals, located in the 50 States and the District of Columbia. Only hospitals with six beds or more for patient use and those in which the average length of stay for all patients is less than 30 days are included in the survey. Although data on newborns are collected, they are not included in this report.

Sample size

The National Master Facility Inventory of Hospitals (NMFI) is the universe from which the NHDS sample was drawn. A detailed description of the development, contents, maintenance plans, and assessment of coverage for the NMFI has been published (23).

The original universe for the survey consisted of 6,965 short-stay hospitals contained in the 1963 NMFI. This universe was updated periodically (table I) using the NMFI (1963–77) or data from the American Hospital Association (1978–86) to reflect the changing universe of hospitals. Table II contains information on the sampled hospitals and number of records sampled in each year of the survey.

Sample design

All hospitals with 1,000 beds or more in the 1963 universe of short-stay hospitals were selected with certainty in the sample. All hospitals with fewer than 1,000 beds were sampled from 24 primary bed size-by-region classes. The bed size strata were: 1,000 or more beds, 500–999 beds, 300–499 beds, 200–299 beds, 100–199 beds, 50–99 beds, and 6–49 beds. The four regions were the Northeast, Midwest, South, and West, as defined by the U.S. Bureau of the Census. Within each primary stratum, the allocation of hospitals was made through a controlled selection technique so that hospitals in the sample would be distributed according to ownership and geographic division. Sample hospitals were drawn with probabilities ranging from certainty for the largest hospitals to 1 in 40 for the smallest hospitals.

Table I. Number of hospitals in the National Hospital Discharge Survey (NHDS) universe, number of hospitals added to the NHDS sample, and year of addition, by year of National Master Facility Inventory (NMFI) used: United States, 1963–86

<i>NMFI data year</i>	<i>NHDS universe and sample</i>		
	<i>Year added</i>	<i>Number added to universe</i>	<i>Number added to sample</i>
1963	1965	6,965	315
1963	1968	---	150
1969	1972	442	32
1972	1975	223	14
1975	1977	273	24
1977	1979	114	9
1979	1981	63	6
1981	1983	50	3
1983	1985	45	5

Table II. Number of hospitals in the National Hospital Discharge Survey (NHDS) sample, number of sampled hospitals in scope for NHDS, number of hospitals participating in the NHDS, and number of abstracts of medical records collected: United States, 1965-86

Year	Number of hospitals			Number of abstracts collected
	In sample	In scope ¹	Participating	
1965	315	309	296	100,000
1966	315	309	300	137,000
1967	315	305	289	145,000
1968	465	448	413	210,000
1969	465	444	402	208,000
1970	465	441	395	205,000
1971	465	439	379	200,000
1972	497	469	424	225,000
1973	497	466	424	225,000
1974	497	464	426	227,000
1975	511	476	432	232,000
1976	511	472	419	223,000
1977	535	491	423	224,000
1978	535	487	413	219,000
1979	544	496	416	215,000
1980	544	492	420	224,000
1981	550	499	428	227,000
1982	550	497	426	214,000
1983	553	496	418	206,000
1984	553	493	407	192,000
1985	558	496	414	195,000
1986	558	493	418	193,000

¹Excludes hospitals in sample that had gone out of business or failed to meet the definition of a short-stay hospital.

The within-hospital sampling ratio for selecting sample discharges varied inversely with the probability of hospital selection. The smallest sampling fraction of discharged patients was taken in the largest hospitals, and the largest fraction was taken in the smallest hospitals. This was done to compensate for hospitals that were selected with probabilities proportionate to their size class and to ensure that the overall probability of selecting a discharge would be approximately the same in each size class.

In nearly all hospitals, using the traditional manual system of sample selection and data abstraction (described below), the daily listing sheet of discharges was the frame from which the subsamples of discharges were selected. The sample discharges were selected by a random technique, usually on the basis of the terminal digit(s) of the patient's medical record number, which was assigned when the patient was admitted to the hospital. Where the hospital's daily discharge listing did not show the medical record numbers, the sample was selected by starting with a randomly selected discharge and taking every *k*th discharge thereafter.

Data collection and processing

Data collection

In 1985, for the first time, two data collection procedures were used for the survey. The first was the traditional manual system of sample selection and data abstraction. The second was an automated method, used in approximately 17 percent of the sample hospitals, that involved the purchase of data tapes from commercial abstracting services.

In the manual system, depending on the study procedure agreed on with the hospital administrator, the sample selection and the transcription of information from the hospital records to abstract forms were performed by either the hospital staff or by representatives of the National Center for Health Statistics (NCHS) or by both. In 1986, about 50 percent of the hospitals that participated in the manual NHDS system had the work performed by the medical records department of the hospital. In the remaining hospitals using this system, the work was performed by personnel of the U.S. Bureau of the Census acting for NCHS. The completed forms were forwarded to NCHS for coding, editing, and weighting. For hospitals using the automated system, tapes containing machine-readable medical record data were purchased from commercial abstracting services. Upon receipt of these tapes, they were subjected to NCHS sampling, editing, and weighting.

Several versions of the medical abstract forms have been used in the NHDS. Figure I shows the information collected from 1965 through 1976, and figure II is an example of the forms used from 1977 through 1986. These forms and the abstract service data tapes contain items relating to 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 information about race was revised and an ethnicity item added in 1979. The disposition item was revised in 1977 and 1981. (The hospital name, medical record number, and patient ZIP Code are confidential information and are not available to the public.)

Medical coding and edit

Medical information on the abstract forms that was collected by means of the manual system was coded centrally by the NCHS staff. From 1965 to 1978, a maximum of five diagnostic codes were assigned for each sample abstract. This was increased to seven in 1979. If the medical information included surgical or nonsurgical procedures, a maximum of three codes for these procedures were assigned during the period 1965-78, with the maximum increased to four in 1979. Following conversion of the data on the medical abstract to computer tape, a final medical edit was accomplished using computer inspection runs and review of rejected abstracts. If the sex or age of the patient was incompatible with the recorded medical information, priority was given to the medical information in the editing decision.

