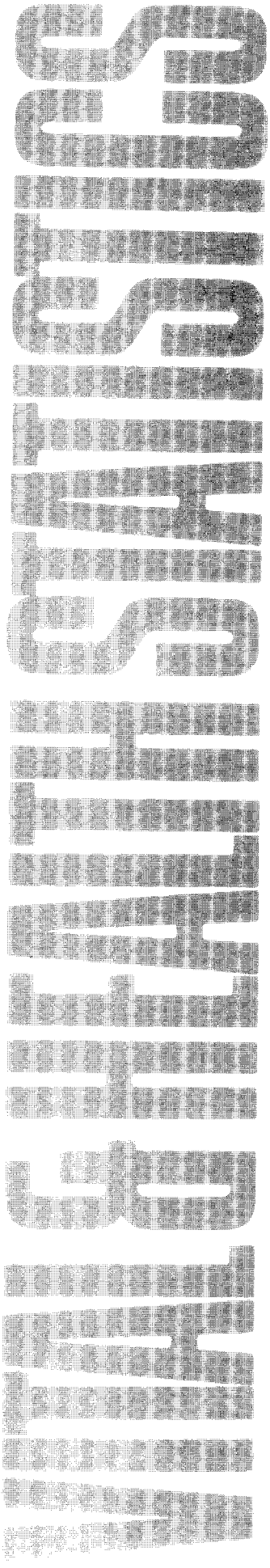

Use and Interpretation of Diagnostic Statistics From Selected Data Systems

This report describes the factors that affect the use and interpretation of diagnostic statistics collected by seven data systems of the National Center for Health Statistics.

Data Evaluation and Methods Research Series 2, No. 107

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Preface

The authors are indebted to many people who contributed to the development of this report. Special thanks for technical assistance are in order for the following staff members of the National Center for Health Statistics (NCHS): Ms. Patricia Golden, Mr. Dale Hitchcock, Ms. Evelyn Mathis, Mr. Tommy McLemore, Ms. Mary Moien, and Dr. Harry Rosenberg. Ms. Sue Meads, Senior Advisor, World Health Organization Collaborating Center for Classification of Diseases for North America, offered numerous insightful comments, particularly with regard to the discussion of the International Classification of Diseases (ICD). The late Dean Krueger, formerly with the Georgetown Biostatistics Center, played a major role in the development of the section entitled "Choice of a data system as a source of diagnostic data: Some effects of system survey features." Overall technical direction and consultation were provided by Dr. Monroe G. Sirken, Associate Director for Research and Methodology.

Finally, peer reviews for technical merit and readability were conducted by Mr. Robert A. Israel, Deputy Director, NCHS, and Dr. Richard Havlik, Special Assistant for Biomedical Applications, Office of Planning and Extramural Programs, NCHS. They made many constructive suggestions.

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Symbols

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

Use and Interpretation of Diagnostic Statistics From Selected Data Systems

by Kenneth W. Harris, Patricia N. Royston, and Jimmie D. Givens, Office of Research and Methodology

Introduction

Since its inception, the National Center for Health Statistics (NCHS) has collected data for the population of the United States on many kinds of health and health-related variables through a series of surveys and registration systems known collectively as the NCHS data systems. Diagnostic data—that is, information on the occurrence of diseases, causes of death, health conditions, and physiological characteristics—are collected in seven of these data systems: the National Health and Nutrition Examination Survey (NHANES), the National Health Interview Survey (NHIS), the National Hospital Discharge Survey (NHDS), the National Nursing Home Survey (NNHS), the National Ambulatory Medical Care Survey (NAMCS), the National Medical Care Utilization and Expenditure Survey (NMCUES), and the National Mortality Registration System (NMRS). Responsibility for future NMCUES collection and analysis was recently transferred from NCHS to the National Center for Health Services Research (NCHSR). However, the previous NMCUES conducted by NCHS is included as a part of this report.

Data from these systems are used to meet the Center's goals of (1) collecting mortality and morbidity data designed, in part, to spotlight trends in the incidence or prevalence of selected diseases or conditions, and (2) providing national leadership in health statistics and epidemiology through the collection, analysis, and dissemination of national statistics on vital events, illness, and medical care. These data systems provide complementary data findings that are essential to an understanding of basic issues in health care research, epidemiology, and health policy at the Federal and State level.

Objectives and content of this report

NCHS reports that present data from two or more data systems may show substantially different magnitudes for what is nominally the same health condition or health care service for a condition. This is true even when the same classification of diagnoses has been used in tabulating the data. Several types of factors affect the reported magnitudes. These factors include the following:

- Whether the data represent prevalence of cases existing at a point in time, or incidence of cases during a specified interval of time.
- Whether the information is limited to those conditions which a person knows about, remembers, and is willing to report; or includes cases that have been diagnosed by qualified persons during the provision of medical services.
- The completeness, currency, and adequacy of medical records that are the sources of information used in some data systems.
- The universe covered by the data system, whether of episodes of illness, of people who have a health condition, or of health care providers.

The Center's data systems were designed for different purposes and to meet differing needs for data. In order to meet these multipurpose requirements, the data systems produce complementary data rather than duplicative estimates of the same variable. A person who needs national estimates of diagnostic data for a particular purpose should have some acquaintance with all of the NCHS systems in order to select the type of data that is best suited to his or her needs and should have a good understanding of that data system in order to make appropriate use and interpretations of the diagnostic data which that data system produces.

The objective of this report is to assemble, in one place, information about each of the seven data systems that will help the reader understand the nature and interpretation of the diagnostic data from each of these systems.

History of NCHS data systems

Since 1900, the Federal government has been compiling statistics on causes of death derived from the death certificates filed in State vital registration offices; these causes of death are classified according to a periodically revised classification system, now in its ninth revision.[1] Until the middle of this century, available health statistics were limited, for the most part, to these mortality statistics and to statistics on selected infectious diseases reported to State health departments and to the U.S. Public Health Service. With medical advances in the control of infectious diseases, health agencies became more concerned with other aspects of health, including the early detection of chronic conditions and the development of treatment and rehabilitation programs and policies. These changes in public health priorities created a need for a wide variety of morbidity statistics to supplement the existing data on mortality and infectious disease. In 1956, the U.S. National Health Survey was established within the Public Health Service

to secure information about health conditions in the general population.

When it was decided that morbidity statistics were needed to supplement the existing health statistics systems, it was recognized that all of the needed statistics could not be obtained from a single source. Individuals were known to be the only source for much morbidity data, such as estimates of untreated illness, effects of illness on daily activity, and estimates of number of episodes of illness and amount of medical care per person; thus the National Health Interview Survey (NHIS), a general health interview survey, was instituted in 1957. The presence of undiagnosed conditions in the population or conditions usually not reported by individuals could only be obtained from physical examinations, so the Health Examination Survey, now the National Health and Nutrition Examination Survey (NHANES), was begun in 1960.

At this point, then, statistics were available on causes of death, on treated and untreated conditions as reported by individuals, and on the prevalence of some conditions that could be diagnosed on the basis of tests and measurements made in the Health Examination Survey. Information was also needed on the characteristics of health services received and on the characteristics of persons receiving the care—information available only from medical providers. Also medical providers were expected to provide more accurate information on diagnosis and treatment of illness than were lay persons. Consequently, the Health Records Survey was conceived, which is a family of surveys of medical care facilities. Three of these have been initiated to date: the National Hospital Discharge Survey (NHDS), a survey of short-stay hospitals, was introduced in 1964; the National Ambulatory Medical Care Survey (NAMCS), a survey of office-based physicians, began in 1973; and the National Nursing Home Survey (NNHS), a survey of the nursing home population, also began in 1973. NNHS provided, for the first time, statistics on the health status of the nursing home population. Thus, between 1957 and 1973, a network of data systems was developed encompassing a wide variety of diagnostic data.

Finally, in 1980, the National Medical Care Utilization and Expenditure Survey (NMCUES) was implemented to provide data on the increasing costs of medical care. The condition data collected in this survey are quite similar to those collected in NHIS. The complementary aspect of NMCUES lies in its collection of previously unavailable data on the personal and family costs of illness.

Each data system was designed to provide particular types of information on a defined segment of the population. Although some overlaps exist between the data provided by the several data systems, each system makes a unique contribution to the overall health profile of the American people. These systems have different designs and different objectives, and they often use different criteria for diagnosing diseases. The periodicity, that is, the frequency and length of data collection, also varies from one system to another. Consequently, the results these data systems produce should be viewed as complementary rather than comparative; it should not be expected that different data systems produce the same estimates of health status or of health services provided for particular diagnoses.

The products of these data systems, estimates of incidence and prevalence of selected diagnoses, are published in the Center's *Vital and Health Statistics* series of publications. Each of these publications also includes a detailed description of the data system from which the data are obtained. A reference volume[2] is also provided for those who may be interested in more detailed historic information about the NCHS data systems. Another publication, *Data Systems of the National Center for Health Statistics*,[3] provides brief, semitechnical descriptions of all Center data systems.

Despite the availability of the publications just described, it has become increasingly apparent that an additional report is needed which clarifies, for the NCHS data user, differences between the diagnostic statistics derived from the seven data systems.

In order to accomplish this objective, this report covers the following topics:

Descriptions of the data systems through which diagnostic statistics are collected—These descriptions are not as detailed as those appearing in the *Vital and Health Statistics* series but are sufficient to introduce new data users to the Center's diagnostic statistics programs.

Comparison of selected survey features—These are features that may affect the diagnostic statistics of the seven data systems, including target population, sample size, data collection method, and periodicity (frequency of data collection).

Comparison of statistics produced—These include the diagnostic coding and classification procedures, the kinds of statistics produced, and the associated health and demographic data that are available.

Choice of a data system as a source of diagnostic data: Some effects of system survey features—This section includes information on how the choice of a data system as a source of diagnostic data is influenced by the survey features.

Most persons seeking diagnostic statistics to meet a particular data need will probably find it productive to use the sections comparing survey features and produced statistics to help them identify the most appropriate data system. Then the section following this one may be used mainly to supply additional descriptive detail about that data system. Whatever approach is chosen, a specific precise statement of the data need—the question(s) to be answered—is a prerequisite. If the specificity can be given in terms that at least roughly correspond with all or some of the factors in the two "comparison" sections, identification of the most appropriate data system is made more easily. The fourth section is intended to facilitate the process of selecting a data system and to emphasize the effect of survey features on the diagnostic data produced by the data system that has been selected.

Descriptions of the data systems through which diagnostic statistics are collected

A brief description of the designs of each of the seven data systems that produce diagnostic statistics follows. The descriptions contain summary information on sample design, data-collection procedures, coding procedures, and types of estimates produced. Selected data-collection forms for the data systems are included in appendix I. Sample tables from recent reports for each data system are included in appendix II. For additional information on the availability of data from these data systems, references are provided on NCHS publications and public-use tape listings.[4–6]

The descriptions provided in this section reflect the designs and procedures currently being used by these data systems. Several of them are undergoing or soon will be undergoing redesigns. The redesigns may vary from minor changes in questionnaire design to major changes in target population definitions.

National Health Interview Survey

The National Health Interview Survey, a cross-sectional survey that has been conducted continuously since 1957, collects general purpose health and demographic data from a probability sample of households in the United States. It is one of two NCHS data systems through which data are collected by means of personal interviews with all members of sample households.

Sample design

The NHIS sample is a multistage, clustered, probability sample of the civilian noninstitutionalized U.S. population. The survey uses a four-panel design of slightly more than 12,000 households per panel. A total of about 46,500 sample households are interviewed annually, yielding responses for approximately 122,000 persons per year. NHIS is a continuous survey in which a probability sample of nearly 1,000 households is selected and interviewed weekly.

Data collection methods

NHIS consists of a one-time personal interview (including some self-response supplements) with each sample household to collect health data on all family members in the sample housing units. The interviews are conducted for the Center by the field staff of the Bureau of the Census. All adult household members (17 years of age and over) who are at home at the time of the interview respond for themselves and can serve as proxy respondents for absent adults. Information on children in the households is provided by a related adult, usually the mother.

The NHIS questionnaire obtains information on personal and demographic characteristics, illness, injuries, impairments, chronic conditions, medical care, and other health topics.

Diagnostic data are collected in five general sections of the questionnaire (figures I–V, appendix I), and with varying reference periods, as follows: (1) limitation of activities as of the time of interview, (2) restricted activities during the 2-week period prior to the interview, (3) physician visits with a 2-week reference, (4) chronic conditions checklists with varying references of 12 months, current, or ever, and (5) hospitalizations during the prior 13-month reference period.

There are six chronic conditions checklists (figure IV, appendix I), roughly corresponding to six major body systems. The lists are randomly assigned to households so that each checklist is asked of one-sixth of the total sample. All other sections listed above are routinely asked of all respondents, and if restriction or limitation of activity or medical care is reported, questions are asked about the associated condition(s) (see figure V, appendix I).

Each year different supplemental questions on selected health topics are added to the questionnaire, and usually are included for one calendar year. Topics of previous NHIS supplements related to mental health, alcohol, and drug use are noted in NCHS report Series 1, Number 17.[7] A few of the other topic areas that have been included as NHIS supplements are hypertension, family medical expenditures, smoking habits, child health, and residential mobility.

Coding procedures

The conditions reported in NHIS are classified according to the *Health Interview Survey Medical Coding Manual and Short Index* and the *Manual of the International Classification of Diseases, Ninth Revision* (ICD). The code also indicates whether the condition is acute or chronic. An acute condition is defined as a condition which lasted less than 3 months and involved either the receipt of medical attention or restriction of activity within the last 2 weeks. Chronic conditions are conditions that either have lasted more than 3 months or are ones that are designated by NHIS as being chronic.

The *Health Interview Survey Medical Coding Manual* is an extensive listing of modifications to ICD derived to make the coding system amenable to the household survey. In the household interview, respondents sometimes report conditions using lay terminology not covered in coding systems designed for formal medical diagnoses. The use of lay terminology necessitated the development of special coding instructions for NHIS.

Kinds of statistics produced

From these data are derived estimates of the incidence of acute conditions, number of persons injured, number of persons reporting limitation of activity and disability days due to chronic conditions, the number of hospital episodes, and the frequency of dental and physician visits. Prevalence estimates for chronic conditions are based on responses to the chronic conditions checklists. Data collected in the annual supplements to the NHIS questionnaire are generally analyzed separately from the routine NHIS chronic and acute condition data.

National Medical Care Utilization and Expenditure Survey

NMCUES, a panel survey conducted in 1980, was designed for the collection of data about the utilization patterns, costs, and sources of payment associated with medical care in the United States. Like NHIS described above, NMCUES also collected data by means of personal interviews with all members of sample households. Since future NMCUES will be operated by another agency, under the name of National Medical Expenditure Survey (NMES), the following discussion will apply only to the 1980 survey, conducted by NCHS.

Sample design

In the first NMCUES, a multistage, clustered, probability design was used to select a probability sample of the civilian noninstitutionalized population for interview. The national sample selected in NMCUES was supplemented by a sample of the Medicaid populations of New York, Michigan, Texas, and California. The national probability sample consisted of 6,600 participating households and the Medicaid component included an additional 4,000 households, yielding responses for approximately 31,000 persons (including 14,000 from the Medicaid component).

Data collection methods

NMCUES is a longitudinal survey that will be conducted periodically. The 1980 survey was modeled after a health expenditure study conducted in 1977–78 by NCHS for the National Center for Health Services Research.[8] To obtain data about the utilization patterns, costs, and sources of payment associated with medical care in the United States, the NMCUES questionnaire contained extensive probe questions about medical care and medical care-related expenses. For each episode of medical care reported, detailed information about the responsible conditions was collected through NMCUES.

NMCUES was designed to collect medical care costs and utilization for each sample household for 1 calendar year. Household members were interviewed 5 times, at 3-month intervals, during a 14-month period. According to this panel survey design, in the second, third, and fourth interviews, respondents reported medical care and costs since the last interview. The recall periods for the first and last interviews varied in length, with the first interview covering the period from the first of the calendar year to the interview, and the last interview covering the period from the fourth interview to the end of the calendar year.

The five NMCUES interviews consisted of three personal interviews (rounds 1, 2, and 5) and two telephone interviews (rounds 3 and 4). The interviews were conducted by private survey organizations. Adult household members 17 years of age or older were asked to respond for themselves; they also could have served as proxy respondents for absent adults. Usually the head of the household was asked to provide information about children.

The NMCUES questionnaire consisted of a core questionnaire, which was administered at every round of interviews, and three supplementary questionnaires, which were each administered only once.

Conditions were reported in the core questionnaire and in two of the three supplements. Whenever a respondent reported disability days, emergency room visits, hospital outpatient visits, hospital stays, visits to other medical providers, prescribed medicines, other medical expenses, limitation of activities, or barriers to care, condition data were collected through NMCUES. Thus, a report of any one of these items led to further questions about the associated condition (see figure VI, appendix I). The survey defined, as a main objective, the estimation of health care-related expenditures.

Coding procedures

In NMCUES, data processing of diagnostic data followed procedures specified in the *Health Interview Survey Medical Coding Manual and Short Index* and the *International Classification of Diseases, Ninth Revision*, volumes 1 and 2. Since NMCUES used a panel survey design, respondents may have reported different stages or episodes of the same disease from one round to another. Consequently, NMCUES added a few procedural specifications to the *Health Interview Survey Medical Coding Manual* that take into consideration the panel design aspect of the survey.

Kinds of statistics produced

Because the survey had been conducted only once at the time it was transferred to NCHSR, NMCUES had not established a pattern of routinely produced estimates. However, analysis of the 1980 NMCUES thus far has produced reports that include selected condition data in the form of estimates of prevalence and incidence, number of medical episodes per person, number of episodes per condition, number of days of disability by condition, and the cost of medical care.

National Health and Nutrition Examination Survey

In NHANES, the successor to the Health Examination Survey (HES) first conducted in 1960, a combination of personal interview and direct physical examination is used as the mechanism for collecting selected diagnostic data for selected U.S. population groups.

Sample design

A multistage, highly clustered probability sample, stratified by broad geographic region and by population den-

sity, is utilized in NHANES. The individuals are selected after an interviewer visits the sample households and obtains information on the eligibility of household members.

Since 1960, five cycles of NHANES (and its predecessor, HES) have been conducted. Each cycle has been directed at a different target population, as follows:

Cycle	Population
HES I (1960–62)	Ages 18–79 years
HES II (1963–65)	Ages 6–11 years
HES III (1966–70)	Ages 12–17 years
NHANES I (1971–75)	Ages 18–74 years
NHANES II (1976–80)	Ages 6 months–74 years
Hispanic HANES (1982–84)	Hispanics, ages 6 months–74 years
NHANES III (1988–94)	Ages 2 months and over

The sample design of the first five cycles considered a national target population. The last completed cycle, Hispanic HANES (HHANES), addressed a specific subgroup of the U.S. population that resided in specified geographic areas. NHANES III will involve a national target population.

Data collection methods

The main objective of the survey is defined as the collection of data that can be obtained only by direct physical examinations, clinical and laboratory tests, and related measurement procedures. In each cycle, caravans of trailers, called mobile examination centers (MEC's), containing medical equipment and manned by trained personnel, have been moved from one sample location to another throughout the country. These MEC's enable NCHS to conduct highly controlled, standardized tests and measurements of a probability sample of the U.S. population. NHANES consists of a personal interview and a health history interview conducted in the home, and a physical examination, laboratory testing, and selected physical measurements conducted in the mobile examination centers. In the most recent NHANES, conducted from February 1976 through February 1980, more than 20,000 sample persons were interviewed and examined. About 10,000 sample persons were interviewed and examined in HHANES, conducted from 1982 to 1984.

The personal interview, health history interview, and the examination components of NHANES are conducted by specially trained teams of interviewers and examiners, including physicians, nurses, dentists, dieticians, and medical laboratory and x ray technicians. The personal interview component is used primarily as a household screening interview through which the sample person is chosen for examination. The respondent for the household screening interview must be at least 18 years old and may serve as proxy respondent for all household members. A self-response is requested of all sample persons aged 13 years and over. If the sample person is under 13 years of age, a responsible related adult household member must respond. The respondent rules for the sample person are in effect for the health history interview component.

The health history interview and the series of tests and procedures are purposely designed to provide the data needed to diagnose the selected conditions, such as chronic rheumatoid arthritis, diabetes, and hypertensive heart disease. The form used to collect "diagnostic impressions and health care needs" in HHANES is shown as figure VII in appendix I. In addition to diagnostic data for target conditions, information on selected health-related measures, such as height, weight, visual acuity, blood-lead level, and serum cholesterol level, are also gathered through the survey. Data collection for each cycle of NHANES spans a period of approximately 2 to 3 years.