Prior to 1979, data on radiotherapy and physical medicine and rehabilitation (ICDA-8 codes R1-R4) and on some obstetrical procedures were not collected by means of the NHDS. The obstetrical procedures not coded were artificial rupture of membranes; external, internal, and

CONFIDENTIAL - All information which would permit identification of an individual or of 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, EDUCATION, AND WELFARE
Public Health Service
Health Resources Administration
National Center for Health Statistics
MEDICAL ABSTRACT - HOSPITAL DISCHARGE SURVEY

I. Patient Identification

1. Hospital number..... _____
2. HDS number _____
3. Medical record number..... _____
4. Date of admission _____
Month Day Year
5. Date of discharge _____
Month Day Year

II. Patient Characteristics

1. Date of birth: _____
Month Day Year
2. Age (complete ONLY if date of birth not given): _____
Units { 1 years
2 months
3 days
3. Sex: 1 Male 2 Female
4. Race or color: 1 White 2 Negro 3 Other nonwhite 4 "Nonwhite" 5 Not stated
5. Marital status: 1 Married 2 Single 3 Widowed 4 Divorced 5 Separated 6 Not stated
6. Discharge status: 1 Alive 2 Dead

III. Diagnoses and Operations

1. Final diagnoses
- a. Principal diagnosis: _____
- b. Other diagnoses: _____
- _____
- _____
- _____ see reverse side
2. Operations: _____
- _____
- _____ see reverse side

Completed by _____ Date _____

FOR NCHS USE ONLY

Diagnoses _____

Operations _____

Figure I. Medical abstract for the National Hospital Discharge Survey, 1976

CONFIDENTIAL — All information which would permit identification of an individual or of 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.

FORM **HDS-1**
(11-18-86)

DEPARTMENT OF HEALTH AND HUMAN SERVICES
U.S. PUBLIC HEALTH SERVICE
NATIONAL CENTER FOR HEALTH STATISTICS

MEDICAL ABSTRACT — NATIONAL HOSPITAL DISCHARGE SURVEY

<p>A. PATIENT IDENTIFICATION</p> <p>1. Hospital number <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p> <p>2. HDS number <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p> <p>3. Medical record number</p>	<p>4. Date of admission ... <table style="display: inline-table; border: none;"><tr><td style="border: 1px solid black; width: 20px; text-align: center;">Month</td><td style="border: 1px solid black; width: 20px; text-align: center;">Day</td><td style="border: 1px solid black; width: 20px; text-align: center;">Year</td></tr><tr><td style="border: 1px solid black; text-align: center;"> </td><td style="border: 1px solid black; text-align: center;"> </td><td style="border: 1px solid black; text-align: center;">8 </td></tr></table></p> <p>5. Date of discharge ... <table style="display: inline-table; border: none;"><tr><td style="border: 1px solid black; width: 20px; text-align: center;"> </td><td style="border: 1px solid black; width: 20px; text-align: center;"> </td><td style="border: 1px solid black; width: 20px; text-align: center;">8 </td></tr></table></p> <p>6. Residence ZIP code .. <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p>	Month	Day	Year			8			8
Month	Day	Year								
		8								
		8								

<p>B. PATIENT CHARACTERISTICS</p> <p>7. Date of birth <table style="display: inline-table; border: none;"><tr><td style="border: 1px solid black; width: 20px; text-align: center;">Month</td><td style="border: 1px solid black; width: 20px; text-align: center;">Day</td><td style="border: 1px solid black; width: 20px; text-align: center;">Year</td></tr><tr><td style="border: 1px solid black; text-align: center;"> </td><td style="border: 1px solid black; text-align: center;"> </td><td style="border: 1px solid black; text-align: center;"> </td></tr></table></p> <p>8. Age (Complete only if date of birth not given) <table style="display: inline-table; border: none;"><tr><td style="border: 1px solid black; width: 20px; text-align: center;">Units</td></tr><tr><td style="border: 1px solid black; text-align: center;"> </td></tr></table> } 1 <input type="checkbox"/> Years 2 <input type="checkbox"/> Months 3 <input type="checkbox"/> Days</p> <p>9. Sex (Mark (X) one) 1 <input type="checkbox"/> Male 2 <input type="checkbox"/> Female 3 <input type="checkbox"/> Not stated</p> <p>10. Race 1 <input type="checkbox"/> White 3 <input type="checkbox"/> American Indian/Eskimo/Aleut 5 <input type="checkbox"/> Other (Specify) _____ 2 <input type="checkbox"/> Black 4 <input type="checkbox"/> Asian/Pacific Islander 6 <input type="checkbox"/> Not stated</p> <p>11. Ethnicity (Mark (X) one) 1 <input type="checkbox"/> Hispanic origin 2 <input type="checkbox"/> Non-Hispanic 3 <input type="checkbox"/> Not stated</p> <p>12. Marital status (Mark (X) one) 1 <input type="checkbox"/> Married 3 <input type="checkbox"/> Widowed 5 <input type="checkbox"/> Separated 2 <input type="checkbox"/> Single 4 <input type="checkbox"/> Divorced 6 <input type="checkbox"/> Not stated</p>	Month	Day	Year				Units	
Month	Day	Year						
Units								

<p>13. Expected source(s) of payment</p> <table style="width:100%; border: none;"> <tr> <td style="width:30%;"></td> <td style="width:15%; text-align: center;">Principal (Mark one only)</td> <td style="width:15%; text-align: center;">Other additional sources (Mark accordingly)</td> </tr> <tr> <td>Government sources {</td> <td>1. Workmen's compensation <input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td></td> <td>2. Medicare <input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td></td> <td>3. Medicaid <input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td></td> <td>4. Title V <input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td></td> <td>5. Other government payments <input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Private sources {</td> <td>6. Blue Cross <input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td></td> <td>7. Other private or commercial insurance ... <input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other sources {</td> <td>8. Self pay <input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td></td> <td>9. No charge <input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td></td> <td>10. Other (Specify) _____ <input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table> <p><input type="checkbox"/> No source of payment indicated</p>		Principal (Mark one only)	Other additional sources (Mark accordingly)	Government sources {	1. Workmen's compensation <input type="checkbox"/>	<input type="checkbox"/>		2. Medicare <input type="checkbox"/>	<input type="checkbox"/>		3. Medicaid <input type="checkbox"/>	<input type="checkbox"/>		4. Title V <input type="checkbox"/>	<input type="checkbox"/>		5. Other government payments <input type="checkbox"/>	<input type="checkbox"/>	Private sources {	6. Blue Cross <input type="checkbox"/>	<input type="checkbox"/>		7. Other private or commercial insurance ... <input type="checkbox"/>	<input type="checkbox"/>	Other sources {	8. Self pay <input type="checkbox"/>	<input type="checkbox"/>		9. No charge <input type="checkbox"/>	<input type="checkbox"/>		10. Other (Specify) _____ <input type="checkbox"/>	<input type="checkbox"/>	<p>14. Status/Disposition of patient (Mark (X) appropriate box(es))</p> <table style="width:100%; border: none;"> <tr> <td style="width:50%;">Status</td> <td style="width:50%;">Disposition</td> </tr> <tr> <td>1 <input type="checkbox"/> Alive →</td> <td>a. <input type="checkbox"/> Routine discharge/ discharged home</td> </tr> <tr> <td></td> <td>b. <input type="checkbox"/> Left against medical advice</td> </tr> <tr> <td></td> <td>c. <input type="checkbox"/> Discharged, transferred to another short-term hospital</td> </tr> <tr> <td></td> <td>d. <input type="checkbox"/> Discharged, transferred to long-term care institution</td> </tr> <tr> <td></td> <td>e. <input type="checkbox"/> Other disposition/not stated</td> </tr> <tr> <td colspan="2">2 <input type="checkbox"/> Died</td> </tr> <tr> <td colspan="2">3 <input type="checkbox"/> Status not stated</td> </tr> </table>	Status	Disposition	1 <input type="checkbox"/> Alive →	a. <input type="checkbox"/> Routine discharge/ discharged home		b. <input type="checkbox"/> Left against medical advice		c. <input type="checkbox"/> Discharged, transferred to another short-term hospital		d. <input type="checkbox"/> Discharged, transferred to long-term care institution		e. <input type="checkbox"/> Other disposition/not stated	2 <input type="checkbox"/> Died		3 <input type="checkbox"/> Status not stated	
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3 <input type="checkbox"/> Status not stated																																																		

C. FINAL DIAGNOSES	Optional — ICD-9-CM Nos.
Principal: _____	•
Other/additional: _____	•
_____	•
_____	•
_____	•
_____	•
<input type="checkbox"/> See reverse side for additional diagnoses	

D. SURGICAL AND DIAGNOSTIC PROCEDURES	Date
	Month Day Year
Principal: 1. _____	<input type="text"/> <input type="text"/> 8
Other/additional: 2. _____	<input type="text"/> <input type="text"/> 8
3. _____	<input type="text"/> <input type="text"/> 8
4. _____	<input type="text"/> <input type="text"/> 8
<input type="checkbox"/> NONE <input type="checkbox"/> See reverse side for additional procedures	

Completed by _____	Date _____
--------------------	------------

Figure II. Medical abstract for the National Hospital Discharge Survey, 1986

combined version; outlet and low forceps delivery with and without episiotomy; and episiotomy (ICDA-8 codes 75.0–75.6 and 75.9). In addition, data for diagnostic endoscopy, radiography, and other nonsurgical procedures (ICDA-8 codes A4–A9 and R9), although coded, were not published. Starting with 1979 data, however, the procedure coding has followed the guidelines of the Uniform Hospital Discharge Data Set (UHDDS) (24, 25). The UHDDS is a minimum data set of items uniformly defined and abstracted from hospital medical records. These items were selected on the basis of their continuous usefulness to organizations and agencies requiring hospital information.

Presentation of estimates

Patient characteristics not stated

The age and sex of the patient were not stated on the hospital records (the face sheet of the patient's medical record) for about 0.5 percent of the discharges. Imputations of these missing items were made by assigning the patient an age or sex consistent with the age or sex of other patients with the same diagnostic code.

If a date of admission or discharge was not given and could not be obtained from the monthly sample listing sheet transmitted by the sample hospital, a length of stay was imputed by assigning the patient a length of stay characteristic of the stay of other patients of the same age.

Rounded numbers

Estimates have been rounded for tabular presentation. Therefore, detailed figures do not always add to totals. Rates and percents were calculated on the basis of unrounded figures and will not necessarily agree with computations made from the rounded data.

Population estimates

Rates were calculated using published and unpublished estimates of the U.S. population on July 1 of the data year that were provided by the U.S. Bureau of the Census. The estimates by age and sex are consistent with estimates of the civilian population published in Current Population Reports, Series P-25. Estimates for the civilian noninstitutionalized population were used in computing rates by geographic region for 1965–80 because estimates of the civilian population by age and region were not available for these years from the Census Bureau. Estimates for the civilian population were available and were used to calculate regional rates for 1981–86.

Civilian noninstitutionalized population estimates were used in previous publications in computing rates from 1965–80. However, it was determined that the civilian population was more appropriate because persons in institutions, for example nursing home patients, are hospitalized when necessary. A comparison of NHDS rates based on the civilian population with those for the civilian noninstitutionalized population is available in another publication (5).

Reliability of estimates

Estimation

Statistics produced by the NHDS are derived by a complex estimating procedure. The basic unit of estimation is the sample inpatient discharge. The estimating procedure used to produce essentially unbiased national estimates in the NHDS has three principal components: inflation by reciprocals of the probabilities of sample selection, adjustment for nonresponse, and ratio adjustment to fixed totals. These components of estimation are described in appendix I of two earlier publications (26, 27).

Measurement errors

As in any survey, results are subject to nonsampling or measurement errors, which include errors that were due to hospital nonresponse, missing abstracts, information incompletely or inaccurately recorded on abstract forms, and processing errors. Some of these errors are discussed above under "Patient characteristics not stated."

The Institute of Medicine (IOM) conducted three studies on the reliability of hospital abstract data collection; one study was on the NHDS. The IOM NHDS study was performed by using data coded according to the ICDA-8; however, some of the findings are relevant to these data even though they were coded using three versions of the International Classification of Diseases. Of special interest to this report is the finding that, in a number of cases, the first-listed diagnosis in the NHDS was not the principal diagnosis as determined by IOM after a study of the entire medical record. For example, when diagnoses at the ICDA-8 chapter level were examined, the principal diagnosis from IOM matched the first-listed diagnosis from the NHDS in approximately 86 percent of the cases. Detailed accounts of this and other IOM findings have been published (28–30).

Sampling errors

The standard error is primarily a measure of the variability that occurs by chance because 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 and is expressed as a percent of the estimate. Although the standard error of one statistic generally is different from that of another, even when the two come from the same survey, standard errors that are applicable to a wide variety of NHDS statistics have been prepared using a number of approximations.