Coding procedures

Unlike the personal interview surveys mentioned earlier, NHANES addresses selected diseases or health measurements rather than attempting to collect data on all diseases. For the selected diagnoses, the information collected and coded in the survey consists of laboratory test results, measurements, results of a physical examination, and a health history. Thus, diagnoses are not coded; instead the HANES data files contain the information needed to arrive at the diagnoses of selected diseases.

Kinds of statistics produced

For the most part, the data produced are of two types. One type provides distributions of the population according to the values obtained from a particular test; for example, blood pressure measurement. For those diseases for which the criterion for diagnosis is a cutting point on the scale of the test values, the population can be divided into the diseased and nondiseased. With most diseases, however, the result of one particular type of test is not conclusive, and the NHANES data simply divide the population into those with a normal and those with an abnormal result from the test.

National Ambulatory Medical Care Survey

NAMCS, which began in 1973, is a national sample survey that gathers information about ambulatory medical care visits to non-Federal office-based physicians within the conterminous United States. It was conducted annually between 1973 and 1981 and now is conducted triennially. (The last survey was in 1985.) The universe of visits is limited to personal visits to physician offices; telephone and other nonoffice contacts are excluded.

Sample design

A three-stage stratified probability design is utilized by this survey. In the first stage primary sampling units, which are samples of counties, or standard metropolitan statistical areas are selected. The second stage involves sampling office-based physician practices from the listing of physicians maintained by the American Medical Association and the American Osteopathic Association. Finally, patient visits for a randomly assigned week are selected for each participating sample physician.

In the 1985 NAMCS, the second-stage sample consisted of 5,032 physicians eligible for the study. These eligibility criteria required that a physician be office-based, principally engaged in patient care, non-Federally employed, and not engaged in certain specialty practices. The 3,523 participating physicians (70 percent) provided completed patient record forms for a sample of 71,594 patient visits in 1985.

Data collection methods

NAMCS focuses on collecting data on physician practices, the characteristics of patients, and the clinical aspects of office visits. NAMCS sample physicians are provided specially designed patient record forms to be completed by the physician or his or her staff at the time of the sample visit. All information refers to the sample visit. The physician diagnosis constitutes the diagnostic data collected in NAMCS; a related data item is the reason for visit, which is the patient's statement of the symptom, complaint, problem, or other reason for seeking medical care (figure VIII, appendix I).

Coding procedures

Since 1979, the physician diagnosis has been coded according to the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM). The reason for visit is coded according to *A Reason for Visit Classification for Ambulatory Care* (RVC), a classification system developed for coding the patient's stated reason for seeking ambulatory medical care. RVC is divided into seven major categories: symptom, disease, diagnostic screening and prevention, treatment, injuries and adverse effects, test results, and administrative. A maximum of three physician diagnoses and three reasons for visit are coded for each visit.

Kinds of statistics produced

The survey provides data by the demographic characteristics of patients, number and percent of office visits, the reason(s) for visit, the physician's diagnoses, and other related data, such as physician specialty and therapeutic and diagnostic services provided.

National Hospital Discharge Survey

NHDS, which began in 1965, is a continuous survey that collects data about hospital inpatient episodes for a national sample of discharges from non-Federal short-stay (30 days or less) hospitals in the United States.

Sample design

The survey is based on a two-stage sampling process. In the first stage a sample of hospitals is selected from the National Master Facility Inventory, (NMFI). NMFI is a comprehensive file of facilities (more than 33,000) that provide medical, nursing, personal, or custodial care to groups of unrelated persons on an inpatient basis. These facilities are categorized into three broad types: hospitals, nursing and related care homes, and other custodial facilities. The second stage involves selection of a systematic sample of discharges within the sampled hospitals. In the 1985 survey, 414 of the selected hospitals participated, providing a total of approximately 194,000 abstracts of medical records.

Data collection methods

In 1985, for the first time, two data-collection procedures were used for NHDS. 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; it involved the purchase of data tapes from commercial abstracting services.

In the manual hospitals, sample discharges were selected using the daily listing sheet of discharges as the sampling frame. These discharges were selected by a random technique, usually on the basis of the terminal digit or digits of the patient's medical record number. The sample selection and abstraction of data from the face sheet and discharge summary of the medical records were performed by the hospital staff or by representatives of NCHS. The abstracted data were transcribed to the survey's abstract form (figure IX, appendix I).

For the automated hospitals, tapes containing machine-readable medical record data were purchased from commercial abstracting services. These tapes are subject to NCHS sampling, editing, and weighting procedures.

The diagnostic data in NHDS are derived from the diagnoses listed on the face sheet and discharge summary of the medical records. Administrative and patient information, including admission and discharge dates, are also collected. In addition, surgical operations and procedures that appear on the face sheet and discharge summary of the medical record are collected. As mentioned earlier, data tapes for the hospitals using the automated method provide similar data.

Coding procedures

Coding of the diagnostic data takes place at NCHS. At present, up to seven of the diagnoses and four of the operations and procedures listed on each abstract can be coded. The document currently used for coding diagnoses and procedures is the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM). NHDS uses a computer-based system to edit the coded data and to check for missing, invalid, and inconsistent codes.

Kinds of statistics produced

The primary goal of NHDS is to produce statistics on the experience of the U.S. civilian noninstitutionalized population discharged from non-Federal short-stay hospitals. NHDS provides data on the demographic characteristics of patients discharged, conditions diagnosed, length of stay, number of days of care, surgical and nonsurgical procedures performed, expected sources of payment, and characteristics of the hospital where the patients were treated. Because NHDS statistics are based on a sample of hospital discharges rather than on a sample of persons, this data system produces hospital-discharge statistics, not person statistics.

National Nursing Home Survey

NNHS is a periodic survey that collects data from a national sample of nursing homes in the conterminous United States. Three surveys have been conducted; the first from August 1973 through April 1974, the second in 1977, and the third in 1985.

Sample design

The survey employs a multistage stratified sampling procedure. In the first stage, nursing homes are selected using the *National Master Facility Inventory* listing as the universe. The second sampling stage for the 1973–74 NNHS involved selecting a sample of current residents of nursing homes. For the 1977 and 1985 surveys, an additional sample of residents discharged during the preceding year was also selected. The 1973–74 survey collected data on about 19,400 residents; the 1977 survey collected data on 7,100 current residents and 5,300 discharges; and the 1985 survey collected data on 5,234 current residents and 6,023 discharges.

Data collection methods

All diagnostic data are collected during a personal interview with a staff nurse. For current nursing home residents, the interview is conducted with the nurse who provides care to the resident. The nurse refers to the medical records for answers to all questions. During the interview process for the first two surveys, the nurse was shown a flashcard (figure X, appendix I) and asked whether the resident currently had any of the 37 conditions or impairments on the card. From another flashcard list of 42 condition categories (figure XI, appendix I), the nurse was also asked to select the primary diagnosis made by a physician during the resident's most recent medical examination.

Diagnostic information about discharged residents is collected during a personal interview with the nurse who is most familiar with the medical records. Again the nurse refers to the records for answers to all questions. In the 1973–74 and 1977 surveys, the same interview procedure described above for current residents was used. The nurse was shown the flashcard (figure X, appendix I) of 37 conditions and impairments and asked to indicate which conditions or impairments the patient had at the time of discharge. Then the nurse was shown the list of 42 diagnoses (figure XI) and asked to select the primary diagnosis at the time of admission.

During the 1985 survey, flashcards were not used. In collecting data on current residents and discharges, the interviewer asked the nurse to indicate the diagnoses that had been listed in the medical records by the attending physician. This information was then entered into the appropriate section of the questionnaire (figure XII, appendix I).

Coding procedures

Because 1973–74 and 1977 survey diagnostic data were collected by using a precoded checklist of condition categories, elaborate coding procedures were unnecessary. However, diagnostic data for the 1985 survey were coded according to ICD–9–CM.

Kinds of statistics produced

NNHS produces statistics on the services provided by nursing homes, their current residents, persons discharged, and the nursing home staff. Statistics also are produced on the costs incurred by the facility for providing medical care and on Medicare and Medicaid certification. Additionally, statistics are produced on the health status and utilization patterns of nursing home residents.

National Mortality Registration System

Information about all deaths occurring in the United States is collected by means of a network of State vital registration systems. The State registration systems provide NCHS either a data tape coded to NCHS registration systems or copies of death certificates filed in the State. These death certificates are then coded by NCHS coders. Detailed characteristics of mortality data collection and processing can be found in another NCHS publication.[9] By law, a death certificate must be filed in a State for every death that occurs in that State.

Sample design

Except in 1972, when a 50-percent sample of deaths was used, the National Mortality Registration System has been a complete census of all deaths occurring in registration areas of the United States. The United States death registration area covers the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, and Guam. Deaths occurring in the latter three locations are tabulated separately from the aggregated United States deaths. Mortality statistics have been collected annually for the death registration area since 1900. It was not until 1933, however, that the registration area included all States.

In addition to annual statistics based on all deaths, monthly provisional estimates are derived from the Current Mortality Sample (CMS), which is a 10-percent systematic sample of the death certificates filed with each State. The sample selection is carried out by NCHS for those States submitting their entire month's file by the end of the following month. Otherwise the State is asked to provide a systematic sample of records on a current basis.

Data collection methods

Information on deaths in this system is record based; NCHS receives data from the registration areas in the form of data tapes or microfilm copies of death certificates (figure XIII, appendix I). Diagnostic statistics are based on the causes of death listed in the medical certification section of the certificate. This section is completed by a medical certifier, who may be a physician, a coroner, or a medical examiner. The medical certifier is instructed to enter the immediate cause of death on the first line, the condition that gave rise to the immediate cause on the next line, and so on, with the last-listed condition being the one that initiated the sequence of morbid events leading to death. In a properly completed certificate, the last-listed condition, or a modification of it, is known as the underlying cause of death and is the basis for much of the diagnostic data produced on mortality. The conditions, identified in the sequence of morbid events leading to death, collectively provide the data for producing multiple cause-of-death statistics—that is, all conditions that contribute to the death of a decedent.

Coding procedures

Since 1979, all causes of death have been classified according to the Ninth Revision of the International Classification of Diseases. The underlying cause of death is selected from all causes coded for each death according to the coding rules

specified in ICD. These rules have been incorporated into a computerized algorithm called "Automated Coding of Medical Entities" (ACME). The ACME program is supplied with extremely complex decision tables that take into account the identity of the individual ICD codes and their ordering on the death certificate. Because of the complexity of the decision rules used in deriving the underlying cause of death, certain diseases are necessarily selected over others when multiple conditions are listed. The underlying cause definitionally taps the initiating condition as opposed to any intervening conditions or the immediate cause(s). This omits information crucial to understanding the overall morbidity process and the role each disease plays in it. This is especially true for chronic conditions such as asthma, arthritis, and alcoholism. By themselves these conditions may not be fatal, but in combination with another serious disease, they may greatly increase the risk of death. Thus, the underlying cause of death identified through application of the selection and modification rules frequently differs from that stated by the medical certifier—by as much as 25 percent, according to a recent study.[10]

Approximately 95 percent of all underlying causes can be derived through ACME.[11] Underlying causes which cannot be derived through ACME are assigned by expert nosologists.

Kinds of statistics produced

The system produces statistics on deaths and death rates by geographic area, age, race, sex, and cause of death. NCHS produces cause-of-death statistics for selected causes in two published forms: Monthly provisional cause-of-death estimates and an annual summary of vital statistics are derived from the 10-percent Current Mortality Sample (CMS); and detailed cause-of-death statistics, demographic data, and life tables are published annually from the full file of death certificates. As noted previously,[3,4] public use data tapes are also available. Beginning with data year 1986, NCHS has made available coded information on the death certificate for not only the underlying cause of death but also for the other medical conditions reported by the certifier. These are referred to as "multiple cause-of-death statistics."[12,13]

Other mortality data

To supplement the data obtained from the death certificates, NCHS periodically conducts National Mortality Followback Surveys. The sampling frame for these surveys is the 10-percent systematic sample of the death certificates (that is, CMS) used for obtaining monthly provisional estimates. The followback surveys are conducted to provide types of detailed information about deaths that would not be available (uniformly or otherwise) through the registration system (table A). The information collected in the followback surveys may relate to hospital utilization, operations performed, diagnoses, place of death, income, employment status in the last year of life, smoking habits, health insurance, or other characteristics. The followback also provides an opportunity to qualitatively assess the information obtained from the registration system. The current followback survey for deaths occurring in 1986 is the first one conducted in 20 years.

Table A. Previous mortality followback surveys by year, data collected, sample size, and response rate

Year	Data collected	Sample size	Percent response rate
1961	Institutional care, place of death, income, usual activity, education	5,154	93.0
1962–63	Institutional care, residence history, household composition, income, education	10,822	91.5
1964–65	Institutional care, cost of care and sources of payment, household composition, income, assets	10,408	91.0
1966–68	Smoking habits, household composition, income, assets	19,526	95.0
1986	Care in last year of life, sources of payment, activities of daily living, income, life style and health	[1]18,500	[2]89.9

[1]Includes oversampling of selected races, selected diseases, and selected age groups.
[2]Survey in progress; data reflects first-quarter response rate.

Comparison of selected survey features

This section compares selected characteristics of the NCHS data systems that produce diagnostic statistics. These characteristics were chosen because they illustrate the similarities and differences of the diagnostic statistics available from these data systems. Comparisons are made of four survey features: the target population, the sample size, the basic data-collection methods, and the frequency of data collection.

Target population

The data systems that now provide diagnostic statistics about the U.S. population vary in terms of the segment of the U.S. population covered by the data system (table B). NNHS is the only one of the data systems through which condition data solely about the institutional population are collected. The NNHS population includes persons living in nursing homes and related care residences and excludes all other institutions such as mental institutions, jails, or educational institutions. Statistics on the noninstitutionalized population, which refers to all civilian U.S. residents who usually reside in households, can be obtained from the three surveys that require direct communication with individuals: NHIS, NHANES, and NMCUES. Condition statistics about both the institutionalized and noninstitutionalized populations are provided by two medical provider surveys, NHDS and NAMCS, and the death registration system (NMRS). However, NHDS and NAMCS include institutionalized persons only to the extent that they are treated in short-stay, non-Federal hospitals or in physicians' offices, respectively.

It must be noted that not all the data systems are able to produce estimates about the members of the target population; for example, the medical care provider surveys, NHDS and NAMCS, produce statistics about *visits* to the providers, rather than about *persons* visiting the providers. This is discussed more fully in the next section, "Comparison of statistics produced."

Table B. National Center for Health Statistics data systems by unit for which diagnostic statistics are produced and institutional status of the population covered by the survey

Unit of analysis	Population covered by survey: Institutional only	Noninstitutional only	Total population
Persons	NNHS	NMCUES, NHIS, NHANES, NMRS	...
Discharges from short-stay hospitals	...	NHIS, NMCUES	[1,2]NHDS
Visits to office-based physicians	...	NHIS, NMCUES	[1]NAMCS
Discharges from nursing homes	[3]NNHS	NMCUES	[3]NNHS
Deaths	[3]NNHS	...	NMRS, [2]NHDS

[1]Institutional persons are included to the extent that they are treated in non-Federal short-stay hospitals and physicians' offices.
[2]Non-Federal short-stay hospitals only.
[3]1977 and 1985 surveys only.

NOTES: NNHS: National Nursing Home Survey
NMCUES: National Medical Care Utilization and Expenditure Survey
NHIS: National Health Interview Survey
NHANES: National Health and Nutrition Examination Survey
NMRS: National Mortality Registration System
NHDS: National Hospital Discharge Survey
NAMCS: National Ambulatory Medical Care Survey

Sample size

With the exception of the recognized need for achieving a specified minimum quality level, a strong argument can be made that the sample size is the most critical survey feature to be considered in terms of the utility of the collected data. On one hand, data from relatively small samples are quite difficult to analyze because of the possible wide variability and infrequent occurrences of certain outcomes in selected segments of the population. On the other hand, cost is certainly an inhibiting factor in the use of large sample sizes. The task of determining an acceptable sample size in terms of desired analytical uses of the findings within what are often tight budget constraints is a very difficult one. Table C shows the actual sample sizes in the most recent cycle of each of the seven data systems covered in this report. In cases where the current sample size differs significantly from that of previous cycles, the previous one is also shown. In reviewing this table, it is especially important to take note of the unit of analysis on which the findings of the survey are based. This factor, as much as the sample size itself, plays a key role in determining the "relative accuracy" of a particular statistic that may be available from more than one data system. The effect of the unit of analysis on survey estimates is described in more detail in the next section.

Data collection methods

The data collection method used in each of the seven data systems defines, to some extent, the kinds and quality of diagnostic data that can be collected. Table D summarizes the data collection methods, sources of data, data collectors, and the inherent strengths and limitations of data collected by each method.

Table C. Sample sizes for National Center for Health Statistics data systems that collect diagnostic statistics

Data system[1]	1st stage—sampling unit	2nd stage—unit of analysis	Sample size	
			1st stage	2nd stage
National Health Interview Survey	Household	Person	46,500	122,000
National Medical Care Utilization and Expenditure Survey (1980)	Household	Person	[2]6,600	[2]17,123
National Health and Nutrition Examination Survey (1976–80)	Household	Person	25,286	20,322
National Ambulatory Medical Care Survey	Physician's office	Office visit	3,532	71,594
National Hospital Discharge Survey	Hospital	Hospital discharge	414	194,000
National Nursing Home Survey	Nursing home	Current resident	1,079	5,243
		Discharge	1,079	6,023
National Mortality Registration System	([3])	Death (person)	([3])	2,000,000

[1]Except where noted otherwise, sample sizes are for survey year 1985.
[2]National sample only; excludes Medicaid components.
[3]Complete enumeration.

Table D. Data collection method, data source and collector, and strengths and limitations of the collection method with respect to collection of diagnostic data for National Center for Health Statistics data systems

Data system	Data collection method	Information source and data collector	Strengths	Limitations
National Health Interview Survey	One-time, retrospective personal interview survey	Individual—Census interviewer	Can collect wide variety of acute and chronic conditions, including those not treated by physician	Dependent on respondent's perception of condition, individual physician's diagnostic procedures, physician disclosure to patient, and patient recall and disclosure
National Medical Care Utilization and Expenditure Survey	1-year panel survey; personal interview	Individual—Professional interviewer	Can collect wide variety of acute and chronic conditions, including those not treated by physician	Dependent on respondent's perception of condition, individual physician's diagnostic procedures, physician disclosure to patient, and patient recall and disclosure
National Health and Nutrition Examination Survey	Combined personal interview and physical examination survey	Individual—Interviewer and medical team	Can include previously undiagnosed conditions and uses standardized diagnostic procedures	Limited to specific diagnoses selected for study and to conditions present at exam
National Ambulatory Medical Care Survey	Combined personal interview and recordkeeping survey	Physician—Interviewer and physician	Conditions are professionally diagnosed	Based on individual physician diagnostic practices and limited to conditions noted in sample visit
National Hospital Discharge Survey	Medical records survey	Hospital records—Hospital staff or census abstractor	Conditions are professionally diagnosed	Based on individual physician diagnostic practices, limited to conditions noted in sample visit, and dependent on completeness of medical records
National Nursing Home Survey	Personal interview with staff who refer to records	Nursing home staff—Professional interviewer	Conditions are professionally diagnosed	Based on individual physician diagnostic practices, limited to conditions noted in sample visit, and dependent on completeness of medical records
National Mortality Registration Survey	Coding causes of death reported on death certificates	Death certificate—Medical certifier (physician, medical examiner, coroner)	Conditions are professionally diagnosed	Limited to conditions leading to death, and subject to individual certifier diagnostic and reporting practices

The personal interview mode of data collection, in which an interviewer visits the sample household and collects information in a personal interview with household members, is employed in both NHIS and NMCUES. In NHIS, the household members are interviewed once; in NMCUES, they were interviewed 5 times during a 1-year period. Certain strengths and limitations are inherent in the personal interview approach to collecting condition data and therefore apply equally to NHIS and NMCUES.

The personal interview mode permits collection of a wide variety of acute and chronic condition data, and it provides unique data on conditions not treated by a physician and on the impact of illness as measured by reduction in usual activities. A strength of the personal interview is that it can provide information on *all* of the known health conditions and medical care pertaining to the sample persons during the reference period. This is in contrast to surveys of medical care providers, who may not know about care given by other providers or about health conditions for which the person did not seek care.

Personal interview data are limited in that condition data collected directly from household members are dependent on the respondent's perception of the condition and on his or her willingness and ability to recall and report the condition. In addition, respondents are only able to report self-diagnoses and diagnoses that their physicians told them and that they can recall. Diagnoses reported by household members are likely to be less specific than those obtained from providers

of medical care, because the provider may not have given the patient a specific diagnosis or the patient may not remember the name or details. Finally, the physician diagnoses that household members report are based on diagnostic practices that may vary from physician to physician.