Approximate relative standard errors of estimated numbers of discharges or first-listed diagnoses and all-listed diagnoses are shown in table III for patient characteristics (for example, age and sex) and in table IV for hospital region. Approximate relative standard errors of estimated numbers of days of care are shown in table V for patient characteristics and in table VI for hospital region. Table VII shows approximate relative standard errors of estimated numbers of surgical procedures. Approximate relative standard errors were not available for all years from

Table III. Approximate relative standard errors of estimated numbers of patients discharged or first-listed diagnoses and of all-listed diagnoses: 1965-86

<i>Size of estimate</i>	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
5,000	---	---	---	---	50.0	50.0	50.0	50.0	50.0	---	---
10,000	---	---	---	---	28.5	28.5	30.0	30.0	30.0	22.8	22.8
50,000	---	---	---	---	11.0	11.0	11.0	11.0	11.0	11.0	11.0
100,000	9.0	12.2	12.2	12.0	8.0	8.0	8.0	8.0	8.0	8.6	8.6
300,000	5.3	7.6	7.6	7.0	5.3	5.3	5.3	5.3	5.3	6.3	6.3
500,000	4.4	6.0	6.0	5.5	4.5	4.5	4.6	4.6	4.6	5.9	5.9
1,000,000	3.3	4.6	4.6	4.1	3.8	3.8	3.7	3.7	3.7	5.4	5.4
3,000,000	2.4	3.3	3.3	2.7	3.2	3.2	3.2	3.2	3.2	5.0	5.0
5,000,000	2.2	3.1	3.1	2.4	3.1	3.1	3.1	3.1	3.1	5.0	5.0
10,000,000	2.0	2.8	2.8	2.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0
15,000,000	2.0	2.7	2.7	1.9	3.0	3.0	3.0	3.0	3.0	5.0	5.0
30,000,000	1.9	2.6	2.6	1.8	2.9	2.9	2.9	2.9	2.9	5.0	5.0
40,000,000	---	---	---	1.8	---	---	---	---	---	5.0	5.0

<i>Size of estimate</i>	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
5,000	17.0	20.7	20.5	17.3	18.0	13.6	15.1	16.0	13.2	13.2	12.8
10,000	15.0	17.3	16.3	14.3	14.9	11.9	12.6	12.8	10.5	10.6	10.2
50,000	11.0	11.4	10.2	9.7	10.1	9.1	8.8	8.1	6.7	6.7	6.5
100,000	9.8	9.5	8.5	8.4	8.8	8.2	7.7	6.8	5.6	5.7	5.5
300,000	8.0	7.4	6.6	6.8	7.1	7.1	6.4	5.3	4.4	4.4	4.3
500,000	7.4	6.5	5.9	6.2	6.5	6.7	5.9	4.8	3.9	4.0	3.8
1,000,000	6.2	5.5	5.1	5.6	5.8	6.3	5.3	4.2	3.4	3.5	3.4
3,000,000	5.0	4.5	4.2	4.8	5.0	5.6	4.6	3.5	2.8	2.9	2.8
5,000,000	4.8	4.0	3.9	4.4	4.7	5.4	4.3	3.2	2.6	2.7	2.6
10,000,000	4.2	3.6	3.5	4.1	4.3	5.1	4.0	2.9	2.4	2.4	2.3
15,000,000	4.0	3.3	3.3	3.9	4.2	5.0	3.9	2.8	2.3	2.3	2.2
30,000,000	3.3	2.9	3.0	3.7	3.8	4.7	3.6	2.5	2.1	2.1	2.0
40,000,000	---	---	2.9	3.6	3.7	4.7	3.5	2.5	2.0	2.1	2.0

Table IV. Approximate relative standard errors of estimated numbers of patients discharged, by geographic region: 1965-86

<i>Size of estimate</i>	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
5,000	---	---	---	---	---	---	---	---	---	---	---
10,000	---	---	---	---	47.0	47.0	---	---	---	---	---
50,000	---	---	---	---	17.0	17.0	28.5	28.5	28.5	17.5	17.5
100,000	10.0	12.6	12.6	27.4	11.8	11.8	18.0	18.0	18.0	13.0	13.0
300,000	6.7	8.0	8.0	11.4	7.0	7.0	10.4	10.4	10.4	8.7	8.7
500,000	5.6	6.6	6.6	9.4	6.0	6.0	8.6	8.6	8.6	7.4	7.4
1,000,000	4.7	5.2	5.2	7.8	5.0	5.0	7.0	7.0	7.0	6.2	6.2
3,000,000	3.9	4.2	4.2	6.4	4.1	4.1	5.2	5.2	5.2	5.7	5.7
5,000,000	3.7	3.9	3.8	6.0	3.9	3.9	5.0	5.0	5.0	5.6	5.6
10,000,000	3.6	3.8	3.8	5.8	3.8	3.8	4.9	4.9	4.9	5.5	5.5
15,000,000	3.6	3.7	3.7	5.7	3.7	3.7	4.7	4.7	4.7	5.4	5.4
30,000,000	3.5	3.6	3.7	5.5	3.5	3.5	4.6	4.6	4.6	5.4	5.4
40,000,000	---	---	---	5.4	---	---	---	---	---	5.4	5.4

<i>Size of estimate</i>	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
5,000	17.0	20.7	20.5	25.3	18.0	24.3	22.2	27.1	23.6	22.4	24.7
10,000	15.0	17.3	16.3	21.2	14.9	20.4	18.8	22.1	19.3	18.3	20.2
50,000	11.0	11.4	10.2	14.7	10.1	14.2	13.4	14.6	12.7	12.0	13.4
100,000	9.8	9.5	8.5	12.8	8.8	12.4	11.8	12.4	10.8	10.3	11.5
300,000	8.0	7.4	6.6	10.5	7.1	10.2	9.8	9.9	8.6	8.2	9.2
500,000	7.4	6.5	5.9	9.7	6.5	9.4	9.1	9.0	7.9	7.5	8.4
1,000,000	6.2	5.5	5.1	8.7	5.8	8.5	8.3	8.0	7.0	6.6	7.4
3,000,000	5.0	4.5	4.2	7.5	5.0	7.3	7.3	6.8	5.9	5.6	6.3
5,000,000	4.8	4.0	3.9	7.1	4.7	6.9	6.9	6.3	5.5	5.2	5.9
10,000,000	4.2	3.6	3.5	6.6	4.3	6.4	6.4	5.7	5.0	4.8	5.4
15,000,000	4.0	3.3	3.3	6.3	4.2	6.2	6.2	5.5	4.8	4.6	5.2
30,000,000	3.3	2.9	3.0	5.9	3.8	5.7	5.8	5.1	4.4	4.2	4.8
40,000,000	---	---	2.9	5.7	3.7	5.6	5.7	4.9	4.3	4.1	4.6

Table V. Approximate relative standard errors of estimated numbers of days of care: 1965-86