NHANES is unique in that condition data are collected by means of a direct physical examination, supplemented by a health history obtained by personal interview. Thus, two of the limitations of personal interview surveys are overcome; previously undiagnosed conditions can be identified, and standardized diagnostic examinations are performed. This data collection approach has two basic limitations: Only those conditions present at the time of the examination can be identified, and the number of tests that can be done is limited by several factors, including restrictions on resources, and concerns about respondent burden and risks associated with some diagnostic tests.

NAMCS, NHDS, and NNHS are surveys of medical care providers and therefore have some common strengths and limitations. All have the advantage over personal interview surveys of providing clinically verified diagnoses. There is less overreporting and underreporting in these surveys than in personal interviews where the physician may choose to withhold diagnostic information from the patient or the patient may forget the diagnosis or may report his own impression of the diagnosis. Also, all three surveys provide data about all kinds of conditions, in contrast to the physical examination method of data collection, which can collect data only about selected diagnoses.

On the other hand, medical provider surveys are limited in that diagnoses may not be based on standard diagnostic procedures; that is, they depend on the diagnostic procedures that the attending physician chooses to perform and on the physician's interpretation of the symptoms and test results. Also, all three surveys are limited to collecting data on the diagnoses made or treated during the sample episode of medical care. Conditions that are usually treated on an outpatient basis, such as influenza, upper respiratory infections, and colds, account for many of the conditions reported in NAMCS but for few of the conditions reported in NHDS. Most of the conditions reported in NHDS and NNHS are of a more serious nature, such as heart disease and cancer, or are debilitating, such as arthritis and rheumatism.

Each of the three surveys has unique strengths and limitations. For example, NHDS derives its diagnostic data exclusively from medical records, so the data quality is dependent upon the completeness and accuracy of the hospital files. NAMCS instructs each physician to complete the questionnaire during the sample visit, so the results are not dependent on medical records. NNHS has used a combination of medical records review and personal interview. However, during the 1985 survey, the diagnostic data were obtained from medical records only. Data quality is dependent on the completeness and accuracy of those records.

Through only one NCHS data system, the National Mortality Registration System, diagnostic statistics are collected by means of a registration system mandated by State law; data for the other six surveys are provided on a voluntary basis. Because every death occurring in this country must be registered, coverage is thought to be complete. The medical certifier who completes the cause-of-death section of the death certificate is asked to enter the immediate cause of death and the sequence of conditions that led to the immediate cause, ending with the underlying cause, which is the condition that initiated the sequence of events. He or she also is asked to report significant conditions that contributed to death, but not the underlying cause. Death certificates have the advantage of providing detailed data on professionally diagnosed causes of death, although diagnostic procedures vary considerably among certifying physicians.[14] The data are limited, however, in that they exclude the conditions present at death that did not cause or contribute to death, and they are subject to physician variability in diagnostic and certification practices.

It also has been acknowledged by many medicolegal officials (coroners and medical examiners) that varying degrees of statistical error exist in certain types of mortality data.[15] More than 30 years ago, Moriyama[16] wrote about the difficulties of accurately certifying causes of death with respect to the following conditions:

1. The deceased had not received medical attention.
2. The identity of the deceased or the cause of death was not known.
3. Violence was involved or suspected.

Other studies have dealt with the problems of accurately certifying the cause of death for certain unexpected deaths, particularly where suicide may have been the cause.[17,18]

NCHS currently is planning a national study to investigate the magnitude and sources of certification errors associated with the cause-of-death statistics. A pilot test of about 700 deaths occurring in 1985 is now under way.

Frequency of data collection (periodicity)

A 1981 NCHS publication, *Periodicity of Data Systems*,[19] is an explanation of NCHS's proposed data-collection plan for fiscal years 1981–86. Although the final implemented plan varied somewhat from the proposed one, excerpts from that document are included in the following paragraphs in order to provide the background information needed to understand the periodicity, both past and future, of data systems collecting diagnostic statistics.

Since the early 1970's, NCHS has continually expanded its activities to respond to increasing demands for information on the health, health care needs, and utilization of health care resources by the U.S. population. During this expansion period, constraints on resources required the Center to reexamine its programs to ensure that important health information is produced in the most cost-efficient manner.

This process included an assessment of the interrelationship and possible overlap between data systems with regard to needs for, and importance of, the data produced and the required currency and timeliness of the data. Based on this assessment, each data system was examined to determine possible changes to its periodicity and to related elements of its design.

Concurrent with the periodicity review process, a major effort to evaluate and redesign the population-based surveys was undertaken that may affect the operation of several of the NCHS data systems, including two that produce diagnostic statistics: NHIS and NHANES. Currently, NCHS surveys are all independently designed and operated. Several strategies for integrating the sample designs of several NCHS surveys are being examined. If the designs can be integrated effectively, the total cost of conducting the combined surveys will be reduced from their current levels, and the totality of the data collected by the combined surveys will be greater than what is currently available. The basic strategy is to design NHIS, a continuous survey, so that it can serve as the master sampling frame for periodic surveys of the general population. Of the data systems that produce diagnostic statistics, only NHIS and NHANES would be affected by the redesign.

Although it first appeared in 1981, the information in table E shows the current and proposed periodicities for the six data systems (NMCUES excluded) that will continue to be collected by NCHS. The proposed periodicities assume that the designs for NHIS and NHANES can be effectively integrated. In that case, NHIS, NHDS, and NMRS would continue their current data collection schedules. NAMCS, originally an annual survey, would be conducted in 3-year cycles, and the periods between data collection cycles for NHANES and NNHS would be doubled from 5 to 10 years and 3 to 6 years, respectively.

The figure shows the previous time periods for which diagnostic data are available and, based on table E, the planned data collection cycles through the year 2000 for each of the six remaining data systems. It is important to note that changes in the survey design over the years have affected the comparability of data. For example, two of the surveys, NHANES and NNHS, have substantially changed the population covered from one round to another. The first cycle of NNHS, conducted in 1973–74, collected data on current residents. Through the 1977 NNHS, data were collected on current residents and a component on discharges from the facility during the data year was added. This resident and discharge design was repeated in the 1985 survey. The populations covered by each of the NHANES cycles, and by its predecessor, HES, were described in a previous section.

Table E. Data collection frequencies for National Center for Health Statistics data systems that collect diagnostic data

Data system[1]	*Current (X) and proposed (O) frequencies*				
	Annual	*Triennial*	*Quinquennial*	*Sexennial*	*Decennial*
National Health Interview Survey	X,O				
National Health and Nutrition Examination Survey			X		O
National Ambulatory Medical Care Survey		[2]X, O			
National Hospital Discharge Survey	X,O				
National Nursing Home Survey[3]		X		O	
National Mortality Registration System	X,O				

[1]NMCUES is excluded because only one survey was carried out by NCHS; future surveys will be carried out by the National Center for Health Statistics Research (NCHSR) and the Health Care Financing Administration (HCFA).
[2]Annual survey from 1973 through 1981.
[3]Last two surveys were actually 8 years apart (1977 and 1985). The next one is planned for 1991.

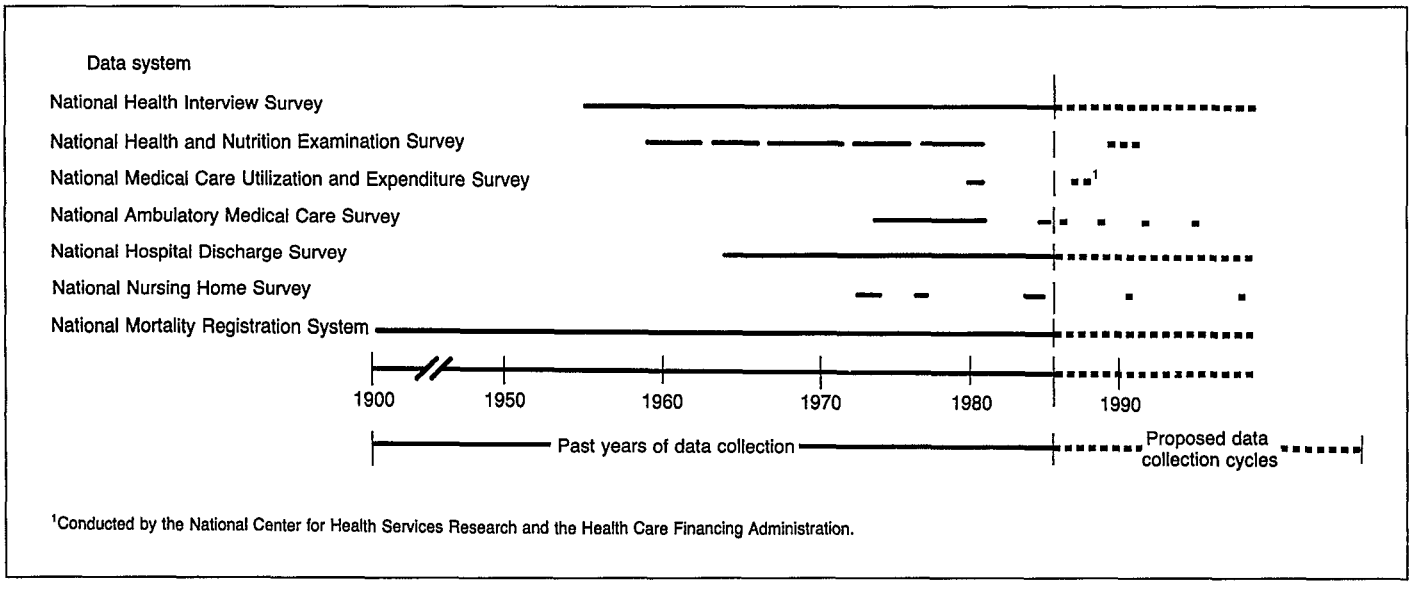


Figure. Past and future data collection periods for National Center for Health Statistics data systems that collect diagnostic data

Comparison of statistics produced

This section describes several features of the diagnostic statistics produced, including the coding procedures used by the data systems to translate verbatim diagnoses into diagnostic codes, the methods of grouping diagnostic codes used in preparing published estimates, the kinds of statistics that can be produced by the data systems, and the associated health and demographic data available from them.

Coding procedures and classification systems

There are several differences in the coding procedures used by the data systems that collect and process diagnostic data. Some of the systems, such as NHIS, NHDS, and NMRS, use trained staffs of medical coders to translate written entries on the survey documents to machine-readable numeric codes. The 1985 NNHS relied on the contractor's trained coding staff. Others, such as NHANES, use precoded forms that identify selected diagnoses for which the survey is collecting data. In addition, the number of codable entries and the level of detail vary from one data system to another. As pointed out earlier, the source of the diagnostic information (that is, the physician, hospital record, or sample respondent) also varies from system to system.

However, among the many variants associated with the Center's diagnostic coding procedures, there is one unifying theme. The systems used for classification of NCHS diagnostic data are based on the *International Classification of Diseases* (ICD). (A discussion of ICD is included in appendix III.) Although ICD is the basic classification scheme used by the Center's data systems, considerable variation in the application and degree of detail is possible under ICD.

NHANES collects diagnostic data through physician examinations of survey respondents. These diagnostic data are converted to ICD–9 codes by the examining physician.

NHIS uses the ICD–9 classification for most diagnoses but does not use the ICD–9 supplementary classifications (for example, external causes of injury and factors influencing health status). It was necessary to develop a system for classifying impairment and handicap data through NHIS. NMCUES followed the same format for its 1980 survey.

Finally, NHDS, NAMCS, and NNHS (1985) use ICD–9–CM, a U.S. *clinical modification* of ICD–9. The clinical modification was developed to provide a more detailed classification of the morbidity data needed to describe the clinical picture of the patient.

Basically, ICD is a three-digit classification scheme with fourth-digit detail precision. ICD–9–CM uses the same three-digit scheme but the fourth-digit categories may be, in some cases, further subdivided into fifth-digit categories. Generally, the fifth-digit detail is only attainable in a clinical setting where this kind of specificity about the disease can be measured.

Therefore, ICD–9–CM is compatible with ICD–9, thus meeting the need for comparability of morbidity and mortality statistics at the international level. Specifications that ensure that each rubric of ICD–9–CM collapses back to its ICD–9 counterpart are enumerated in appendix III.

Grouping of diagnostic categories for publication

In addition to the differences among diagnostic statistics attributed to survey features, data collection procedures, and coding procedures, differences are found in published estimates of diagnoses that result from decisions on the grouping of diagnoses for analysis. The decisions are dictated, to some extent, by which of three methods is used to collect the diagnostic data. In surveys where the diagnostic data are collected from medical providers, implying clinical verification of the disease, a detailed diagnostic code can be assigned and analysis of narrow, specific diagnostic categories is justified (if the sample size is adequate). Surveys that use precoded checklists of diseases in the data collection stage are limited to the conditions contained on the checklist for purposes of analysis. Finally, surveys that collect diagnostic information from household respondents and assign formal condition codes to these lay diagnoses limit the publication to broad diagnostic groups because of nonavailability of information within detailed categories or questionable accuracy of the available data. Table F illustrates the difference in detail between three data systems for the condition "bronchitis."

Even within these three groups, however, a variety of conventions have been adopted for collapsing diagnostic categories for publication. (Note that more detailed categories may be available on data tape; the following refers to the publications produced in NCHS's *Vital and Health Statistics* series as described on the inside back cover.)

Published diagnostic statistics for the two medical provider surveys, NHDS and NAMCS (also NNHS in 1985) generally are arranged according to the 17 major ICD categories described in appendix III. Within those 17 categories, the subcategories for which estimates are published differ between the two data systems. The subcategories selected by each data system correspond to the conditions most often reported in the specified survey; so that conditions selected for NAMCS

Table F. Diagnostic categories for publication of the condition "bronchitis" from three National Center for Health Statistics data systems using different data collection methods

Data system	*Data collection method*	*Diagnostic category*
National Hospital Discharge System[1]	Medical provider	Bronchitis, not specified as acute or chronic (490)
		Chronic bronchitis (491)
		Simple chronic bronchitis (491.0)
		Mucopurulent chronic bronchitis (491.1)
		Obstructive chronic bronchitis (491.2)
		Other chronic bronchitis (491.8)
		Unspecified chronic bronchitis (491.9)
National Health Interview Survey[1]	Household respondent	Chronic bronchitis (490,491)
National Nursing Home Survey[2]	Precoded checklist	Bronchitis (23)

[1]ICD categories.
[2]Prior to 1985.

are most often treated by office-based physicians, and conditions selected for NHDS are most often responsible for hospitalization. Appendix III also shows selected diagnostic subcategories for which estimates are available from the two surveys. Included in the category entitled "Diseases of the Digestive System," for example, NAMCS publishes separate estimates for gastritis and duodenitis, and for noninfectious enteritis and colitis. In addition to publishing estimates for these conditions, four conditions are added through NHDS that often require hospitalization: ulcers of the stomach and small intestine, appendicitis, inguinal hernia, and cholelithiasis. In addition, a detailed report is routinely published which includes NHDS estimates for all reliable (diagnostic estimates of 5,000 or more) ICD–9–CM codes.

Because quite different kinds of questions regarding acute and chronic conditions are used to elicit reports, separate NHIS estimates are published for these two condition categories. Acute conditions are obtained in response to questions about restricted activity or medical care during the 2-week reference period, whereas estimates of chronic conditions are derived primarily from responses to the chronic condition checklists. The chronic condition categories shown in the regular publications do not correspond exactly to those listed in the questionnaire, because in some cases the checklist categories are combined for purposes of analysis.

NMRS cause-of-death data are currently published for the ICD–9 at the each-cause level (approximately 5,000 cause categories), at an aggregated level covering 282 cause groups, and at a broader level of 72 classifications and 61 causes for infant deaths only. This detail is very valuable in providing trend data for specific causes of death and possible because the entire universe of death certificates is processed. Diagnostic classification improves as the categories become less specific. A code that is incorrect at the four-digit level may not be incorrect at the three-digit level. For example, the difference between "Acute Myocardial Infarction of Anterolateral Wall" (410.0) and "Acute Myocardial Infarction of Other Lateral Wall" (410.5) disappears when they are both collapsed to "Acute Myocardial Infarction" (410). In a methodological study of mortality medical coding,[11] Harris and French found that the error rates of underlying cause-of-death coding improved as the level of detail decreased. The error rate for the 5,000 cause categories was 1.87 percent compared with a rate of 1.48 percent for the 282 cause categories. Although data are not published at the chapter level, the 17 chapter categories had an error rate of 0.79 percent.

An Institute of Medicine study on the NHDS[20] reported similar results in terms of the relation between detail and error level. The remaining three data systems are quite simply described: NMCUES, from which limited data have been published to date; NHANES, from which most published data are the results of laboratory tests and measurements; and NNHS (1973–74, 1977), from which the categories used for analysis are identical to those included in the questionnaire checklists.

Kinds of estimates produced

Although each data system was initially designed to produce estimates for one kind of analytic unit, such as a person (NHIS), a doctor visit (NAMCS), or a hospital stay (NHDS), some also provide, as a by-product, diagnostic statistics for other analytic units. NHIS, for example, can produce national estimates of diagnoses for three units of analysis: *persons* diagnosed with a given condition, *hospitalizations* for the condition, or *visits to a physician* for the condition. Other data systems are more specialized. NHDS, for example, produces diagnostic statistics only about *hospital discharges* for a given condition; it cannot provide estimates of the number of *persons* hospitalized because persons may be hospitalized several times, and the survey is designed to enumerate discharges during a specified time period, rather than persons.

A discussion follows of the data systems that collect diagnostic data for the specified units of analysis. Each data system exhibits strengths and limitations in collecting these data.

Person statistics

Diagnostic statistics on a person basis can be obtained from five NCHS data systems: NHIS, NMCUES, NHANES, NMRS, and NNHS. NNHS provides statistics about a unique population—persons who were residing in nursing homes at the time of the survey or who were discharged from nursing homes the year before the survey. NMRS provides statistics on underlying causes and contributory causes of death for all decedents, for both the institutionalized and noninstitutionalized populations. Although the comparability of morbidity and mortality statistics may be highly correlated for certain diseases, the determination of an underlying or contributory cause of death is a distinctly different process from identifying morbid conditions that contribute to restriction of activities, bed days, and so forth. The other three surveys provide person statistics about the noninstitutionalized population based on information obtained directly from individuals. Table G summarizes some of the strengths and limitations of the diagnostic statistics produced by these data systems.

Table G. Some strengths and limitations of National Center for Health Statistics data systems through which diagnostic data are collected on a person basis

Data system (and population characteristic)	*Strengths*	*Limitations*
National Health Interview Survey (noninstitutional)	Includes checklists of chronic conditions not currently affecting activities. Data available for all years since 1956. Uses a relatively short (2-week) recall period.	Excludes deaths. Excludes institutional population.
National Medical Care Utilization and Expenditure Survey (noninstitutional)	Includes some deaths.	Possible under-reporting because it uses a 3-month recall period. Data available only for 1980.
National Health and Nutrition Examination Survey (noninstitutional)	Most accurate source of prevalence data; publishes results of laboratory tests and other tests and measurements. Collects data on undiagnosed conditions. Availability of data tapes on virtually all previously collected raw data.	Published prevalence data somewhat limited in previous cycles. Periodic survey; data not available for all years.
National Nursing Home Survey (institutional)	Collects data on nursing home population.	Periodic survey; data not available for all years. First two surveys limited to short checklist of conditions.
National Mortality Registration System (institutional and noninstitutional)	Includes all deaths.	Excludes conditions not leading to death.

Two of these data systems, NHIS and NMCUES, are personal interview surveys of the civilian noninstitutionalized population. The designs of the two surveys differ in four areas that potentially affect the quality or utility of the diagnostic data.