<i>Size of estimate</i>	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
10,000	---	---	---	---	---	---	---	---	---	---	---
30,000	---	---	---	---	---	---	---	---	---	---	---
50,000	---	---	---	---	---	---	---	---	---	---	---
100,000	---	---	---	---	---	---	---	---	---	---	---
300,000	---	---	---	---	25.0	25.0	25.0	25.0	25.0	24.0	24.0
500,000	---	---	---	---	18.0	18.0	18.0	18.0	18.0	18.6	18.6
1,000,000	14.1	14.0	14.0	---	12.0	12.0	12.0	12.0	12.0	13.2	13.2
3,000,000	8.2	8.2	8.0	---	7.0	7.0	7.0	7.0	7.0	8.5	8.5
5,000,000	6.4	6.4	6.4	---	5.2	5.2	5.2	5.2	5.2	7.2	7.2
10,000,000	4.7	4.7	4.6	---	4.0	4.0	4.0	4.0	4.0	5.9	5.9
50,000,000	2.5	2.2	2.1	---	2.5	2.5	2.5	2.5	2.5	3.9	3.9
100,000,000	2.0	1.8	1.8	---	1.9	1.9	1.9	1.9	1.9	3.5	3.5
250,000,000	1.7	1.7	1.7	---	1.7	1.7	1.7	1.7	1.7	3.2	3.2

<i>Size of estimate</i>	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
10,000	28.3	25.4	29.2	27.1	24.7	24.0	24.8	20.3	23.6	16.9	16.4
30,000	22.8	20.2	22.2	20.6	18.9	18.2	18.8	15.7	17.2	13.0	12.5
50,000	20.4	18.3	19.6	18.2	16.8	16.0	16.6	14.0	14.9	11.6	11.1
100,000	17.8	15.8	16.6	15.5	14.3	13.6	14.1	12.0	12.3	9.9	9.4
300,000	14.0	12.8	13.0	12.1	11.2	10.5	10.9	9.5	9.2	7.8	7.4
500,000	12.7	11.8	11.6	10.8	10.1	9.4	9.8	8.6	8.0	7.1	6.6
1,000,000	11.0	10.2	10.0	9.4	8.8	8.1	8.4	7.5	6.7	6.2	5.7
3,000,000	8.8	8.0	8.0	7.5	7.1	6.5	6.8	6.2	5.1	5.0	4.6
5,000,000	8.0	7.2	7.3	6.9	6.5	5.9	6.1	5.7	4.5	4.6	4.2
10,000,000	6.9	6.3	6.4	6.0	5.7	5.1	5.4	5.1	3.8	4.1	3.7
50,000,000	4.8	4.4	4.9	4.6	4.4	3.9	4.1	4.0	2.7	3.2	2.8
100,000,000	3.9	3.9	4.4	4.2	4.0	3.5	3.7	3.6	2.3	2.9	2.6
250,000,000	3.3	3.5	3.8	3.7	3.5	3.0	3.2	3.2	1.9	2.6	2.3

Table VI. Approximate relative standard errors of estimated numbers of days of care, by geographic region: 1965-86

<i>Size of estimate</i>	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
10,000	---	---	---	---	---	---	---	---	---	---	---
30,000	---	---	---	---	---	---	---	---	---	---	---
50,000	---	---	---	---	---	---	---	---	---	---	---
100,000	---	---	---	---	---	---	---	---	---	---	---
300,000	---	---	---	---	29.5	29.5	41.0	41.0	41.0	27.0	27.0
500,000	---	---	---	---	21.2	21.2	28.0	28.0	28.0	21.0	21.0
1,000,000	13.8	14.4	14.4	---	13.8	13.8	19.0	19.0	19.0	15.0	15.0
3,000,000	8.4	8.7	8.7	---	8.0	8.0	11.0	11.0	11.0	10.0	10.0
5,000,000	6.8	7.0	6.9	---	6.4	6.4	9.0	9.0	9.0	8.4	8.4
10,000,000	5.3	5.3	5.3	---	5.0	5.0	7.0	7.0	7.0	7.0	7.0
50,000,000	3.7	3.5	3.5	---	3.5	3.5	4.8	4.8	4.8	4.8	4.8
100,000,000	3.5	3.3	3.3	---	3.2	3.2	4.4	4.4	4.4	4.3	4.3
250,000,000	3.3	3.2	3.2	---	3.0	3.0	4.2	4.2	4.2	4.0	4.0

<i>Size of estimate</i>	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
10,000	28.3	25.4	29.2	27.1	24.7	24.0	24.8	38.4	37.3	35.4	36.0
30,000	22.8	20.2	22.2	20.6	18.9	18.2	18.8	28.9	29.0	26.4	26.7
50,000	20.4	18.3	19.6	18.2	16.8	16.0	16.6	25.4	26.0	23.2	23.3
100,000	17.8	15.8	16.6	15.5	14.3	13.6	14.1	21.4	22.4	19.4	19.5
300,000	14.0	12.8	13.0	12.1	11.2	10.5	10.9	16.5	17.9	14.9	14.7
500,000	12.7	11.8	11.6	10.8	10.1	9.4	9.8	14.7	16.2	13.2	13.0
1,000,000	11.0	10.2	10.0	9.4	8.8	8.1	8.4	12.6	14.3	11.2	11.0
3,000,000	8.8	8.0	8.0	7.5	7.1	6.5	6.8	10.0	11.8	8.8	8.6
5,000,000	8.0	7.2	7.3	6.9	6.5	5.9	6.1	9.0	10.9	7.9	7.6
10,000,000	6.9	6.3	6.4	6.0	5.7	5.1	5.4	7.9	9.7	6.9	6.6
50,000,000	4.8	4.4	4.9	4.6	4.4	3.9	4.1	5.9	7.7	5.1	4.8
100,000,000	3.9	3.9	4.4	4.2	4.0	3.5	3.7	5.2	7.1	4.5	4.2
250,000,000	3.3	3.5	3.8	3.7	3.5	3.0	3.2	4.5	6.3	3.9	3.6

Table VII. Approximate relative standard errors of estimated numbers of surgical procedures: 1965–86

Size of estimate	1965 ¹	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
5,000	---	---	---	---	---	---	21.0	---	27.0	27.0	27.0
10,000	---	---	---	18.3	---	---	15.4	15.5	19.6	21.0	21.0
25,000	---	---	---	15.0	---	---	10.5	10.8	13.0	14.0	14.0
50,000	---	---	---	9.4	---	---	7.8	7.6	10.0	10.8	10.8
100,000	---	---	---	7.6	---	---	6.0	6.0	8.0	8.7	8.7
250,000	---	---	---	6.9	---	---	4.8	4.9	6.4	6.8	6.8
500,000	---	---	---	5.8	---	---	4.4	4.2	5.8	6.0	6.0
1,000,000	---	---	---	5.5	---	---	4.0	4.0	5.6	5.8	5.8
3,000,000	---	---	---	5.4	---	---	4.0	4.0	5.3	5.5	5.5
5,000,000	---	---	---	5.3	---	---	4.0	3.9	5.2	5.5	5.5
10,000,000	---	---	---	5.2	---	---	3.9	3.9	5.0	5.4	5.4
20,000,000	---	---	---	5.2	---	---	3.9	3.9	5.0	5.4	5.4
30,000,000	---	---	---	5.2	---	---	3.9	---	5.0	5.4	5.4

Size of estimate	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
5,000	23.2	23.4	21.9	17.9	17.3	16.2	15.9	17.1	17.3	18.2	16.4
10,000	19.4	19.8	18.3	15.3	14.7	13.7	13.7	14.0	14.2	15.1	13.8
25,000	15.0	15.8	14.6	12.7	12.1	11.1	11.5	10.9	11.2	12.0	11.3
50,000	12.2	13.2	12.6	11.2	10.6	9.6	10.2	9.2	9.5	10.3	9.8
100,000	10.2	11.2	10.9	9.9	9.4	8.4	9.2	7.8	8.2	8.9	8.6
250,000	8.0	8.9	9.2	8.6	8.1	7.2	8.0	6.5	6.8	7.5	7.4
500,000	6.6	7.2	8.2	7.8	7.3	6.5	7.4	5.7	6.0	6.7	6.6
1,000,000	5.0	5.8	7.4	7.2	6.7	5.8	6.8	5.1	5.4	6.0	6.0
3,000,000	4.2	4.4	6.4	6.4	5.9	5.1	6.1	4.3	4.6	5.1	5.2
5,000,000	3.0	4.0	6.0	6.0	5.6	4.8	5.8	4.0	4.3	4.8	4.9
10,000,000	2.3	3.2	5.5	5.7	5.2	4.5	5.4	3.6	3.9	4.4	4.6
20,000,000	---	2.8	5.1	5.3	4.9	4.2	5.1	3.3	3.6	4.1	4.3
30,000,000	---	---	4.9	5.2	4.7	4.0	5.0	3.2	3.5	4.0	4.2

¹Relative standard errors of 1965 estimates for certain specific surgical procedures are available (31).

1965 to 1986, especially for numbers of surgical procedures. Where the approximate relative standard errors for a particular year are not shown in the table, the approximate relative standard errors for the closest available year can be used.

The presentation of estimates for the NHDS is based on 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). Estimates are not presented unless a reasonable assumption regarding the probability distribution of the sampling error is possible. The Central Limit Theorem is used to determine the distribution of the sampling errors. The Central Limit Theorem states that, given a sufficiently large sample size, the sample estimate is approximately normally distributed and approximates the population estimate.

Based on consideration of the complex sample design of the NHDS, the following guidelines are used for presenting NHDS estimates:

- If the sample size is less than 30, the value of the estimate is not reported. Only an asterisk (*) is shown in the tables.

- If the sample size is 30–59, the value of the estimate is reported but should be used with caution. The estimate is preceded by an asterisk (*) in the tables.
- If the sample size is 60 or more but the relative standard error is over 30 percent, the estimate is reported but should be used with caution. The estimate is preceded by an asterisk (*) in the tables.

Tests of significance

In this report, the determination of statistical inference is based on the *t*-test with a critical value of 1.96 (0.05 level of significance). Terms relating to differences, such as “higher” and “less,” indicate that the 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.

Appendix II

Definitions of terms

Hospital and use terms

Hospitals—Short-stay special and general hospitals have six or more beds for inpatient use and an average length of stay of less than 30 days. Federal hospitals and hospital units of institutions are not included.

Patient—A person who is formally admitted to the inpatient service of a short-stay hospital for observation, care, diagnosis, or treatment is considered a patient. In this report, the number of patients refers to the number of discharges during the year, including any multiple discharges of the same individual from one short-stay hospital or more. Infants admitted on the day of birth, directly or by transfer from another medical facility, with or without mention of a disease, disorder, or immaturity, are included. All newborn infants, defined as those admitted by birth to the hospital, are excluded from the tables in this report. The terms “patient” and “inpatient” are used synonymously.

Discharge—Discharge is 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 determines the discharge rate. Regional rates for 1965–80 are based on the civilian noninstitutionalized population.

Days of care—The total number of patient days accumulated at the time of discharge by patients discharged from short-stay hospitals during a year constitutes days of care. 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.

Rate of days of care—The rate of days of care is the ratio of the number of patient days accumulated at the time of discharge by patients discharged from short-stay hospitals during a year to the number of persons in the civilian population on July 1 of that year. Regional rates for 1965–80 are based on the civilian noninstitutionalized population.

Average length of stay—The average length of stay is the total number of patient days accumulated at the time of discharge by patients discharged during the year divided by the number of patients discharged.

Diagnoses

Discharge diagnoses—These are the one or more diseases or injuries (or some factor that influences health status and contact with health services that is not itself a current illness or injury) listed by the attending physician on the medical record of a patient. In the NHDS, all discharge (or final) diagnoses listed on the face sheet (summary sheet) of the medical record for patients discharged from the inpatient service of short-stay hospitals are transcribed in the order listed. Diagnoses were coded according to ICD-7 for 1965–68, according to ICDA-8 for 1970–78, and according to ICD-9-CM for 1980–86. Specific codes for diagnostic categories used in this report are shown in table VIII.

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

First-listed diagnosis—The diagnosis identified as the principal diagnosis or listed first on the face sheet of the medical record is the first-listed diagnosis. The number of first-listed diagnoses is equivalent to the number of discharges.

All-listed diagnoses—All occurrences of a diagnosis, on the face sheet of the medical record, regardless of order, constitute the all-listed diagnoses. A maximum of five diagnoses listed on the face sheet of the medical record were abstracted for each discharged patient for 1965–78, and a maximum of seven were abstracted for each patient for 1979–86.

Surgical procedures

Discharges with surgery—The estimated number of patients discharged from non-Federal short-stay hospitals during the year who underwent at least one surgical procedure during their hospitalization are termed “discharges with surgery.”

Surgical procedure—A surgical procedure is one or more surgical operations listed by the physician on the face sheet of an inpatient medical record. In the NHDS, all

terms listed on the face sheet of the medical record under captions such as "operation," "operative procedures," and "operations and/or special treatments" are transcribed in the order listed.