1. Slightly different underlying reasons for collecting condition data are inherent in the two surveys. NHIS is designed specifically as a general health survey to collect a variety of data on acute and chronic conditions and the impact of illness, whereas condition data as it related to medical care utilization and expenditures were collected through NMCUES. As a result, the surveys differ somewhat in the amount of emphasis on conditions. Both start with questions on all conditions that cause a reduction in daily activity or which require medical care. These questions provide the most comprehensive NCHS data on problems or complaints not treated by a physician. In addition, other chronic conditions are probed through NHIS by means of chronic condition checklists, providing estimates of the prevalence of selected conditions regardless of whether the conditions currently affect daily activity or require medical care. These checklists were excluded in NMCUES, but less common types of medical care, such as visits to emergency rooms, were probed more thoroughly in NMCUES than in NHIS.
2. A 2-week recall period for questions about reduction in daily activity and about physician visits resulting from illness or injury is used in NHIS. The NMCUES recall period for these questions was the period since the last interview, usually about 3 months. To minimize the memory bias from the longer recall period, NMCUES respondents were given a calendar during the first interview and asked to record all illnesses and medical care. In spite of this memory aid, the longer NMCUES recall period probably contributed to the observed differences between NHIS and NMCUES estimates of minor, less memorable conditions such as colds and influenza. For a comparable period, the NHIS estimate of colds was twice as large as the corresponding NMCUES estimate.
3. NHIS has been conducted continuously since 1956. NMCUES, a periodic survey, was first fielded in 1980 and will be repeated in 1987 (by NCHSR and HCFA). Thus, NHIS is the obvious choice for annual trend data as well as current diagnostic statistics.
4. Because NMCUES was a 1-year panel survey, and because a small fraction of the participants died during the year, it is capable of providing some information about deaths. Through NHIS, a cross-sectional survey, information is collected only about current household members. Though NMCUES is not recommended as a source of data about decedents because of small sample sizes and, consequently, unstable estimates, the fact that decedents are included is likely to affect population estimates of conditions with short survival; therefore the NMCUES estimates of such conditions are likely to be larger than the NHIS estimates.

The third NCHS survey through which condition data is collected for persons in the noninstitutionalized population is NHANES. NHANES is unique in that condition data are collected by means of a direct physical examination, clinical and laboratory tests, and related measurement procedures, supplemented by a health history obtained by personal interview. The use of the direct physical examination permits diagnoses of previously unrecognized conditions which would probably go unreported in interview surveys. Thus, among NCHS data systems, NHANES is potentially the source of the most accurate prevalence estimates for selected chronic conditions. The availability and publication of certain prevalence estimates has been limited in the past, however, partly because of some difficulties in earlier NHANES surveys, such as the level of available technology for the computerized analyses of electrocardiograms and a low response rate for the diabetes component of the survey. A number of these earlier problems, both technical and logistical, have been resolved; and significant increases in the provision of prevalence data, such as those for iron status, growth, and blood pressure levels, are expected in future cycles. Some currently available NHANES data are probably most useful to clinicians or other researchers who can apply their own algorithms to determine the presence of a particular disease.

Discharges from short-stay hospitals

Diagnostic statistics about discharges from hospitals are available from three sources: NHDS, NHIS, and NMCUES. NHDS, a continuous hospital records survey, was designed specifically to obtain condition data about hospital discharges. In most cases, then, it can be expected to be the best source for obtaining general purpose national discharge data. NHDS provides several types of estimates not available from other NCHS data systems. For example, this survey is the only source of national data on short-stay hospital discharges for all segments of the population. Though most persons admitted to hospitals have noninstitutionalized residences, the institutionalized population is included in NHDS to the extent that these persons are transferred to short-stay hospitals for care. This survey is a source of information about conditions (up to seven) *present* at death (whether or not they contributed to death) for all persons who died in a hospital, whereas NMRS provides information only on conditions *causing* or *contributing* to death. For example, the presence of heart disease in a person who died from injuries received in an automobile accident would not show up on the death certificate but would appear on the NHDS medical abstract record.

The two personal interview surveys, NHIS and NMCUES, can provide condition data for all discharges from short-stay hospitals of sample persons, with certain restrictions. In NHIS, the person must stay at least one night and must be discharged to a noninstitutionalized residence eligible for this survey. NHIS respondents are asked about the number of hospitalizations in the 13 months prior to interview, and estimates are produced based on those reported as occurring in the 6 months prior to interview. NMCUES interviewers ask about hospitalizations since the last interview; that is, in the last 3 months, so that after all rounds of interviewing are completed, respondents will have been asked about their hospitalizations during the entire calendar year. Then, through both surveys information is collected about conditions diagnosed or treated during the hospital stay. Because recall errors increase with the length of the reference period,[21] and because NMCUES respondents are provided with a calendar memory aid and a bounded reference period, reporting of hospitalizations may be somewhat more complete in NMCUES than in NHIS.

Although these data are collected in NHIS and NMCUES, little has been published. Only two NHIS reports have been published that show the conditions for which persons are hospitalized. The first is based on 1972 data and the other is based on 1980–81 data. Through the first NMCUES, conducted in 1980, hospital-utilization data for selected musculoskeletal conditions and hospital admission data for selected acute respiratory conditions have been published.

Visits to office-based physicians

Diagnostic statistics based on visits to office-based physicians can be obtained from three NCHS surveys: NAMCS, NHIS, and NMCUES. From 1973–81, NAMCS continuously surveyed office-based physicians to obtain information about the reasons given for seeking care and the diagnoses made by the attending physicians. Though now conducted triennially, the data collection procedure remains unchanged; the physician completes a specially designed form at the time of the sample visit. To maintain an acceptable level of respondent burden, NAMCS collects a limited amount of nondiagnostic data about the visit. In most cases, NAMCS is the best source of obtaining general purpose national data on visits to office-based physicians.

The two personal interview surveys, NHIS and NMCUES, also collect diagnostic statistics about office visits. (In addition to data on office-based visits, through NHIS and NMCUES, diagnostic data are collected about other physician contacts such as emergency room visits, outpatient care, and visits to clinics.) Both use a screening question that asks about all office visits in the reference period, followed by questions on the condition(s) diagnosed or treated. A 2-week recall period is used for NHIS, whereas questions regarding visits since the last interview—usually a period of about 3 months—are included in NMCUES. The longer recall period for NMCUES may result in greater under-reporting of visits for minor, less memorable conditions.

Although diagnostic data about office visits have been collected through NHIS since 1957, published data are available for only a few data years: 1971, 1975, and 1980. Also through NHIS, data for selected chronic conditions that led to one office visit or more have been published for the years 1979–81. Ambulatory visits data for selected musculoskeletal and acute respiratory conditions have been published through NMCUES.

Discharges from nursing homes

NNHS is the only survey that produces diagnostic statistics about all types of discharges from nursing homes, including those discharged to another institution or to a noninstitutional residence, or those discharged deceased. In 1977, statistics on current nursing home residents were supplemented with statistics on a sample of persons discharged during the calendar year in the second NNHS. Information on discharges was also collected through the third NNHS, conducted in 1985. The nursing home staff member most knowledgeable about each sample discharged patient was asked to refer to the medical records and to identify the conditions and diagnoses present at the time of admission and, if applicable, at the time of discharge.

Prior to 1982, NHIS included a question on nursing home stays in the past 12 months, but these data were not published. Data on nursing home stays are no longer routinely collected for NHIS. Data on nursing home stays were collected for the 1980 NMCUES for members of the sample households during the study year.

Deaths

The primary source of information about deaths is NMRS, which collects information on the underlying and contributory causes of death for all deaths registered in the United States. Because all deaths occurring in this country must be registered by law, coverage is thought to be complete. These data are the basis for statistics on professionally diagnosed causes of death. They are limited, however, in that they exclude the conditions present at death that do not cause or contribute to death.

Some diagnostic statistics are also available from NNHS and NHDS for deaths that occur in facilities eligible for these surveys. In these instances, the diagnostic data collected are the same as for persons discharged alive.

Associated health and demographic data

Although the primary focus of this report is diagnostic data, it should be evident by now that these data are collected and published within the context of selected general health surveys. Thus, along with diagnostic statistics, a variety of associated variables are available from each data system. The availability of these nondiagnostic variables depends heavily on (1) the source of data (persons, medical care providers, medical or vital records) and (2) the survey goals.

Table H serves two functions: It emphasizes the complementary nature of NCHS data systems, and it identifies selected associated nondiagnostic variables available from the data systems that produce diagnostic statistics. These variables are classified in four major groupings: demographic, utilization, impact, and clinical findings. As the table shows, the availability of these associated variables varies considerably from one group to another. For example, whereas virtually all of the systems provide data by demographic variables such as age, race, and sex, only from NMCUES, NHIS, and NHANES can data be provided on family income. With regard to medical care utilization, four data systems are identified as producers of inpatient stays data. Actually, through NHIS, NMCUES, and NHDS, data are provided on hospital stays, although NNHS is the sole source for inpatient stays—a term implying an extended and more encompassing pattern of utilization than that suggested or implied by hospitalization. Data on physician office visits are obtainable from NHIS, NMCUES, and NAMCS, whereas other physician contacts, such as emergency rooms and outpatient clinics, are available only through NHIS and NMCUES. Physician contact at nursing homes is not an identifiable separate statistic.

Several data systems provide information on the impact of certain conditions on those who have the conditions. One measure of impact available from NHIS and NMCUES is the number of disability days caused by diagnostic conditions. A disability day is defined as any temporary or long-term reduction of a person's activity as a result of an acute or chronic condition. Health expenses, another measure of impact, is available from NMCUES and NNHS.

Finally, beneath the heading "Clinical findings," data on test results are provided by NHANES, NHDS, and NNHS. NHANES remains NCHS's only source for data on the results of physiological findings or visual acuity measures. In many cases, knowledge of the availability of information on these related variables may be crucial to a user in the process of selecting the most appropriate source of diagnostic data to meet his or her needs. NNHS and NMCUES are the sources of data on health expenses, and data on sources of payment are provided through NHDS.

Table H. Selected nondiagnostic data available in published form from National Center for Health Statistics data systems

Data system	Demographic			Utilization		Impact		Clinical findings	
	Race	Age and sex	Family income	Inpatient stays[1]	Office visits	Disability days	Health expenses	Test results[2]	Physical measures
National Health Interview Survey (NHIS)	X	X	X	X	X	X	X[3]		
National Medical Care Utilization and Expenditure Survey (NMCUES)	X	X	X	X	X	X	X		
National Health and Nutrition Examination Survey	X	X	X					X	X
National Ambulatory Medical Care Survey	X	X			X				
National Hospital Discharge Survey (NHDS)	X	X		X				X	
National Nursing Home Survey (NNHS)	X	X		X			X	X	
National Mortality Registration System	X	X							

[1]Inpatient stays for NHIS, NMCUES, and NHDS refer to hospitalizations; for NNHS they refer to nursing-home stays.
[2]For example, physiological findings and visual acuity measures.
[3]NHIS periodically has collected limited data on NHIS supplements.

Choice of a data system as a source of diagnostic data: Some effects of system survey features

As a general rule, NCHS data systems are designed to provide general purpose national statistics on health and health care, rather than to provide answers to specific, narrowly defined research questions. This does not imply that the NCHS data systems are not of value for the latter purpose. NHANES provides data on the distribution of the general population with respect to a given characteristic that a biomedical researcher may wish to compare with the values obtained for a group of patients with a particular disease. For example, the NHANES I Epidemiologic Followup Study is expected to yield some worthwhile etiological information. The designers of the study wish to investigate new risk factors measured in the baseline NHANES I (1971–75) related to subsequent morbidity and mortality. During the period 1982–84, the more than 14,000 adult participants were traced and interviewed about their hospitalization history since the earlier survey. For those subjects who were deceased, proxy respondents provided the hospitalization history. Historically, however, NCHS diagnostic data have probably been used more often by public health workers, including health planners and legislative policymakers, and the general public, than by biomedical researchers.

No experimental data are provided by the data systems, nor, with certain exceptions, are serial observations on the same persons. Although the same individuals have not been included in the samples for two data systems or more on a planned basis, a number of studies have been done to investigate the feasibility of linking survey designs for several NCHS data systems. If linked designs are implemented, the survey designs described in this report will require some modification.

The seven NCHS data collection systems that provide diagnostic statistics are described in considerable detail in the section entitled "Descriptions of the data systems that collect diagnostic statistics." Much of the same material is included in the "Comparison of selected survey features" and "Comparison of statistics produced" sections, but there the information for all seven systems is organized and compared with respect to each of a series of survey features that may affect the type, content, quality, uses, and interpretation of the diagnostic statistics.

In considering the choice of a data system as a source, the importance of a precise statement of the data need must be emphasized. It forces researchers to think carefully about their choice and the potential usefulness of the chosen data in terms of their objectives. It increases the likelihood that the data which they assemble will achieve their objectives. It also enables the researchers to pass on to other users the appropriate interpretation of the data. If the statement of the data need can incorporate some of the survey features of the data systems (for example, person or episodes-of-care data; lay versus provider reporting of the diagnostic data), that will help the researchers identify the data system to be selected.

Though it seems obvious that the data need will be in terms of specific diagnoses, the intended use of the diagnostic data will dictate the most appropriate unit of analysis. Despite the similarities in the ICD condition classification schemes used by many data systems (table J), the estimates for a given condition may vary substantially by data system according to the unit of analysis. As table K shows, the NHIS estimates of persons with arthritis and rheumatism, influenza, and the common cold are many times greater than the NHDS estimates for those conditions, because the NHDS estimates are of *hospitalizations* rather than of *people*, and only the most serious cases of those conditions require hospitalization. Similarly, NHIS estimates for acute conditions such as influenza, the common cold, and other acute respiratory conditions are much higher than the NAMCS estimates for those conditions, because the NAMCS estimates are of *visits* to a physician rather than of *people*, and those conditions do not always require treatment by a physician. On the other hand, the NHIS estimate for fractures and dislocations is smaller than the NAMCS estimates of visits for those injuries, because multiple visits to a physician are often required. In each of these cases, because of the nature of the disease and the varying level of need for medical consultation, the higher estimate and its corresponding unit of analysis are probably the most accurate. The estimates for hypertensive diseases from NHIS, NMCUES, and NHANES, which measure persons, and NAMCS, which measures visits, are very similar and, as expected, higher than the NHDS estimate of hospitalizations. The NHANES estimate, based on actual clinical measurements (three times per person) is probably the most accurate.

In looking at the estimates of cerebrovascular and heart diseases, one would expect the estimates to be more consistent, because in most instances these diseases would have been professionally diagnosed, and would therefore be reported in household interview surveys as well as in medical-provider surveys. This hypothesis holds for the cerebrovascular diseases but not for heart diseases. In the latter case, there is even wider variation between the interview survey estimates (includ-

ing NHANES, which obtained its estimate through the interview process rather than through a clinical diagnosis). The more accurate prevalence estimate would probably be that based on data directly provided by medical staff. Similarly, the best estimate of malignant neoplasms, which require clinical verification, but not always through hospitalization, is probably that provided by NAMCS.

One data system may not meet all the user's desired specifications. In that case, the user must decide which of the systems comes closest to meeting his or her needs. Or, in some cases, the user may find it necessary to combine some or all of the data from two or more data systems.

The survey features on which information is presented in the sections comparing selected survey features and comparing produced statistics include the following:

- Sample size.
- Data collection methods.
- Frequency of data collection (periodicity).
- Coding procedures and classification systems.
- Grouping of diagnostic categories for publication.
- Kinds of estimates produced.
- Associated health and demographic data.

Aside from assuring that the target population is appropriate, one of the most important factors in choosing the data system to meet an information need will be the kinds of estimates produced, in terms of the unit of analysis. The units of analysis are persons, hospital discharges, physician visits, persons discharged from nursing homes, and deaths.

As shown in table H, diagnostic data for each type of

Table J. Diagnostic codes of the Ninth Revision of the International Classification of Diseases for selected diseases as defined by the National Center for Health Statistics morbidity data systems

Disease category	*National Ambulatory Medical Care Survey*	*National Hospital Discharge Survey*	*National Health Interview Survey*	*National Medical Care Utilization and Expenditure Survey*
Fractures and dislocations	800–839	800–839	733.8, 800–839	800–839
Cerebrovascular	430–438	430–438	348.5, 430–436, 437.0–.2,.4–.6,.8,.9, 438	430–438, 343 (X50)
Malignant neoplasms	140–208	140–208	140–208, 289.6	140–208
Heart diseases	[1]	391–392.0, 393–398, 402, 404, 410–416, 420–429	390, 392–398, 402.1,.9, 404.1,.9, 410–414, 415.0, 416, 417.8,.9, 420.9 421.0,.9, 422.9, 423, 424, 425.0–.2,.4,.9, 426–428.1,.9 429.0,.1, 429.3,.5,.8,.9, 785.0–.3	390–429
Influenza	487	487	487	487
Arthritis and rheumatism	[1]	710–721, 724–729	710.3,.4, 711.0,.9, 712.8,.9, 714–716 719.3, 720.0,.8,.9, 721.0,.2,.3,.5–.7,.9, 725, 726.0,.2, 729.0,.1	[1]
Hypertensive diseases	401–405	401–405	401–405, 796.2	401–405
Acute respiratory diseases	460–466	460–466	079.3, 460–465,470, 471, 475, 478.0–.7,.9	460–465, 470–478
Common cold	460	460	079.3, 460	460

[1]Denotes categories not defined by data system.

Table K. Estimates for selected disease categories by data systems: 1980

Disease category	*National Ambulatory Medical Care Survey*	*National Hospital Discharge Survey*	*National Health Interview Survey*	*National Medical Care Utilization and Expenditure Survey*	*National Health and Nutrition Examination Survey*[1]
Fractures and dislocation	[2]11,451,000	1,975,000	7,941,000	7,652,000	[3]
Cerebrovascular	1,902,000	[2]1,709,000	2,101,000	2,812,000	[3]
Malignant neoplasms	[2]10,105,000	2,953,000	[4]	4,175,000	5,626,500
Heart diseases	[3]	[2]8,857,000	16,434,000	34,137,000	31,321,000
Influenza	3,203,000	136,000	[2]113,799,000	70,714,000	[3]
Arthritis and rheumatism	[3]	3,353,000	[2]28,489,000	[3]	35,153,000
Hypertensive diseases	27,438,000	2,459,000	25,003,000	22,752,000	[2]25,065,000
Acute respiratory diseases	33,937,000	880,000	[2]125,437,000	90,636,000	[3]
Common cold	1,328,000	16,000	[2]93,143,000	44,451,000	[3]

[1]NHANES II was conducted during 1976–80. The estimates shown are based on U.S. population totals for the survey's midpoint, 1978. The estimate for hypertensive diseases is for ages 18–74; all others are for ages 12–74.
[2]"Best" estimates. (See text.)
[3]Denotes categories not defined by data system.
[4]Survey was not designed to measure this disease.

unit of analysis are available from two or more data systems. Thus, the decision regarding which data system best meets the needs of the data user will likely involve at least one other analytic factor. For example, someone interested in person data will find, after reviewing the four data systems that produce person data, that NHIS is the only survey that provides statistics on the incidence of acute conditions.

With the exceptions noted in the section on coding procedures and classification systems, diagnostic data collected in all seven data systems are coded and classified according to the current (ninth) revision of the *International Classification of Diseases* (ICD) or to an adaptation of ICD. The diagnostic groupings for which data are published vary from system to system, depending on the degree of specificity available according to the data collection procedures. Thus, the choice of a data system for a particular use may be affected by the degree of diagnostic detail used in presenting data.

The use of ICD for classification of diagnostic data is limited in NHANES to selected diagnoses for which data are collected. Much of the other data collected are physiological measures such as serum glucose, blood pressure, and skin fold. The data reported are distributions of persons by these measures rather than number of persons with or without the specific condition.

The nature, quality, and interpretation of the diagnostic data produced by a particular data system depend largely on the data collection method used in that system. Table D provides summary information on most aspects of the data collection methods, including some strengths and limitations of the diagnostic data produced by each data system.

The quality of data varies throughout the population covered by a data system. For example, one respondent to NHIS may be able to provide complete, specific and accurate information while another may be ill-informed, unable to remember, or unwilling to report completely. There is also variation in the completeness and accuracy of diagnostic data available from individual providers of care (hospitals, doctors, nursing homes) and within the records of patients of a single provider. The user must therefore try to develop a sense of the relative quality of each system's data in terms of his or her need for and use of the data. The user should consult the literature for additional information on the appropriateness of various data collection methodologies and quality of data obtained by the various collection methods and from different sources. Several references that discuss this issue[22–25] are listed in the references.

It is hoped that this report will help direct persons who are not well acquainted with the design features of all seven systems to the data system that best meets their need for diagnostic data on health and health services. It should also be useful to persons whose main source of data is *Health United States,*[26] an annual compendium of diagnostic and other data from several NCHS data systems that contains limited technical information on design features of the systems. For further reference, technical information on design features is included in each NCHS publication that presents data from one of the seven data systems discussed in this report.

The many differences among data systems that affect the diagnostic data are complex and add to the difficulty of making appropriate interpretations of the data. They are necessary, however, because obtaining a high quality of data on various topics makes it essential to use varying sources of data and different methods of data collection.

Finally, data collected by the Center are available in the form of reports, public use data tapes and unpublished tabulations. Questions about the availability of NCHS data, both published and unpublished, can be addressed to

Scientific and Technical Information Branch
National Center for Health Statistics
3700 East-West Highway
Hyattsville, Maryland 20782

References

[1]World Health Organization; *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death,* Based on the recommendations of the Ninth Revision Conference, 1975. Geneva. World Health Organization, 1977.