Specific codes for surgical categories used in this report are shown in table VIII. From 1965 to 1968, a maximum of three operations were coded using ICD-7. Spinal puncture, radiography, shock therapy, and certain other treatments not considered surgery were excluded. From 1970 to 1978 a maximum of three operations were coded using ICDA-8. Procedures not counted as surgery included diagnostic endoscopy and radiography, radiotherapy and related therapies, and physical medicine and rehabilitation (ICDA-8 codes A4-A9 and R1-R9). Since 1979-86, a maximum of four operations have been coded using ICD-9-CM. The following ICD-9-CM codes are not considered surgical: 03.31, 11.21, 12.21, 14.11, 16.22, 20.31, 29.11, 31.41-31.42, 33.21-33.23, 34.21-34.22, 39.95, 42.21-42.23, 44.11-44.13, 45.11-45.13, 45.21-45.24, 48.21-48.22, 51.11, 54.21, 55.21-55.22, 56.31, 57.31-57.32, 58.21-58.22, 60.19, 68.11-68.12, 70.22, 80.20-80.29, 87.01-99.99.

Demographic terms

Population—The U.S. civilian population is the resident population, excluding members of the Armed Forces. The civilian noninstitutionalized population is the civilian resident population not residing in institutions.

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

Geographic region—Hospitals are classified by locations 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.

Table VIII. Codes for diagnostic and surgical categories from the 7th, 8th, and 9th revisions of the International Classification of Diseases

Category	Codes for—		
	1965-68 ¹	1970-78 ²	1979-86 ³
Diagnoses			
Pneumonia	490-493	480-486	480-486
Fractures	800-826	800-829	800-829
Diseases of the ear and mastoid process	390-398	380-389	380-389
Appendicitis	550, 552	540-543	540-543
Mental disorders	300-329	290-315	290-319
Intervertebral disc disorders	735	725	722
Malignant neoplasms	140-205	140-209	140-208, 230-234
Acute myocardial infarction	420.1	410	410
Cholelithiasis	584	574	574
Ulcers of the stomach and small intestine	540-542	531-534	531-534
Fracture of neck of femur	820	820	820
Diabetes mellitus	260	250	250
Surgeries			
Tonsillectomy with or without adenoidectomy	27.1-27.2	21.1-21.2	28.2-28.3
Cesarean section	78.0-78.4	77	74.0-74.2, 74.4, 74.99
Hysterectomy	72.3-72.6	69.1-69.5	68.3-68.7
Hemorrhoidectomy	49.3	51.3	49.43-49.46
Cholecystectomy	53.5	43.5	51.2
Lens extraction	17.3-17.4	14.4-14.6	13.1-13.6
Prostatectomy	66.1-66.3	58.1-58.3	60.2-60.6
Cardiac catheterization	30.2	37.21-37.23
Coronary bypass	29.8	36.1

¹International Classification of Diseases, adapted for indexing hospital records by diseases and operations.

²Eighth Revision International Classification of Diseases, adapted for use in the United States.

³International Classification of Diseases, 9th Revision, clinical modification.

Appendix III

Publications from the National Hospital Discharge Survey

Year(s) of data	Title	Series
1964	Patients discharged from short-stay hospitals, United States, October–December, 1964	Vital and Health Statistics Series 13, No. 1
	Participation of hospitals in the pilot study of the Hospital Discharge Survey	Vital and Health Statistics Series 2, No. 19
1965	Utilization of short-stay hospitals, summary of nonmedical statistics, United States, 1965	Vital and Health Statistics Series 13, No. 2
	Utilization of short-stay hospitals by characteristics of discharged patients, United States, 1965	Vital and Health Statistics Series 13, No. 3
	Patients discharged from short-stay hospitals, by size and type of ownership, United States, 1965	Vital and Health Statistics Series 13, No. 4
	Regional utilization of short-stay hospitals, United States, 1965	Vital and Health Statistics Series 13, No. 5
	Inpatient utilization of short-stay hospitals by diagnosis, United States, 1965	Vital and Health Statistics Series 13, No. 6
	Surgical operations in short-stay hospitals for discharged patients, United States, 1965	Vital and Health Statistics Series 13, No. 7
	Development of the design of the NCHS Hospital Discharge Survey	Vital and Health Statistics Series 2, No. 39
1966	Utilization of short-stay hospitals, summary of nonmedical statistics, United States, 1966	Vital and Health Statistics Series 13, No. 8
1967	Utilization of short-stay hospitals, summary of nonmedical statistics, United States, 1967	Vital and Health Statistics Series 13, No. 9
1966–67	Utilization of short-stay hospitals, summary of nonmedical statistics, United States, 1966 and 1967	Monthly Vital Statistics Report Vol. 20, No. 2, Supplement
1966–67	Utilization of short-stay hospitals by diagnosis, United States, 1966 and 1967	Monthly Vital Statistics Report Vol. 20, No. 4 Supplement(3)
1965–67	Utilization of short-stay hospitals by patients 65 years of age and over, United States, 1965–67	Monthly Vital Statistics Report Vol. 20, No. 7 Supplement
1968	Surgical operations in short-stay hospitals, United States, 1968	Vital and Health Statistics Series 13, No. 11
	Inpatient utilization of short-stay hospitals by diagnosis, United States, 1968	Vital and Health Statistics Series 13, No. 12
	Average length of stay in short-stay hospitals: Demographic factors, United States, 1968	Vital and Health Statistics Series 13, No. 13