[2]National Center for Health Statistics (National Vital Statistics Division, formerly National Office of Vital Statistics): History and organization of the vital statistics system, chapter 1. *Vital Statistics of the United States,* Vol. I. Washington. U.S. Government Printing Office, 1950, reprinted 1978.

[3]National Center for Health Statistics, N. D. Pearce: Data systems of the National Center for Health Statistics. *Vital and Health Statistics.* Series 1, No. 16. DHHS Pub. No. (PHS) 82–1318. Public Health Service. Washington. U.S. Government Printing Office, Dec. 1981.

[4]R. Mugge: Public Use Data Tapes and Special Tabulations Provided by the National Center for Health Statistics: Fiscal Years 1974 through 1983, unpublished.

[5]National Center for Health Statistics: Catalog of public use data tapes from the National Center for Health Statistics. DHHS Pub. No. (PHS) 81–1213. Public Health Service. Hyattsville, Md., Nov. 1980.

[6]National Center for Health Statistics: Catalog of publications of the National Center for Health Statistics, 1978–82. DHHS Pub. No. (PHS) 83–1301. Public Health Service. Hyattsville, Md., July 1983.

[7]National Center for Health Statistics, C. A. Schoenborn: An inventory of alcohol, drug and mental health data available from the National Center for Health Statistics. *Vital and Health Statistics.* Series 1, No. 17. DHHS Pub. No. (PHS) 85–1319. Public Health Service. Hyattsville, Md., Apr. 1985.

[8]National Center for Health Statistics, G. S. Bonham: Procedures and questionnaires of the National Medical Care Utilization and Expenditure Survey. Series A, Methodological Report No. 1. DHHS Pub. No. (PHS) 83–20001. Public Health Service. Washington. U.S. Government Printing Office, Mar. 1983.

[9]National Center for Health Statistics: *Vital Statistics of the United States,* Vol. II, Mortality. DHHS. Public Health Service. Washington. U.S. Government Printing Office (published annually).

[10]R. F. Chamblee and M. C. Evans: New dimensions in cause of death statistics. *Am. J. Public Health* 72: 1265–1270, Nov. 1982.

[11]National Center for Health Statistics, K. W. Harris and D. K. French: A methodological study of quality control procedures for mortality medical coding. *Vital and Health Statistics.* Series 2, No. 81. DHHS Pub. No. (PHS) 80–1355. Public Health Service. Washington. U.S. Government Printing Office, Mar. 1980.

[12]National Center for Health Statistics: Multiple causes of death in the United States. *Monthly Vital Statistics Report.* Vol. 32, No. 10 Supp. 2. DHHS Pub. No. (PHS) 84–1120. Public Health Service. Hyattsville, Md., Feb. 17, 1984.

[13]R. A. Israel, H. M. Rosenberg, and L. R. Curtin: Analytical potential for multiple cause-of-death data. *Am. J. Epidemiol.* 124(2): 161–179, Aug. 1986.

[14]National Center for Health Statistics, A. Gittelsohn and P. N. Royston: Annotated bibliography of cause-of-death studies, 1958–80. *Vital and Health Statistics.* Series 2, No. 89. DHHS Pub. No. (PHS) 82–1363. Public Health Service. Washington. U.S. Government Printing Office, Sept. 1982.

[15]T. K. Henson: Some Sources of Error in the Medicolegal Production of Mortality Statistics. Paper presented at the Annual Meeting of the Southern Regional Demographic Group. Tallahassee, Fla., Oct. 1980.

[16]I. M. Moriyama: Reporting and classification of cause of death in medicolegal cases. *J. Forensic Sci.* 1(4):60–68, Oct. 1956.

[17]B. Walsh, D. Walsh, and B. Whelan: Suicide in Dublin: II. The influence of some social and medical factors of coroners' verdicts. *Br. J. Psychiatry* 126: 309–312, 1975.

[18]M. E. Warshauer and M. Monk: Problems in suicide statistics for whites and blacks. *Am. J. Public Health* 68(4):383–388, 1978.

[19]National Center for Health Statistics: Periodicity of data systems. Hyattsville, Md., Sept. 1981.

[20]Institute of Medicine: Report of a study, reliability of National Hospital Discharge Survey data. Washington. National Academy of Sciences, 1980.

[21]J. Givens and J. Massey: Comparison of similar statistics from a cross-sectional survey and a panel survey. *Proceedings of American Statistical Association, Social Statistics Section,* Washington, Aug. 1984.

[22]P. Levy and S. Lemshow: *Sampling for Health Professionals.* Belmont, Calif. Wadsworth, Inc., 1980.

[23]R. Anderson, J. Kaspar, M. R. Frankel, and associates: *Total Survey Error.* San Francisco, Washington, London. Jossey-Bass, 1979.

[24]C. A. Moser and G. Kalton: *Survey Methods in Social Investigation,* 2nd ed. New York. Basic Books, Inc., 1972.

[25]D. P. Warwick and C. A. Lininger: *The Sample Survey: Theory and Practice.* New York. McGraw-Hill, 1975.

[26]National Center for Health Statistics: *Health United States, 1986.* DHHS Pub. No. (PHS) 87–1232. Public Health Service. Washington. U.S. Government Printing Office, Dec. 1986.

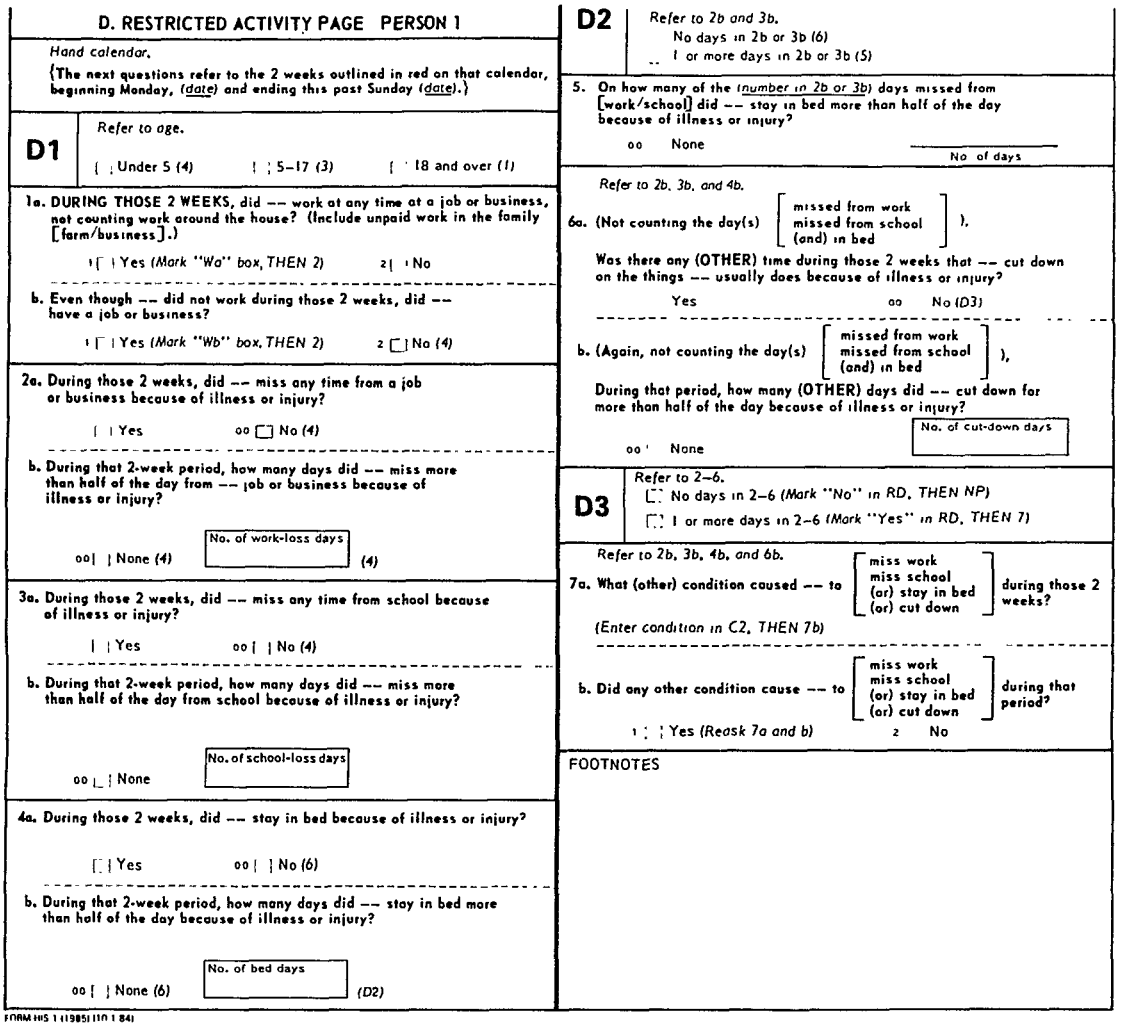
Appendixes

Contents

List of appendix figures

Appendix I
Selected data collection forms for the seven data systems through which diagnostic data are collected

Some of the figures shown in this appendix are edited versions of the actual documents. These edited versions exclude selected interviewer and skip instructions.



D. RESTRICTED ACTIVITY PAGE PERSON 1

Hand calendar.

(The next questions refer to the 2 weeks outlined in red on that calendar, beginning Monday, (date) and ending this past Sunday (date).)

D1 Refer to age.

[ ] Under 5 (4) [ ] 5–17 (3) [ ] 18 and over (1)

1a. DURING THOSE 2 WEEKS, did — work at any time at a job or business, not counting work around the house? (Include unpaid work in the family [farm/business].)

1 [ ] Yes (Mark "Wa" box, THEN 2) 2 [ ] No

b. Even though — did not work during those 2 weeks, did — have a job or business?

1 [ ] Yes (Mark "Wb" box, THEN 2) 2 [ ] No (4)

2a. During those 2 weeks, did — miss any time from a job or business because of illness or injury?

[ ] Yes 00 [ ] No (4)

b. During that 2-week period, how many days did — miss more than half of the day from — job or business because of illness or injury?

00 [ ] None (4) No. of work-loss days (4)

3a. During those 2 weeks, did — miss any time from school because of illness or injury?

[ ] Yes 00 [ ] No (4)

b. During that 2-week period, how many days did — miss more than half of the day from school because of illness or injury?

00 [ ] None No. of school-loss days

4a. During those 2 weeks, did — stay in bed because of illness or injury?

[ ] Yes 00 [ ] No (6)

b. During that 2-week period, how many days did — stay in bed more than half of the day because of illness or injury?

00 [ ] None (6) No. of bed days (D2)

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D2 Refer to 2b and 3b.

No days in 2b or 3b (6)

1 or more days in 2b or 3b (5)

5. On how many of the (number in 2b or 3b) days missed from [work/school] did — stay in bed more than half of the day because of illness or injury?

00 None No. of days

Refer to 2b, 3b, and 4b.

6a. (Not counting the day(s) [missed from work / missed from school / (and) in bed]),

Was there any (OTHER) time during those 2 weeks that — cut down on the things — usually does because of illness or injury?

Yes 00 No (D3)

b. (Again, not counting the day(s) [missed from work / missed from school / (and) in bed]),

During that period, how many (OTHER) days did — cut down for more than half of the day because of illness or injury?

00 None No. of cut-down days

D3 Refer to 2–6.

No days in 2–6 (Mark "No" in RD, THEN NP)

1 or more days in 2–6 (Mark "Yes" in RD, THEN 7)

Refer to 2b, 3b, 4b, and 6b.

7a. What (other) condition caused — to [miss work / miss school / (or) stay in bed / (or) cut down] during those 2 weeks?

(Enter condition in C2, THEN 7b)

b. Did any other condition cause — to [miss work / miss school / (or) stay in bed / (or) cut down] during that period?

1 [ ] Yes (Reask 7a and b) 2 No

FOOTNOTES

Figure I. 2-week reference questions on activity restriction: National Health Interview Survey

E. 2-WEEK DOCTOR VISITS PROBE PAGE

Read to respondent(s):
These next questions are about health care received during the 2 weeks outlined in red on that calendar.

E1 *Refer to age.*

E1 ☐ Under 14 *(1b)* ☐ 14 and over *(1a)*

1a. During these 2 weeks, how many times did — see or talk to a medical doctor? (Include all types of doctors, such as dermatologists, psychiatrists, and ophthalmologists, as well as general practitioners and osteopaths.) (Do not count times while an overnight patient in a hospital.)

b. During these 2 weeks, how many times did anyone see or talk to a medical doctor about —? (Do not count times while an overnight patient in a hospital.)

1a. and b. 00 ☐ None ☐☐ Number of times *(NP)*

2a. (Besides the time(s) you just told me about) During these 2 weeks, did anyone in the family receive health care at home or go to a doctor's office, clinic, hospital or some other place? Include care from a nurse or anyone working with or for a medical doctor. Do not count times while an overnight patient in a hospital.
☐ Yes ☐ No *(3a)*

b. Who received this care? *Mark "DR Visit" box in person's column.* 2b. ☐ DR Visit

c. Anyone else? ☐ Yes *(Reask 2b and c)* ☐ No

Ask for each person with "DR Visit" in 2b:
d. How many times did — receive this care during that period? d. ☐☐ Number of times

3a. (Besides the time(s) you already told me about) During these 2 weeks, did anyone in the family get any medical advice, prescriptions or test results over the PHONE from a doctor, nurse, or anyone working with or for a medical doctor?
☐ Yes ☐ No *(E2)*

b. Who was the phone call about? *Mark "Phone call" box in person's column.* 3b. ☐ Phone call

c. Were there any calls about anyone else? ☐ Yes *(Reask 3b and c)* ☐ No

Ask for each person with "Phone call" in 3b:
d. How many telephone calls were made about —? d. ☐☐ Number of calls

E2 *Add numbers in 1, 2d, and 3d for each person. Record total number of visits and calls in "2-WK. DV" box in item C1.*

FOOTNOTES

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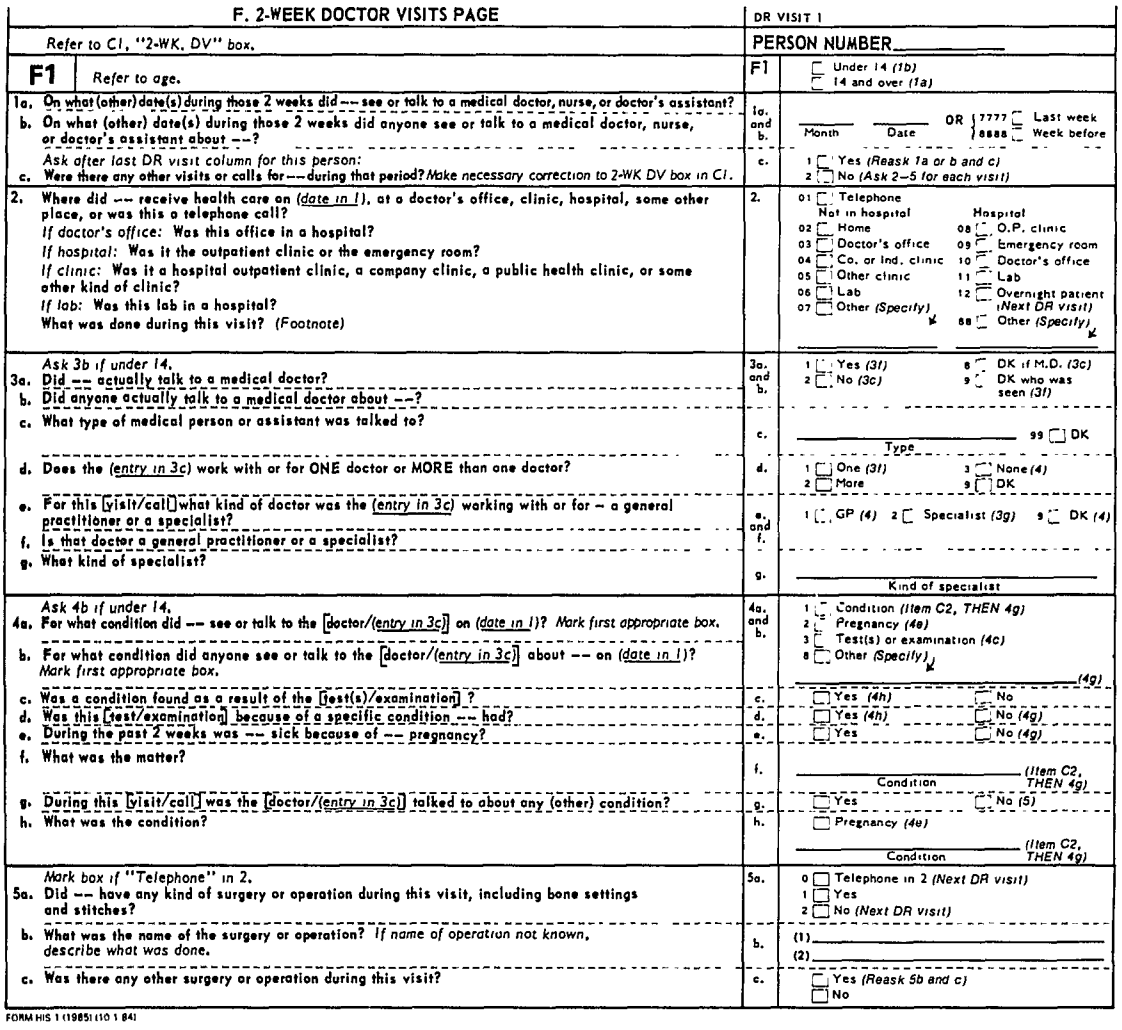
Figure II. 2-week reference questions on physician visits: National Health Interview Survey



F. 2-WEEK DOCTOR VISITS PAGE

DR VISIT 1

Refer to C1, "2-WK. DV" box.

PERSON NUMBER_____

F1 Refer to age.

F1 ☐ Under 14 (1b) ☐ 14 and over (1a)

1a. On what (other) date(s) during those 2 weeks did -- see or talk to a medical doctor, nurse, or doctor's assistant?

b. On what (other) date(s) during those 2 weeks did anyone see or talk to a medical doctor, nurse, or doctor's assistant about --?

1a. and b. _____ Month _____ Date OR 7777 ☐ Last week 8888 ☐ Week before

Ask after last DR visit column for this person:

c. Were there any other visits or calls for -- during that period? Make necessary correction to 2-WK DV box in C1.

c. 1 ☐ Yes (Reask 1a or b and c) 2 ☐ No (Ask 2–5 for each visit)

2. Where did -- receive health care on (date in 1), at a doctor's office, clinic, hospital, some other place, or was this a telephone call?
If doctor's office: Was this office in a hospital?
If hospital: Was it the outpatient clinic or the emergency room?
If clinic: Was it a hospital outpatient clinic, a company clinic, a public health clinic, or some other kind of clinic?
If lab: Was this lab in a hospital?
What was done during this visit? (Footnote)

2. 01 ☐ Telephone
Not in hospital: 02 ☐ Home; 03 ☐ Doctor's office; 04 ☐ Co. or ind. clinic; 05 ☐ Other clinic; 06 ☐ Lab; 07 ☐ Other (Specify) ↙
Hospital: 08 ☐ O.P. clinic; 09 ☐ Emergency room; 10 ☐ Doctor's office; 11 ☐ Lab; 12 ☐ Overnight patient (Next DR visit); 88 ☐ Other (Specify) ↙

Ask 3b if under 14.

3a. Did -- actually talk to a medical doctor?

b. Did anyone actually talk to a medical doctor about --?

3a. and b. 1 ☐ Yes (3b) 2 ☐ No (3c) 8 ☐ DK if M.D. (3c) 9 ☐ DK who was seen (3b)

c. What type of medical person or assistant was talked to?

c. _____ Type 99 ☐ DK

d. Does the (entry in 3c) work with or for ONE doctor or MORE than one doctor?

d. 1 ☐ One (3b) 2 ☐ More 3 ☐ None (4) 9 ☐ DK

e. For this [visit/call] what kind of doctor was the (entry in 3c) working with or for -- a general practitioner or a specialist?

f. Is that doctor a general practitioner or a specialist?

e. and f. 1 ☐ GP (4) 2 ☐ Specialist (3g) 9 ☐ DK (4)

g. What kind of specialist?

g. _____ Kind of specialist

Ask 4b if under 14.

4a. For what condition did -- see or talk to the [doctor/(entry in 3c)] on (date in 1)? Mark first appropriate box.

b. For what condition did anyone see or talk to the [doctor/(entry in 3c)] about -- on (date in 1)? Mark first appropriate box.