Year(s) of data	Title	Series
1968—Con.	Surgery in short-stay hospitals, United States, 1968	Monthly Vital Statistics Report Vol. 21, No. 3 Supplement (2)
1966–68	Inpatient utilization of short-stay hospitals in each geographic division, United States, 1966–1968	Vital and Health Statistics Series 13, No. 10
1969	Utilization of short-stay hospitals, summary of nonmedical statistics, United States, 1969	Monthly Vital Statistics Report Vol. 20, No. 6, Supplement
1970	Utilization of short-stay hospitals, summary of nonmedical statistics, United States, 1970	Vital and Health Statistics Series 13, No. 14
	Utilization of short-stay hospitals, summary of nonmedical statistics, United States, 1970	Monthly Vital Statistics Report Vol. 21, No. 9 Supplement
1968–70	Patient charges in short-stay hospitals, United States, 1968–1970	Vital and Health Statistics Series 13, No. 15
1971	Inpatient utilization of short-stay hospitals by diagnosis, United States, 1971	Vital and Health Statistics Series 13, No. 16
	Utilization of short-stay hospitals, summary of nonmedical statistics, United States, 1971	Vital and Health Statistics Series 13, No. 17
	Surgical operations in short-stay hospitals, United States, 1971	Vital and Health Statistics Series 13, No. 18
	Utilization of short-stay hospitals, summary of nonmedical statistics, United States, 1971	Monthly Vital Statistics Report Vol. 22, No. 4 Supplement
	Utilization of short-stay hospitals, by diagnosis, United States, 1971	Monthly Vital Statistics Report Vol. 22, No. 6 Supplement
1972	Utilization of short-stay hospitals, summary of nonmedical statistics, United States, 1972	Vital and Health Statistics Series 13, No. 19
	Inpatient utilization of short-stay hospitals by diagnosis, United States, 1972	Vital and Health Statistics Series 13, No. 20
	Utilization of short-stay hospitals, summary of nonmedical statistics, United States, 1972	Monthly Vital Statistics Report Vol. 23, No. 3 Supplement (2)
	Utilization of short-stay hospitals, by diagnosis, United States, 1972	Monthly Vital Statistics Report Vol. 23, No. 4 Supplement
	Surgery in short-stay hospitals, United States, 1972	Monthly Vital Statistics Report Vol. 23, No. 7 Supplement (3)
1973	Utilization of short-stay hospitals, summary of nonmedical statistics, United States, 1973	Vital and Health Statistics Series 13, No. 23
	Surgical operations in short-stay hospitals, United States, 1973	Vital and Health Statistics Series 13, No. 24
	Inpatient utilization of short-stay hospitals by diagnosis, United States, 1973	Vital and Health Statistics Series 13, No. 25
	Quality control in the Hospital Discharge Survey	Vital and Health Statistics Series 2, No. 68
	Surgery in short-stay hospitals, United States, 1973	Monthly Vital Statistics Report Vol. 24, No. 3 Supplement
	Utilization of short-stay hospitals, by diagnosis, United States, 1973	Monthly Vital Statistics Report Vol. 24, No. 3 Supplement (2)

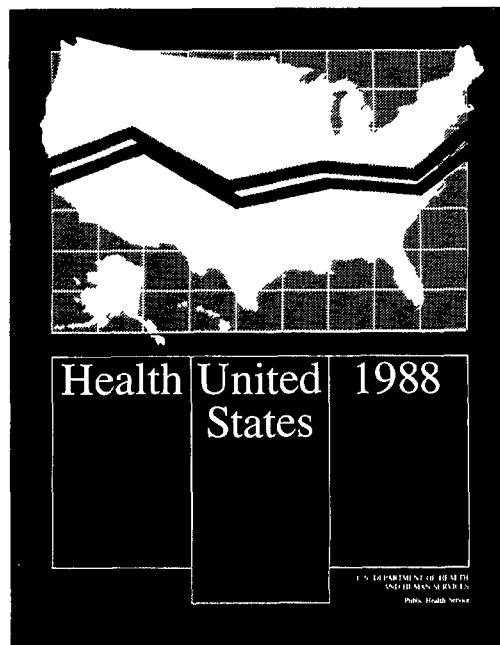
Year(s) of data	Title	Series
1973—Con.	Utilization of short-stay hospitals, summary of nonmedical statistics, United States, 1973	Monthly Vital Statistics Report Vol. 24, No. 5 Supplement (2)
1974	Utilization of short-stay hospitals, annual summary for the United States, 1974	Vital and Health Statistics Series 13, No. 26
	Inpatient utilization of short-stay hospitals by diagnosis, United States, 1974	Vital and Health Statistics Series 13, No. 30
1975	Utilization of short-stay hospitals, annual summary for the United States, 1975	Vital and Health Statistics Series 13, No. 31
	Surgical operations in short-stay hospitals, United States, 1975	Vital and Health Statistics Series 13, No. 34
	Inpatient utilization of short-stay hospitals by diagnosis, United States, 1975	Vital and Health Statistics Series 13, No. 35
1976	Utilization of short-stay hospitals, annual summary for the United States, 1976	Vital and Health Statistics Series 13, No. 37
	Utilization of short-stay hospitals by persons discharged with alcohol-related diagnoses, United States, 1976	Vital and Health Statistics Series 13, No. 47
1977	Utilization of short-stay hospitals, annual summary of the United States, 1977	Vital and Health Statistics Series 13, No. 41
	Detailed diagnoses and surgical procedures for patients discharged from short-stay hospitals, United States, 1977	None
	Average length of stay in short-stay hospitals: Demographic, diagnostic, and surgical statistics, United States, 1977	Vital and Health Statistics Series 13, No. 50
	Utilization of short-stay hospitals by persons with heart disease and malignant neoplasms: National Hospital Discharge Survey, United States, 1977	Vital and Health Statistics Series 13, No. 52
	Expected principal source of payment for hospital discharges, United States, 1977	Advance Data From Vital and Health Statistics, No. 62
1978	Utilization of short-stay hospitals, annual summary for the United States, 1978	Vital and Health Statistics Series 13, No. 46
	Detailed diagnoses and surgical procedures for patients discharged from short-stay hospitals, United States, 1978	None
	Inpatient utilization of short-stay hospitals by diagnosis, United States, 1978	Vital and Health Statistics Series 13, No. 55
	Use of health services by women 65 years of age and over, United States	Vital and Health Statistics Series 13, No. 59
	Surgical operations in short-stay hospitals, United States, 1978	Vital and Health Statistics Series 13, No. 61
	Hospital use by children in the United States and Canada	Vital and Health Statistics Series 5, No. 1
1974–78	Utilization of short-stay hospitals in the treatment of mental disorders, 1974–1978	Advance Data From Vital and Health Statistics, No. 70
1979	Utilization of short-stay hospitals, annual summary for the United States, 1979	Vital and Health Statistics Series 13, No. 60
	Detailed diagnoses and surgical procedures for patients discharged from short-stay hospitals, United States, 1979	None

Year(s) of data	Title	Series
1979—Con.	Inpatient utilization of short-stay hospitals by diagnosis, United States, 1979	Vital and Health Statistics Series 13, No. 69
	Surgical and nonsurgical procedures in short-stay hospitals, United States, 1979	Vital and Health Statistics Series 13, No. 70
	Expected principal source of payment for hospital discharges, United States, 1979	Advance Data From Vital and Health Statistics, No. 75
1980	Utilization of short-stay hospitals, annual summary for the United States, 1980	Vital and Health Statistics Series 13, No. 64
	Inpatient utilization of short-stay hospitals by diagnosis, United States, 1980	Vital and Health Statistics Series 13, No. 74
	Hospital use in Poland and the United States	Vital and Health Statistics Series 5, No. 2
	Deliveries in short-stay hospitals, United States, 1980	Advance Data From Vital and Health Statistics, No. 83
	Utilization of short-stay hospitals by adolescents, United States, 1980	Advance Data From Vital and Health Statistics, No. 93
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