4a. and b. 1 ☐ Condition (Item C2, THEN 4g) 2 ☐ Pregnancy (4e) 3 ☐ Test(s) or examination (4c) 8 ☐ Other (Specify) ↙ _____ (4g)

c. Was a condition found as a result of the [test(s)/examination]?

c. ☐ Yes (4h) ☐ No

d. Was this [test/examination] because of a specific condition -- had?

d. ☐ Yes (4h) ☐ No (4g)

e. During the past 2 weeks was -- sick because of -- pregnancy?

e. ☐ Yes ☐ No (4g)

f. What was the matter?

f. _____ Condition (Item C2, THEN 4g)

g. During this [visit/call] was the [doctor/(entry in 3c)] talked to about any (other) condition?

g. ☐ Yes ☐ No (5)

h. What was the condition?

h. ☐ Pregnancy (4e)
_____ Condition (Item C2, THEN 4g)

Mark box if "Telephone" in 2.

5a. Did -- have any kind of surgery or operation during this visit, including bone settings and stitches?

5a. 0 ☐ Telephone in 2 (Next DR visit) 1 ☐ Yes 2 ☐ No (Next DR visit)

b. What was the name of the surgery or operation? If name of operation not known, describe what was done.

b. (1)_____ (2)_____

c. Was there any other surgery or operation during this visit?

c. ☐ Yes (Reask 5b and c) ☐ No

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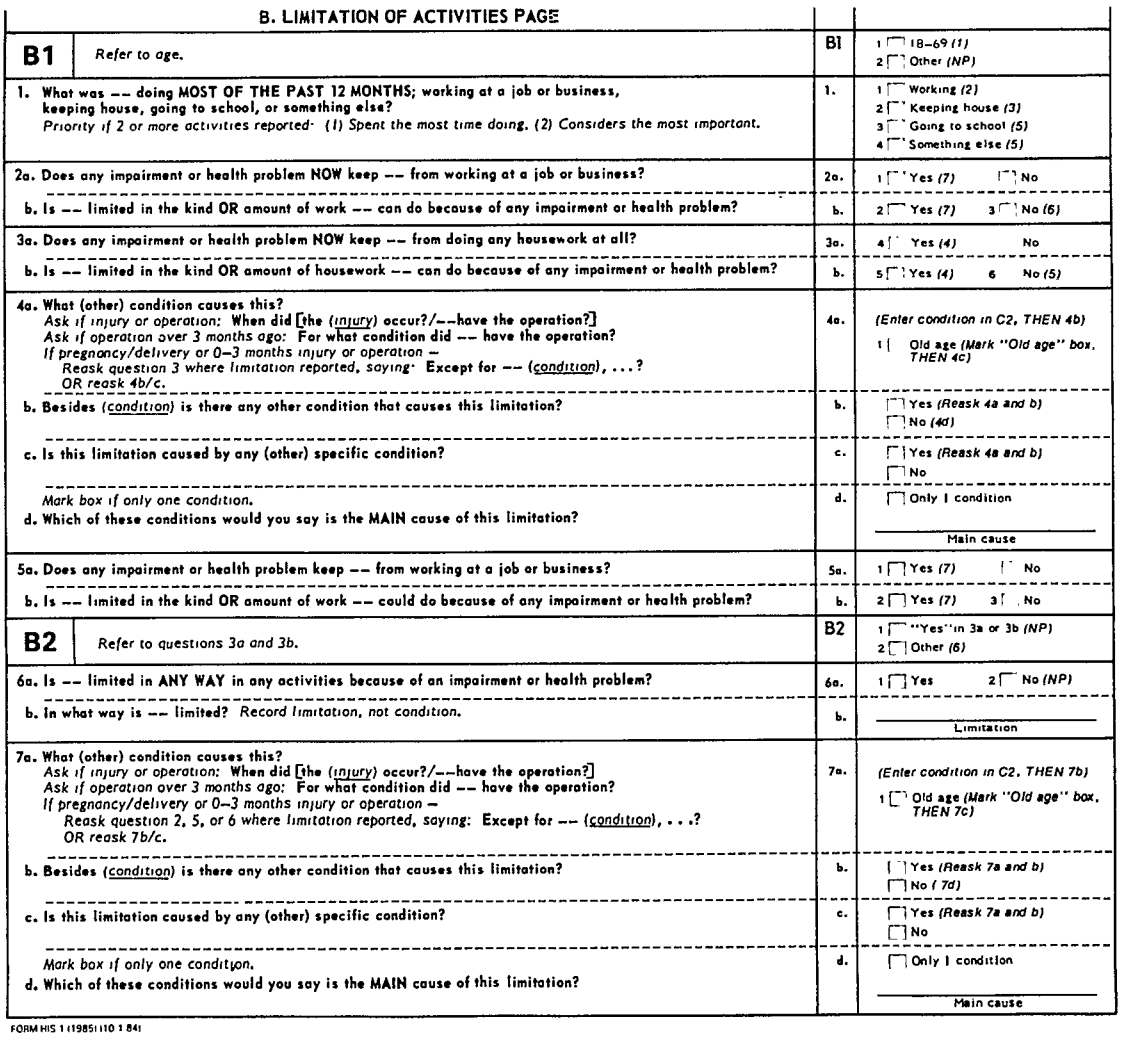
Figure II. 2-week reference questions on physician visits: National Health Interview Survey—Con.

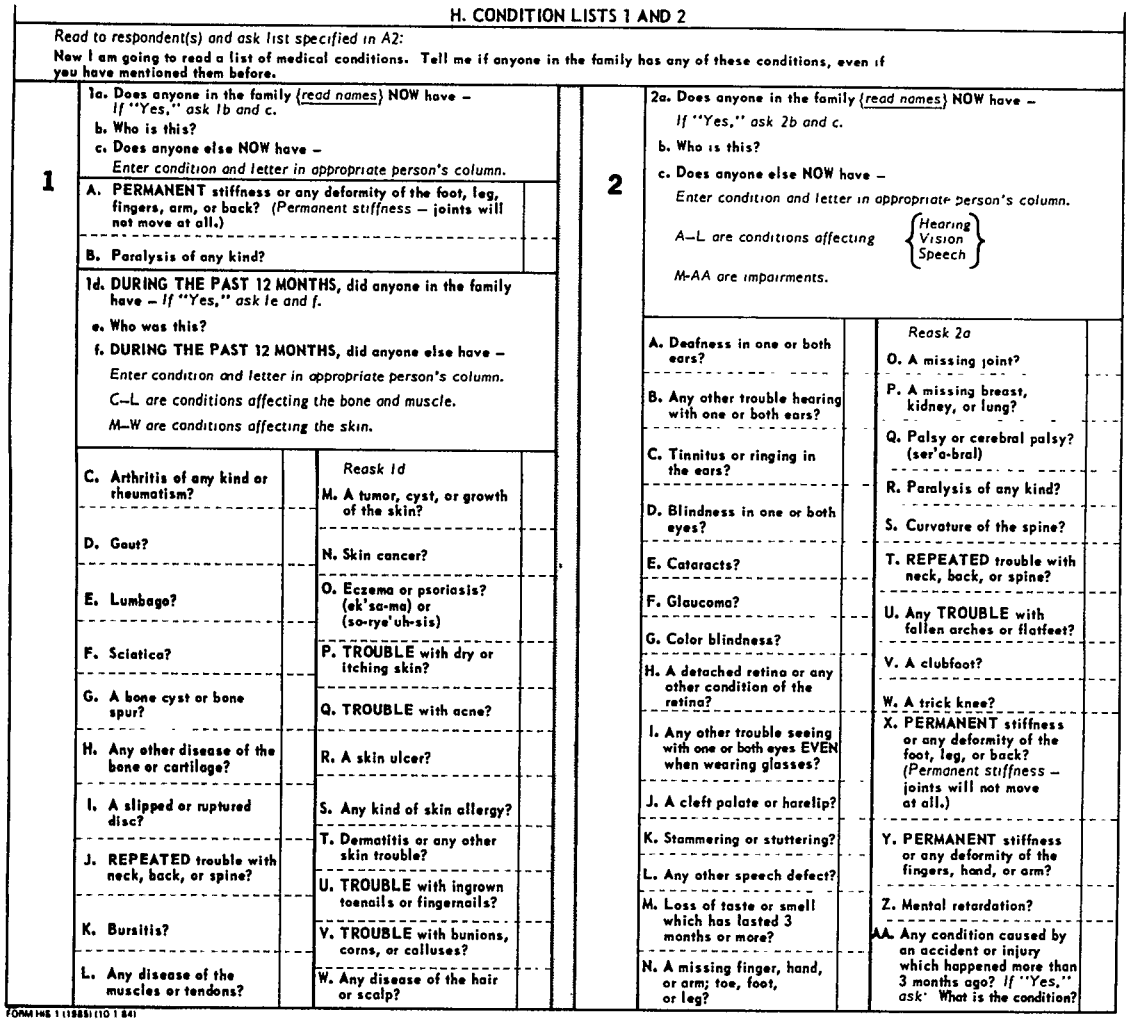


B. LIMITATION OF ACTIVITIES PAGE

B1 *Refer to age.*	B1	1 ☐ 18–69 *(1)* 2 ☐ Other *(NP)*
1. What was -- doing MOST OF THE PAST 12 MONTHS; working at a job or business, keeping house, going to school, or something else? *Priority if 2 or more activities reported: (1) Spent the most time doing. (2) Considers the most important.*	1.	1 ☐ Working *(2)* 2 ☐ Keeping house *(3)* 3 ☐ Going to school *(5)* 4 ☐ Something else *(5)*
2a. Does any impairment or health problem NOW keep -- from working at a job or business?	2a.	1 ☐ Yes *(7)* ☐ No
b. Is -- limited in the kind OR amount of work -- can do because of any impairment or health problem?	b.	2 ☐ Yes *(7)* 3 ☐ No *(6)*
3a. Does any impairment or health problem NOW keep -- from doing any housework at all?	3a.	4 ☐ Yes *(4)* No
b. Is -- limited in the kind OR amount of housework -- can do because of any impairment or health problem?	b.	5 ☐ Yes *(4)* 6 No *(5)*
4a. What (other) condition causes this? *Ask if injury or operation:* When did [the *(injury)* occur?/--have the operation?] *Ask if operation over 3 months ago:* For what condition did -- have the operation? *If pregnancy/delivery or 0–3 months injury or operation --* *Reask question 3 where limitation reported, saying:* Except for -- (condition), . . .? *OR reask 4b/c.*	4a.	*(Enter condition in C2, THEN 4b)* 1 ☐ Old age *(Mark "Old age" box, THEN 4c)*
b. Besides (condition) is there any other condition that causes this limitation?	b.	☐ Yes *(Reask 4a and b)* ☐ No *(4d)*
c. Is this limitation caused by any (other) specific condition?	c.	☐ Yes *(Reask 4a and b)* ☐ No
Mark box if only one condition. d. Which of these conditions would you say is the MAIN cause of this limitation?	d.	☐ Only 1 condition Main cause
5a. Does any impairment or health problem keep -- from working at a job or business?	5a.	1 ☐ Yes *(7)* ☐ No
b. Is -- limited in the kind OR amount of work -- could do because of any impairment or health problem?	b.	2 ☐ Yes *(7)* 3 ☐ No
B2 *Refer to questions 3a and 3b.*	B2	1 ☐ "Yes" in 3a or 3b *(NP)* 2 ☐ Other *(6)*
6a. Is -- limited in ANY WAY in any activities because of an impairment or health problem?	6a.	1 ☐ Yes 2 ☐ No *(NP)*
b. In what way is -- limited? *Record limitation, not condition.*	b.	Limitation
7a. What (other) condition causes this? *Ask if injury or operation:* When did [the *(injury)* occur?/--have the operation?] *Ask if operation over 3 months ago:* For what condition did -- have the operation? *If pregnancy/delivery or 0–3 months injury or operation --* *Reask question 2, 5, or 6 where limitation reported, saying:* Except for -- (condition), . . .? *OR reask 7b/c.*	7a.	*(Enter condition in C2, THEN 7b)* 1 ☐ Old age *(Mark "Old age" box, THEN 7c)*
b. Besides (condition) is there any other condition that causes this limitation?	b.	☐ Yes *(Reask 7a and b)* ☐ No *(7d)*
c. Is this limitation caused by any (other) specific condition?	c.	☐ Yes *(Reask 7a and b)* ☐ No
Mark box if only one condition. d. Which of these conditions would you say is the MAIN cause of this limitation?	d.	☐ Only 1 condition Main cause

FORM HIS 1 (1985) (10 1 84)

Figure III. Questions on limitations of activity: National Health Interview Survey



H. CONDITION LISTS 1 AND 2

Read to respondent(s) and ask list specified in A2:

Now I am going to read a list of medical conditions. Tell me if anyone in the family has any of these conditions, even if you have mentioned them before.

1

1a. Does anyone in the family {*read names*} NOW have –
If "Yes," ask 1b and c.
b. Who is this?
c. Does anyone else NOW have –
Enter condition and letter in appropriate person's column.

A. PERMANENT stiffness or any deformity of the foot, leg, fingers, arm, or back? *(Permanent stiffness – joints will not move at all.)*

B. Paralysis of any kind?

1d. DURING THE PAST 12 MONTHS, did anyone in the family have – *If "Yes," ask 1e and f.*
e. Who was this?
f. DURING THE PAST 12 MONTHS, did anyone else have –
Enter condition and letter in appropriate person's column.
C–L are conditions affecting the bone and muscle.
M–W are conditions affecting the skin.

C. Arthritis of any kind or rheumatism?

D. Gout?

E. Lumbago?

F. Sciatica?

G. A bone cyst or bone spur?

H. Any other disease of the bone or cartilage?

I. A slipped or ruptured disc?

J. REPEATED trouble with neck, back, or spine?

K. Bursitis?

L. Any disease of the muscles or tendons?

Reask 1d

M. A tumor, cyst, or growth of the skin?

N. Skin cancer?

O. Eczema or psoriasis? (ek'sa-ma) or (so-rye'uh-sis)

P. TROUBLE with dry or itching skin?

Q. TROUBLE with acne?

R. A skin ulcer?

S. Any kind of skin allergy?

T. Dermatitis or any other skin trouble?

U. TROUBLE with ingrown toenails or fingernails?

V. TROUBLE with bunions, corns, or calluses?

W. Any disease of the hair or scalp?

2

2a. Does anyone in the family {*read names*} NOW have –
If "Yes," ask 2b and c.
b. Who is this?
c. Does anyone else NOW have –
Enter condition and letter in appropriate person's column.

A–L are conditions affecting {*Hearing / Vision / Speech*}

M-AA are impairments.

A. Deafness in one or both ears?

B. Any other trouble hearing with one or both ears?

C. Tinnitus or ringing in the ears?

D. Blindness in one or both eyes?

E. Cataracts?

F. Glaucoma?

G. Color blindness?

H. A detached retina or any other condition of the retina?

I. Any other trouble seeing with one or both eyes EVEN when wearing glasses?

J. A cleft palate or harelip?

K. Stammering or stuttering?

L. Any other speech defect?

M. Loss of taste or smell which has lasted 3 months or more?

N. A missing finger, hand, or arm; toe, foot, or leg?

Reask 2a

O. A missing joint?

P. A missing breast, kidney, or lung?

Q. Palsy or cerebral palsy? (ser'a-bral)

R. Paralysis of any kind?

S. Curvature of the spine?

T. REPEATED trouble with neck, back, or spine?

U. Any TROUBLE with fallen arches or flatfeet?

V. A clubfoot?

W. A trick knee?

X. PERMANENT stiffness or any deformity of the foot, leg, or back? *(Permanent stiffness – joints will not move at all.)*

Y. PERMANENT stiffness or any deformity of the fingers, hand, or arm?

Z. Mental retardation?

AA. Any condition caused by an accident or injury which happened more than 3 months ago? *If "Yes," ask:* **What is the condition?**

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Figure IV. Chronic conditions checklist: National Health Interview Survey

H. CONDITION LISTS 3 AND 4

Read to respondent(s) and ask list specified in A2:
Now I am going to read a list of medical conditions. Tell me if anyone in the family has had any of these conditions, even if you have mentioned them before.

3

3a. DURING THE PAST 12 MONTHS, did anyone in the family (*read names*) have –

If "Yes," ask 3b and c.

b. Who was this?

c. DURING THE PAST 12 MONTHS, did anyone else have –

Enter condition and letter in appropriate person's column.

Make no entry in item C2 for cold; flu; red, sore, or strep throat; or "virus" even if reported in this list.

Conditions affecting the digestive system.

A. Gallstones?		*Reask 3a* N. Enteritis?	
B. Any other gallbladder trouble?		O. Diverticulitis? (Dye-ver-tic-yoo-lye'tis)	
C. Cirrhosis of the liver?		P. Colitis?	
D. Fatty liver?		Q. A spastic colon?	
E. Hepatitis?		R. FREQUENT constipation?	
F. Yellow jaundice?		S. Any other bowel trouble?	
G. Any other liver trouble?		T. Any other intestinal trouble?	
H. An ulcer?		U. Cancer of the stomach, intestines, colon or rectum?	
I. A hernia or rupture?			
J. Any disease of the esophagus?		V. During the past 12 months, did anyone (else) in the family have any other condition of the digestive system? *If "Yes," ask:* Who was this? – What was the condition? *Enter in item C2, THEN reask V.*	
K. Gastritis?			
L. FREQUENT indigestion?			
M. Any other stomach trouble?			

4

4a. DURING THE PAST 12 MONTHS, did anyone in the family (*read names*) have –

If "Yes," ask 4b and c.

b. Who was this?

c. DURING THE PAST 12 MONTHS, did anyone else have –

Enter condition and letter in appropriate person's column.

A–B are conditions affecting the glandular system

C is a blood condition

D–I are conditions affecting the nervous system

J–Y are conditions affecting the genito-urinary system

A. A goiter or other thyroid trouble?		*Reask 4a* N. Any other kidney trouble?	
B. Diabetes?		O. Bladder trouble?	
C. Anemia of any kind?		P. Any disease of the genital organs?	
D. Epilepsy?		Q. A missing breast?	
E. REPEATED seizures, convulsions, or blackouts?		R. Breast cancer?	
F. Multiple sclerosis?		S. * Cancer of the prostate?	
G. Migraine?		T. * Any other prostate trouble?	
H. FREQUENT headaches?		U. ** Trouble with menstruation?	
I. Neuralgia or neuritis?		V. ** A hysterectomy? *If "Yes," ask:* For what condition did — have a hysterectomy?	
J. Nephritis?			
K. Kidney stones?		W. ** A tumor, cyst, or growth of the uterus or ovaries?	
L. REPEATED kidney infections?		X. ** Any other disease of the uterus or ovaries?	
M. A missing kidney?		Y. ** Any other female trouble?	

*Ask only if males in family.
**Ask only if females in family.

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Figure IV. Chronic conditions checklist: National Health Interview Survey—Con.

H. CONDITION LISTS 5 AND 6

Read to respondent(s) and ask list specified in A2.
Now I am going to read a list of medical conditions. Tell me if anyone in the family has had any of these conditions, even if you have mentioned them before.

5

5a. Has anyone in the family {*read names*} EVER had –

If "Yes," ask 5b and c.

b. Who was this?

c. Has anyone else EVER had –

Enter condition and letter in appropriate person's column.

Conditions affecting the heart and circulatory system.

A. Rheumatic fever?		G. A stroke or a cerebrovascular accident? (ser'e-bro vas ku-lar)	
B. Rheumatic heart disease?			
C. Hardening of the arteries or arteriosclerosis?		H. A hemorrhage of the brain?	
D. Congenital heart disease?		I. Angina pectoris? (pek'te-ris)	
E. Coronary heart disease?		J. A myocardial infarction?	
F. Hypertension, sometimes called high blood pressure?		K. Any other heart attack?	

5d. DURING THE PAST 12 MONTHS, did anyone in the family have –

If "Yes," ask 5e and f.

e. Who was this?

f. DURING THE PAST 12 MONTHS, did anyone else have –

Enter condition and letter in appropriate person's column.

Conditions affecting the heart and circulatory system.

L. Damaged heart valves?		Q. Any blood clots?	
M. Tachycardia or rapid heart?		R. Varicose veins?	
N. A heart murmur?		S. Hemorrhoids or piles?	
O. Any other heart trouble?		T. Phlebitis or thrombophlebitis?	
P. An aneurysm? (an yoo-rizm)		U. Any other condition affecting blood circulation?	

6

6a. DURING THE PAST 12 MONTHS, did anyone in the family {*read names*} have –

If "Yes," ask 6b and c.

b. Who was this?

c. DURING THE PAST 12 MONTHS, did anyone else have –

Enter condition and letter in appropriate person's column.

Make no entry in item C2 for cold; flu; red, sore, or strep throat; or "virus" even if reported in this list.

Conditions affecting the respiratory system.

		Reask 6a.	
A. Bronchitis?		K. A missing lung?	
B. Asthma?		L. Lung cancer?	
C. Hay fever?		M. Emphysema?	
D. Sinus trouble?		N. Pleurisy?	
E. A nasal polyp?		O. Tuberculosis?	
F. A deflected or deviated nasal septum?		P. Any other work-related respiratory condition, such as dust on the lungs, silicosis, asbestosis, or pneu-mo-co-ni-o-sis?	
G. *Tonsillitis or enlargement of the tonsils or adenoids?			
H. *Laryngitis?		Q. During the past 12 months did anyone (else) in the family have any other respiratory, lung, or pulmonary condition? *If "Yes," ask:* Who was this?—What was the condition? *Enter in item C2, THEN reask Q.*	
I. A tumor or growth of the throat, larynx, or trachea?			
J. A tumor or growth of the bronchial tube or lung?			

**If reported in this list only, ask:*

1. How many times did — have (*condition*) in the past 12 months?

If 2 or more times, enter condition in item C2.

If only 1 time, ask:

2. How long did it last? *If 1 month or longer, enter in item C2.*

If less than 1 month, do not record.

If tonsils or adenoids were removed during past 12 months, enter the condition causing removal in item C2.

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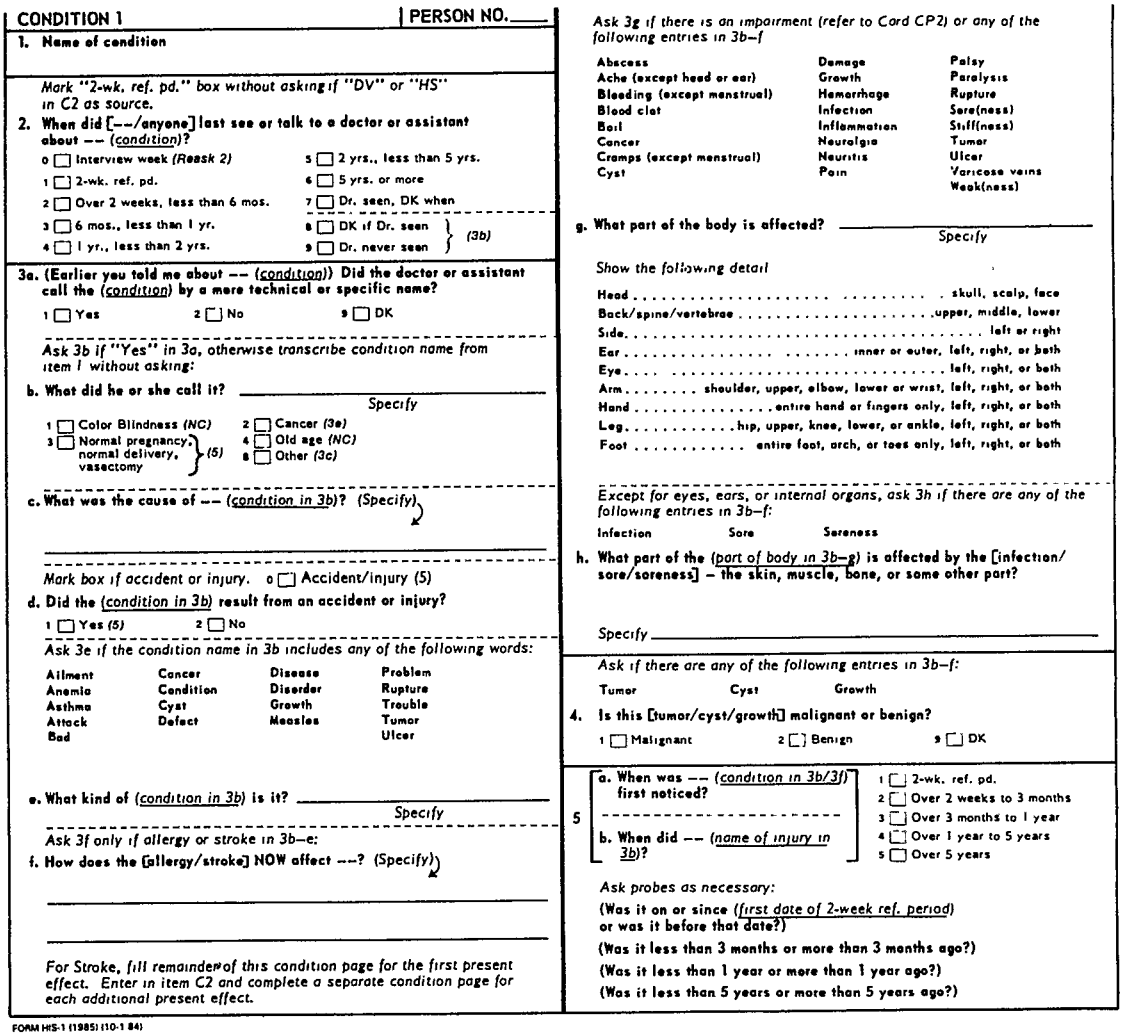
Figure IV. Chronic conditions checklist: National Health Interview Survey—Con.



CONDITION 1 | PERSON NO.

1. Name of condition

Mark "2-wk. ref. pd." box without asking if "DV" or "HS" in C2 as source.

2. When did [--/anyone] last see or talk to a doctor or assistant about -- (condition)?

0 ☐ Interview week (Reask 2)
1 ☐ 2-wk. ref. pd.
2 ☐ Over 2 weeks, less than 6 mos.
3 ☐ 6 mos., less than 1 yr.
4 ☐ 1 yr., less than 2 yrs.
5 ☐ 2 yrs., less than 5 yrs.
6 ☐ 5 yrs. or more
7 ☐ Dr. seen, DK when
8 ☐ DK if Dr. seen } (3b)
9 ☐ Dr. never seen }

3a. (Earlier you told me about -- (condition)) Did the doctor or assistant call the (condition) by a more technical or specific name?

1 ☐ Yes 2 ☐ No 9 ☐ DK

Ask 3b if "Yes" in 3a, otherwise transcribe condition name from item 1 without asking:

b. What did he or she call it? _____ Specify

1 ☐ Color Blindness (NC)
2 ☐ Cancer (3e)
3 ☐ Normal pregnancy, normal delivery, vasectomy } (5)
4 ☐ Old age (NC)
8 ☐ Other (3c)

c. What was the cause of -- (condition in 3b)? (Specify)

Mark box if accident or injury. 0 ☐ Accident/injury (5)

d. Did the (condition in 3b) result from an accident or injury?

1 ☐ Yes (5) 2 ☐ No

Ask 3e if the condition name in 3b includes any of the following words:

Ailment	Cancer	Disease	Problem
Anemia	Condition	Disorder	Rupture
Asthma	Cyst	Growth	Trouble
Attack	Defect	Measles	Tumor
Bad			Ulcer

e. What kind of (condition in 3b) is it? _____ Specify

Ask 3f only if allergy or stroke in 3b–e:

f. How does the [allergy/stroke] NOW affect --? (Specify)

For Stroke, fill remainder of this condition page for the first present effect. Enter in item C2 and complete a separate condition page for each additional present effect.

Ask 3g if there is an impairment (refer to Card CP2) or any of the following entries in 3b–f

Abscess	Damage	Palsy
Ache (except head or ear)	Growth	Paralysis
Bleeding (except menstrual)	Hemorrhage	Rupture
Blood clot	Infection	Sore(ness)
Boil	Inflammation	Stiff(ness)
Cancer	Neuralgia	Tumor
Cramps (except menstrual)	Neuritis	Ulcer
Cyst	Pain	Varicose veins
		Weak(ness)

g. What part of the body is affected? _____ Specify

Show the following detail

Head . . . . . skull, scalp, face
Back/spine/vertebrae . . . . . upper, middle, lower
Side . . . . . left or right
Ear . . . . . inner or outer, left, right, or both
Eye . . . . . left, right, or both
Arm . . . . . shoulder, upper, elbow, lower or wrist, left, right, or both
Hand . . . . . entire hand or fingers only, left, right, or both
Leg . . . . . hip, upper, knee, lower, or ankle, left, right, or both
Foot . . . . . entire foot, arch, or toes only, left, right, or both

Except for eyes, ears, or internal organs, ask 3h if there are any of the following entries in 3b–f:

Infection Sore Soreness

h. What part of the (part of body in 3b–g) is affected by the [infection/sore/soreness] – the skin, muscle, bone, or some other part?

Specify _____

Ask if there are any of the following entries in 3b–f:

Tumor Cyst Growth

4. Is this [tumor/cyst/growth] malignant or benign?

1 ☐ Malignant 2 ☐ Benign 9 ☐ DK

5 a. When was -- (condition in 3b/3f) first noticed?

b. When did -- (name of injury in 3b)?

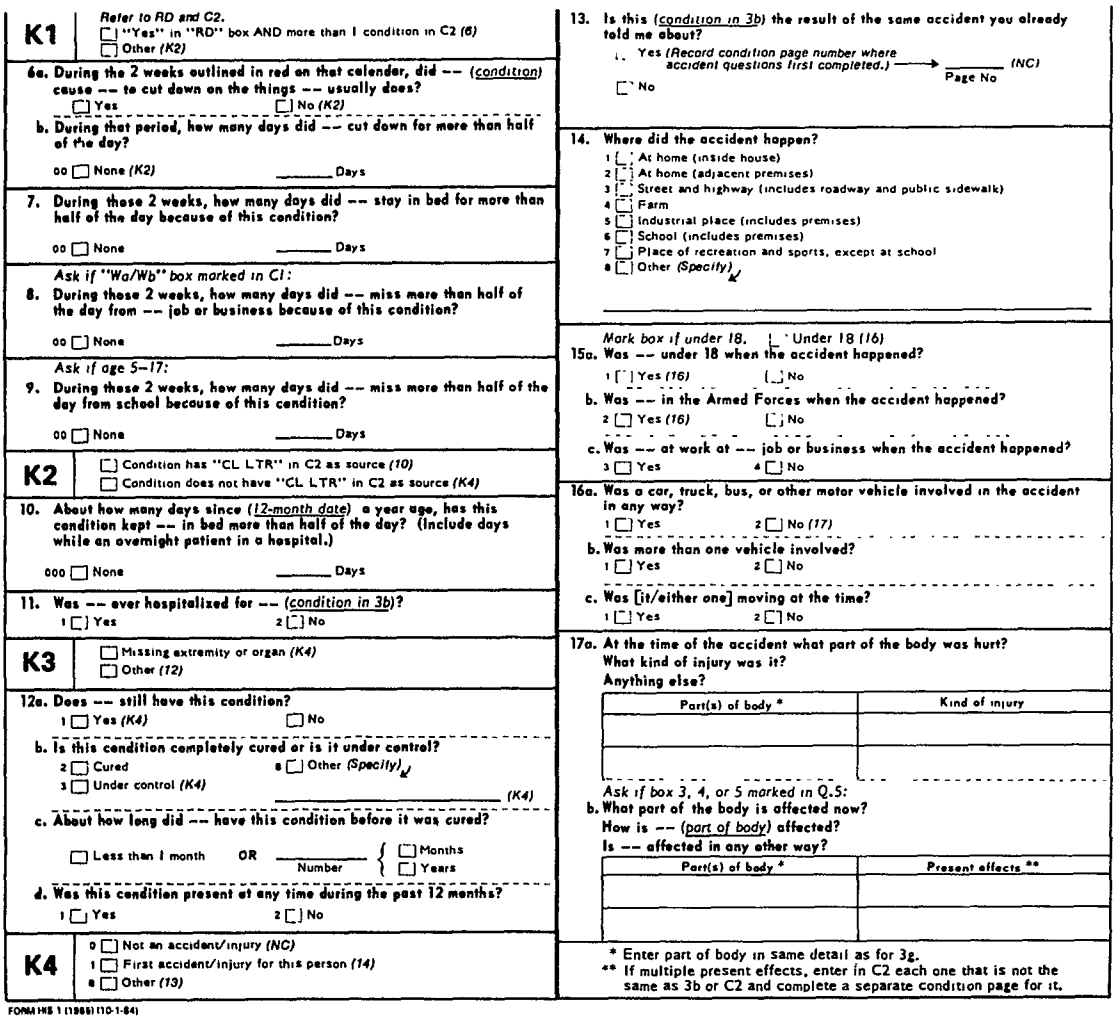
1 ☐ 2-wk. ref. pd.
2 ☐ Over 2 weeks to 3 months
3 ☐ Over 3 months to 1 year
4 ☐ Over 1 year to 5 years
5 ☐ Over 5 years

Ask probes as necessary:

(Was it on or since (first date of 2-week ref. period) or was it before that date?)
(Was it less than 3 months or more than 3 months ago?)
(Was it less than 1 year or more than 1 year ago?)
(Was it less than 5 years or more than 5 years ago?)

FORM HIS-1 (1985) (10-1 84)

Figure V. Questions on nature and duration of reported conditions: National Health Interview Survey



K1 *Refer to RD and C2.*
☐ "Yes" in "RD" box AND more than 1 condition in C2 *(6)*
☐ Other *(K2)*

6a. During the 2 weeks outlined in red on that calendar, did -- (condition) cause -- to cut down on the things -- usually does?
☐ Yes ☐ No *(K2)*

b. During that period, how many days did -- cut down for more than half of the day?
00 ☐ None *(K2)* _____ Days

7. During these 2 weeks, how many days did -- stay in bed for more than half of the day because of this condition?
00 ☐ None _____ Days

Ask if "Wa/Wb" box marked in C1:
8. During these 2 weeks, how many days did -- miss more than half of the day from -- job or business because of this condition?
00 ☐ None _____ Days

Ask if age 5–17:
9. During these 2 weeks, how many days did -- miss more than half of the day from school because of this condition?
00 ☐ None _____ Days

K2 ☐ Condition has "CL LTR" in C2 as source *(10)*
☐ Condition does not have "CL LTR" in C2 as source *(K4)*

10. About how many days since (12-month date) a year ago, has this condition kept -- in bed more than half of the day? (Include days while an overnight patient in a hospital.)
000 ☐ None _____ Days

11. Was -- ever hospitalized for -- (condition in 3b)?
1 ☐ Yes 2 ☐ No

K3 ☐ Missing extremity or organ *(K4)*
☐ Other *(12)*

12a. Does -- still have this condition?
1 ☐ Yes *(K4)* ☐ No

b. Is this condition completely cured or is it under control?
2 ☐ Cured 8 ☐ Other *(Specify)* _____
3 ☐ Under control *(K4)* _____ *(K4)*

c. About how long did -- have this condition before it was cured?
☐ Less than 1 month OR _____ Number { ☐ Months ☐ Years

d. Was this condition present at any time during the past 12 months?
1 ☐ Yes 2 ☐ No

K4 0 ☐ Not an accident/injury *(NC)*
1 ☐ First accident/injury for this person *(14)*
8 ☐ Other *(13)*

13. Is this (condition in 3b) the result of the same accident you already told me about?
1 ☐ Yes *(Record condition page number where accident questions first completed.)* → _____ Page No *(NC)*
☐ No

14. Where did the accident happen?
1 ☐ At home (inside house)
2 ☐ At home (adjacent premises)
3 ☐ Street and highway (includes roadway and public sidewalk)
4 ☐ Farm
5 ☐ Industrial place (includes premises)
6 ☐ School (includes premises)
7 ☐ Place of recreation and sports, except at school
8 ☐ Other *(Specify)* _____

Mark box if under 18. ☐ Under 18 *(16)*

15a. Was -- under 18 when the accident happened?
1 ☐ Yes *(16)* ☐ No

b. Was -- in the Armed Forces when the accident happened?
2 ☐ Yes *(16)* ☐ No

c. Was -- at work at -- job or business when the accident happened?
3 ☐ Yes 4 ☐ No

16a. Was a car, truck, bus, or other motor vehicle involved in the accident in any way?
1 ☐ Yes 2 ☐ No *(17)*

b. Was more than one vehicle involved?
1 ☐ Yes 2 ☐ No

c. Was [it/either one] moving at the time?
1 ☐ Yes 2 ☐ No

17a. At the time of the accident what part of the body was hurt?
What kind of injury was it?
Anything else?

Part(s) of body *	Kind of injury

Ask if box 3, 4, or 5 marked in Q.5:
b. What part of the body is affected now?
How is -- (part of body) affected?
Is -- affected in any other way?

Part(s) of body *	Present effects **

* Enter part of body in same detail as for 3g.
** If multiple present effects, enter in C2 each one that is not the same as 3b or C2 and complete a separate condition page for it.

FORM HIS 1 (1968) (10-1-84)

Figure V. Questions on nature and duration of reported conditions: National Health Interview Survey—Con.

CONDITION SECTION - ASK ONLY ABOUT CONDITIONS ENTERED ON CONTROL CARD IN THIS ROUND -- (BELOW LAST REF. DATE)

PERSON NAME: _____ # _____ NAME OF CONDITION: _____ COND.#: _____ [ ] - [ ][ ][ ] . [ ]

You said earlier that (PERSON) had (CONDITION).

	CODE ONE AND FOLLOW INSTRUCTIONS	
A	Accident or Injury.	01 (7)
BOX	On Card K	02 (6)
	Neither	03 (1)

1. What did the doctor or other medical person say it was -- did he give (CONDITION) a medical name?

_____

Didn't see doctor. 01

2. What was the cause of (CONDITION)?

_____

Accident or injury 01 (7)

3. DO ANY RESPONSES IN Q's. 1 OR 2 INCLUDE AN ENTRY BELOW? Yes. . . . . .01(A) No . . . . . .02(4)

Ailment	Attack	Defect	Growth	Trouble
Anemia	Cancer	Disease	Measles	Tumor
Asthma	Condition	Disorder	Problem	Ulcer
	Cyst		Rupture	

A. What kind of (WORD) is it?

_____

4. ARE ANY RESPONSES IN Q's. 1-3 ALLERGY OR STROKE? Yes. . . . . .01(A) No . . . . . .02(5)

A. How does the [allergy/stroke] affect (PERSON)?

_____

5. DO ANY RESPONSES TO Q's. 1-4 INCLUDE AN IMPAIRMENT, PART OF BODY, OR ANY ENTRY BELOW?

Yes . . . . . 01(A)
No. . . . . 02(6)

Abcess	Cancer	Hemorrhage	Palsy	Tumor
Ache (except head or ear)	Cramps (except menstrual)	Infection	Paralysis	Ulcer
Bleeding	Cyst	Inflammation	Rupture	Varicose veins
Blood Clot	Damage	Neuralgia	Sore	Weak
Boil	Growth	Neuritis	Soreness	Weakness
		Pain	Stiff(ness)	

A. What part of the body is affected?

_____

_____

SHOW DETAIL IN Q.5A

HEAD.	SKULL, SCALP, FACE	LEG.	RIGHT, LEFT, OR BOTH; HIP, UPPER, KNEE, LOWER, ANKLE
BACK, SPINE, OR VERTEBRA . .	UPPER, MIDDLE, LOWER	HAND	ENTIRE HAND OR FINGERS ONLY; RIGHT, LEFT OR BOTH
EAR	RIGHT, LEFT, OR BOTH; OUTER, MIDDLE, INNER	FOOT	ENTIRE FOOT, ARCH, OR TOES ONLY; RIGHT, LEFT OR BOTH.
ARM	RIGHT, LEFT, OR BOTH, SHOULDER, UPPER, ELBOW, LOWER, WRIST	SIDE	RIGHT OR LEFT

6. When was the (CONDITION) first noticed by (PERSON) or a medical person?

_____ / _____ (10)
MONTH YEAR

Over 1 year ago. 01 (10)

C-68

Figure VI. Questions on nature and duration of conditions: National Medical Care Utilization and Expenditure Survey

IF ACCIDENT OR INJURY, ASK Q.'s. 7 THROUGH 9.

7. At the time of the accident, what part of the body was hurt? Any other part?

   A. What kind of injury was it? Anything else?

7 Part(s) of body	A Kind of Injury

8. What part of the body is affected now? Any other part?

   A. How is (PERSON'S PART OF BODY) affected? Is (PERSON) affected in any other way?

8 Part(s) of body	A Current Effect

9. When did the accident or injury occur?

   Month / Year

   Over 1 year ago 01

10. IS CONDITION AN EYE CONDITION? Yes . . . . . .01 (A)
    No. . . . . .02 (NC)

   A. Can (PERSON) see well enough to read ordinary newspaper print with glasses with [his/her] . . .

      (1) left eye?

      Yes. 01

      No 02

      (2) right eye?

      Yes. 01

      No 02

AFTER LAST CONDITION IS COMPLETED, GO TO HEALTH INSURANCE SECTION.

Figure VI. Questions on nature and duration of conditions: National Medical Care Utilization and Expenditure Survey—Con.

EXAMINEE SEATED

U. DIAGNOSTIC IMPRESSIONS AND HEALTH CARE NEEDS (519) None 1 ☐

a. Condition (List suspected conditions and answer questions b-e for each condition)	b. Basis for Judgment	c. Confidence in Assessment	d. Severity of Condition	e. Has a Physician been Consulted Regarding this Condition within the last year?
(478) _____ _____ ICD — — — · —	(479) 1 ☐ History 2 ☐ Phy's Exam 3 ☐ Both	(480) 1 ☐ Certain 2 ☐ Likely 3 ☐ Uncertain	(481) 1 ☐ Mild 2 ☐ Moderate 3 ☐ Severe	(482) 1 ☐ Y 2 ☐ N 3 ☐ DK
(483) _____ _____ ICD — — — · —	(484) 1 ☐ History 2 ☐ Phy's Exam 3 ☐ Both	(485) 1 ☐ Certain 2 ☐ Likely 3 ☐ Uncertain	(486) 1 ☐ Mild 2 ☐ Moderate 3 ☐ Severe	(487) 1 ☐ Y 2 ☐ N 3 ☐ DK
(488) _____ _____ ICD — — — · —	(489) 1 ☐ History 2 ☐ Phy's Exam 3 ☐ Both	(490) 1 ☐ Certain 2 ☐ Likely 3 ☐ Uncertain	(491) 1 ☐ Mild 2 ☐ Moderate 3 ☐ Severe	(492) 1 ☐ Y 2 ☐ N 3 ☐ DK
(493) _____ _____ ICD — — — · —	(494) 1 ☐ History 2 ☐ Phy's Exam 3 ☐ Both	(495) 1 ☐ Certain 2 ☐ Likely 3 ☐ Uncertain	(496) 1 ☐ Mild 2 ☐ Moderate 3 ☐ Severe	(497) 1 ☐ Y 2 ☐ N 3 ☐ DK
(498) _____ _____ ICD — — — · —	(499) 1 ☐ History 2 ☐ Phy's Exam 3 ☐ Both	(500) 1 ☐ Certain 2 ☐ Likely 3 ☐ Uncertain	(501) 1 ☐ Mild 2 ☐ Moderate 3 ☐ Severe	(502) 1 ☐ Y 2 ☐ N 3 ☐ DK

Figure VII. Diagnostic impressions and health-care needs: Hispanic Health and Nutrition Examination Survey

C No.499932

PATIENT LOG

As each patient arrives, record name and time of visit on the log below. For the patient entered on line #3, also complete the patient record to the right.

	PATIENT'S NAME	TIME OF VISIT
1		a.m. / p.m.
2		a.m. / p.m.
3		a m / p m

Record items 1-15 for this patient

CONTINUE LISTING PATIENTS ON NEXT PAGE

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

Department of Health, Education and Welfare
Public Health Service
Office of Health Research, Statistics and Technology
National Center for Health Statistics

C No.499932

PATIENT RECORD
NATIONAL AMBULATORY MEDICAL CARE SURVEY

1. DATE OF VISIT — Month / Day / Year

2. DATE OF BIRTH — Month / Day / Year

3. SEX
- 1 ☐ FEMALE
- 2 ☐ MALE

4. COLOR OR RACE
- 1 ☐ WHITE
- 2 ☐ BLACK
- 3 ☐ ASIAN/PACIFIC ISLANDER
- 4 ☐ AMERICAN INDIAN/ ALASKAN NATIVE

5. ETHNICITY
- 1 ☐ HISPANIC ORIGIN
- 2 ☐ NOT HISPANIC

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

7. MAJOR REASON FOR THIS VISIT *[Check one]*
- 1 ☐ ACUTE PROBLEM
- 2 ☐ CHRONIC PROBLEM, ROUTINE
- 3 ☐ CHRONIC PROBLEM, FLAREUP
- 4 ☐ POST SURGERY/POST INJURY
- 5 ☐ NON ILLNESS CARE (ROUTINE PRENATAL, GENERAL EXAM, WELL BABY, ETC)

8. DIAGNOSTIC SERVICES THIS VISIT *[Check all ordered or provided]*
- 1 ☐ NONE
- 2 ☐ LIMITED HISTORY/EXAM
- 3 ☐ GENERAL HISTORY/EXAM
- 4 ☐ PAP TEST
- 5 ☐ CLINICAL LAB TEST
- 6 ☐ X RAY
- 7 ☐ BLOOD PRESSURE CHECK
- 8 ☐ EKG
- 9 ☐ VISION TEST
- 10 ☐ ENDOSCOPY
- 11 ☐ MENTAL STATUS EXAM
- 12 ☐ OTHER *(Specify)* _____

9. PHYSICIAN'S DIAGNOSES
- a PRINCIPAL DIAGNOSIS/PROBLEM ASSOCIATED WITH ITEM 6a
- b OTHER SIGNIFICANT CURRENT DIAGNOSES

10. HAVE YOU SEEN PATIENT BEFORE?
- 1 ☐ YES 2 ☐ NO

IF YES, FOR THE CONDITION IN ITEM 9a?
- 1 ☐ YES 2 ☐ NO

11. MEDICATION THERAPY THIS VISIT ☐ NONE

[Using brand or generic names, record all new and continued medications ordered, injected, administered, or otherwise provided at this visit. Include immunizing and desensitizing agents]

	a. FOR PRINCIPAL DIAGNOSES IN ITEM 9a	b. FOR ALL OTHER REASONS
1		
2		
3		
4		

12. NON-MEDICATION THERAPY *[Check all services ordered or provided this visit]*
- 1 ☐ NONE
- 2 ☐ PHYSIOTHERAPY
- 3 ☐ OFFICE SURGERY
- 4 ☐ FAMILY PLANNING
- 5 ☐ PSYCHOTHERAPY/ THERAPEUTIC LISTENING
- 6 ☐ DIET COUNSELING
- 7 ☐ FAMILY/SOCIAL COUNSELING
- 8 ☐ MEDICAL COUNSELING
- 9 ☐ OTHER *(Specify)* _____

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

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

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

_____ Minutes

PHS-6105-C (9/79)

OMB No. 68-R1498

Figure VIII. Reason for visit and physician's diagnosis, patient log: National Ambulatory Medical Care Survey

Form Approved: O.M.B. No. 0937-0004

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** (6-5-82)

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

MEDICAL ABSTRACT – NATIONAL HOSPITAL DISCHARGE SURVEY

A. 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 ☐☐
6. Residence ZIP code ☐☐☐☐☐

B. PATIENT CHARACTERISTICS

7. Date of birth Month ☐☐ – Day ☐☐ – Year ☐☐☐☐

8. Age *(Complete only if date of birth not given)* ..... Units ☐☐ (1 ☐ Years, 2 ☐ Months, 3 ☐ Days)

9. Sex *(Mark (X) one)* — 1 ☐ Male; 2 ☐ Female; 3 ☐ Not stated

10. Race — 1 ☐ White; 2 ☐ Black; 3 ☐ American Indian/Alaskan Native; 4 ☐ Asian/Pacific Islander; 5 ☐ Other *(Specify)* _____; 6 ☐ Not stated

11. Ethnicity *(Mark (X) one)* — 1 ☐ Hispanic origin; 2 ☐ Non-Hispanic; 3 ☐ Not stated

12. Marital status *(Mark (X) one)* — 1 ☐ Married; 2 ☐ Single; 3 ☐ Widowed; 4 ☐ Divorced; 5 ☐ Separated; 6 ☐ Not stated

13. Expected source(s) of payment

		Principal *(Mark one only)*	Other additional sources (Mark accordingly)
Government sources	1. Workmen's Compensation	☐	☐
	2. Medicare	☐	☐
	3. Medicaid	☐	☐
	4. Title V	☐	☐
	5. Other government payments	☐	☐
Private sources	6. Blue Cross	☐	☐
	7. Other private or commercial insurance	☐	☐
Other sources	8. Self pay	☐	☐
	9. No charge	☐	☐
	10. Other *(Specify)* _____	☐	☐

☐ No source of payment indicated

14. Status/Disposition of patient *(Mark (X) appropriate box(es)*

Status
1 ☐ Alive → Disposition
- a. ☐ Routine discharge/discharged home
- b. ☐ Left against medical advice
- c. ☐ Discharged, transferred to another short-term hospital
- d. ☐ Discharged, transferred to long-term care institution
- e. ☐ Disposition not stated

2 ☐ Died
3 ☐ Status not stated

C. FINAL DIAGNOSES

Principal: _____

Other/additional: _____

_____

_____

_____

_____

_____

_____

☐ See reverse side

D. SURGICAL AND DIAGNOSTIC PROCEDURES

Date. Month ☐☐ – Day ☐☐ – Year ☐☐

Principal: _____

Other/additional: _____

_____

_____

☐ NONE ☐ See reverse side

Completed by | Date

Figure IX. Medical abstract: National Hospital Discharge Survey

Mental conditions or impairments

1. Senility
2. Mental retardation
3. Mental illness
4. Chronic brain syndrome

Physical conditions or impairments

5. Hardening of the arteries
6. Stroke
7. Hypertension
8. Heart trouble
9. Edema (fluid retention)
10. Arthritis/rheumatism
11. Paralysis or palsy other than arthritis (stroke related)
12. Paralysis or palsy other than arthritis (unrelated to stroke)
13. Parkinson's disease
14. Kidney trouble; chronic urinary tract infections
15. Constipation
16. Insomnia
17. Diabetes
18. Cancer
19. Deafness
20. Blindness
21. Glaucoma
22. Cataracts
23. Chronic respiratory disease
24. Anemia
25. Bedsores
26. Hip fractures
27. Other fractures
28. Alcoholism
29. Drug addiction
30. Chronic back or spine problems (excluding stiffness and deformity)

Permanent stiffness or deformity of:

31. Back
32. Arms
33. Legs
34. Extremities (feet, toes, hands, or fingers)

Missing limbs or extremities

35. Arms
36. Legs
37. Extremities (feet, toes, hands, or fingers)

Figure X. Flashcard list of current conditions or impairments: National Nursing Home Survey, 1977

Heart and other circulatory problems

1. Congestive heart failure (C.H.F.)
2. Hardening of the arteries (arteriosclerosis) (A.S.H.D.)
3. Heart attack, ischemic heart disease (acute myocardial infarction (M.I.))
4. High blood pressure (hypertension)
5. Phlebitis
6. Pulmonary embolism
7. Rheumatic heart disease
8. Stroke (cerebrovascular disease (C.V.A.))
9. Other circulatory problems—Please specify

Mental disorders

10. Chronic brain syndrome
11. Mental retardation
12. Neurosis
13. Psychosis (for example, schizophrenia, paranoia, manic depression)
14. Senile psychosis (senile dementia)
15. Senile (not psychotic)
16. Other mental disorders—Please specify

Other diagnoses

17. Alcoholism
18. Anemia
19. Arthritis or rheumatism
20. Asthma
21. Blindness
22. Bone fracture other than hip
23. Bronchitis
24. Cancer (malignant neoplasm)
25. Cataracts
26. Cirrhosis of the liver
27. Deafness
28. Diabetes
29. Drug addiction
30. Emphysema
31. Epilepsy
32. Glaucoma
33. Gout
34. Hip fracture
35. Multiple sclerosis
36. Parkinson's disease
37. Pneumonia
38. Polio
39. Respiratory (other than pneumonia)
40. Syphilis
41. Ulcers
42. Other—Please specify

Figure XI. Flashcard list of discharge diagnoses: National Nursing Home Survey, 1977

13. According to _____'s medical record, what were the primary and other diagnoses at the time of admission, that is, on (DATE OF ADMISSION)? (SPECIFY).

		FOR OFFICE USE ONLY ICD9	E or V CODE
Primary:	1.		
Other:	2.		
	3.		
	4.		
	5.		
	6.		
	7.		
	8.		

14. According to _____'s medical record, what are _____'s current primary and other diagnoses? (SPECIFY)

		FOR OFFICE USE ONLY ICD9	E or V CODE
Primary:	1.		
Other:	2.		
	3.		
	4.		
	5.		
	6.		
	7.		
	8.		

SHOW FLASHCARD # 5

15. According to _____'s medical record does he/she currently have any of the following conditions? (MARK (X) ALL THAT APPLY)

- 01 ☐ Mental retardation
- 02 ☐ Alcohol abuse/dependence
- 03 ☐ Drug abuse/dependence
- 04 ☐ Senile dementia/chronic and organic brain syndrome
- 05 ☐ Depressive disorders
- 06 ☐ Schizophrenia
- 07 ☐ Other psychoses
- 08 ☐ Anxiety disorders
- 09 ☐ Personality/character disorders
- 10 ☐ Other mental disorders (SPECIFY) _____
- 11 ☐ No mental disorder

Figure XII. Abstract of diagnostic data from current resident's questionnaire: National Nursing Home Survey, 1985

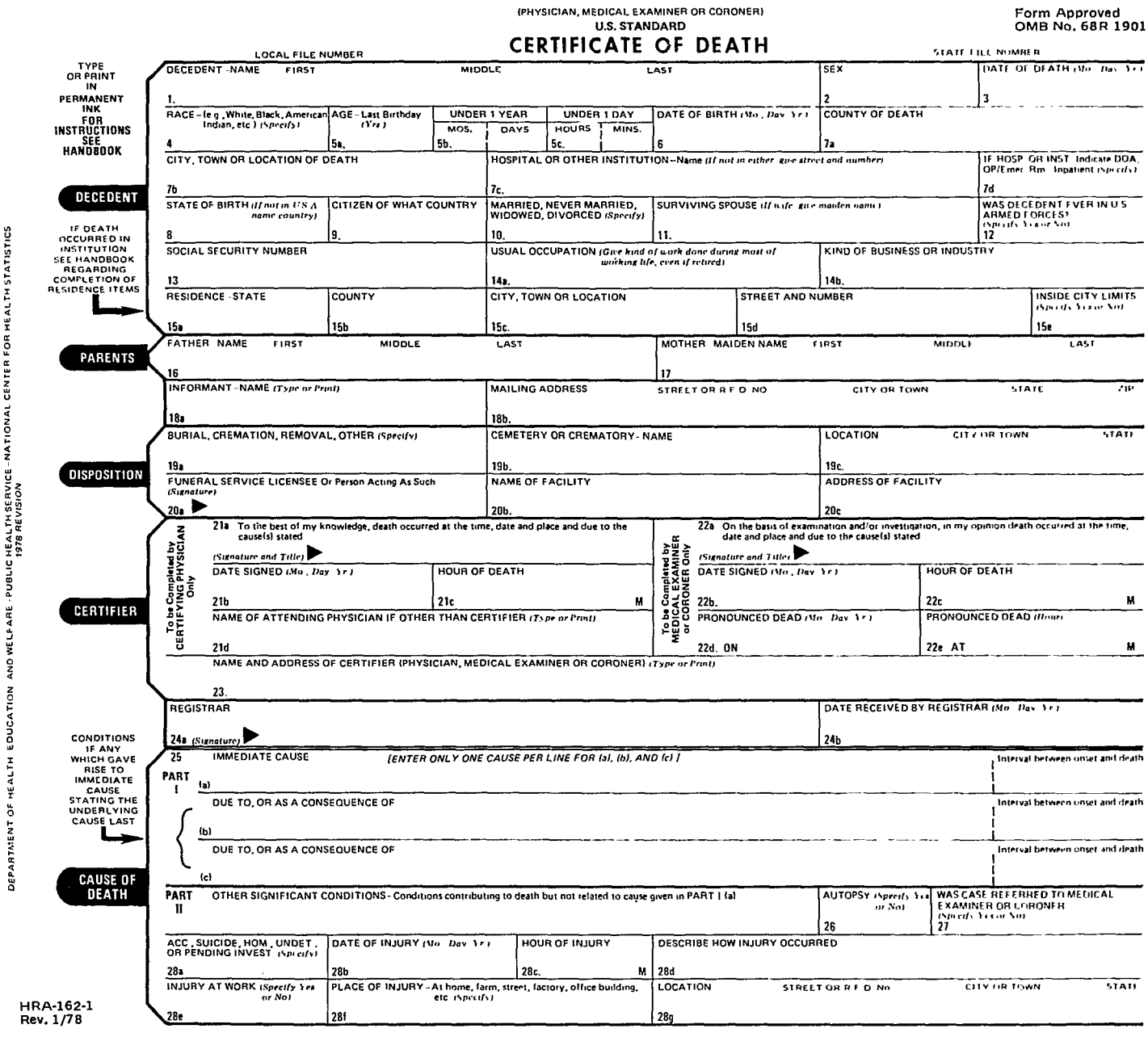


Figure XIII. Standard death certificate: National Mortality Registration System

Appendix II
Sample tables from recent reports for the seven data systems through which diagnostic statistics are produced

TABLE 7. NUMBER OF ACUTE CONDITIONS, BY SEX, AGE, AND TYPE OF CONDITION: UNITED STATES, 1985

(DATA ARE BASED ON HOUSEHOLD INTERVIEWS OF THE CIVILIAN NONINSTITUTIONALIZED POPULATION. THE SURVEY DESIGN, GENERAL QUALIFICATIONS, AND INFORMATION ON THE RELIABILITY OF THE ESTIMATES ARE GIVEN IN APPENDIX I. DEFINITIONS OF TERMS ARE GIVEN IN APPENDIX II)

TYPE OF ACUTE CONDITION	MALE					FEMALE				
	ALL AGES	UNDER 5 YEARS	5-17 YEARS	18-44 YEARS	45 YEARS AND OVER	ALL AGES	UNDER 5 YEARS	5-17 YEARS	18-44 YEARS	45 YEARS AND OVER
	NUMBER OF ACUTE CONDITIONS IN THOUSANDS									
ALL ACUTE CONDITIONS	180,945	30,510	51,336	68,178	30,922	228,652	29,711	54,677	98,323	45,941
INFECTIVE AND PARASITIC DISEASES	20,529	4,510	8,075	6,188	1,755	27,301	4,576	9,387	11,021	2,317
COMMON CHILDHOOD DISEASES	1,411	418	895	99	-	2,096	704	1,122	269	-
INTESTINAL VIRUS, UNSPECIFIED	4,083	1,408	1,011	1,339	325	4,183	978	1,635	1,361	209
VIRAL INFECTIONS, UNSPECIFIED	7,756	1,648	2,625	2,338	1,144	10,519	1,255	3,125	4,667	1,471
OTHER	7,279	1,036	3,545	2,412	286	10,503	1,638	3,504	4,724	637
RESPIRATORY CONDITIONS	89,693	14,670	25,254	33,680	16,088	113,798	12,786	28,716	49,143	23,153
COMMON COLD	31,789	7,498	8,193	10,392	5,705	39,446	6,421	9,142	15,621	8,262
OTHER ACUTE UPPER RESPIRATORY INFECTIONS	9,806	1,267	4,518	2,873	1,148	14,016	1,910	4,952	5,335	1,819
INFLUENZA	41,104	4,297	10,842	17,943	8,022	53,304	3,618	12,924	25,351	11,411
ACUTE BRONCHITIS	2,871	397	782	927	765	3,687	274	1,192	1,519	702
PNEUMONIA	1,563	528	174	480	381	1,328	301	118	309	601
OTHER RESPIRATORY CONDITIONS	2,561	682	744	1,066	68	2,016	263	388	1,008	357
DIGESTIVE SYSTEM CONDITIONS	6,904	707	2,423	2,319	1,454	9,394	902	1,991	4,057	2,442
DENTAL CONDITIONS	1,751	119	390	854	388	2,242	609	257	871	506
INDIGESTION, NAUSEA, AND VOMITING	3,622	416	1,883	658	664	4,960	293	1,664	1,980	1,023
OTHER DIGESTIVE CONDITIONS	1,530	172	150	807	402	2,191	-	71	1,207	913
INJURIES	35,149	2,352	9,275	18,535	4,987	28,872	3,046	6,095	12,069	7,663
FRACTURES AND DISLOCATIONS	4,694	67	1,981	2,110	537	3,559	265	914	792	1,588
SPRAINS AND STRAINS	8,023	-	1,452	5,155	1,416	5,892	107	1,376	3,397	1,013
OPEN WOUNDS AND LACERATIONS	8,504	1,299	2,475	4,011	719	4,647	561	993	2,287	806
CONTUSIONS AND SUPERFICIAL INJURIES	7,804	255	2,529	4,019	1,000	7,893	842	2,083	2,963	2,006
OTHER CURRENT INJURIES	6,123	731	838	3,239	1,315	6,880	1,272	729	2,630	2,250
SELECTED OTHER ACUTE CONDITIONS	19,591	6,498	4,920	4,532	3,641	36,761	7,266	6,881	16,442	6,172
EYE CONDITIONS	1,078	98	46	410	525	1,876	169	267	857	584
ACUTE EAR INFECTIONS	8,206	4,379	2,711	481	636	10,129	4,840	2,503	1,883	903
OTHER EAR CONDITIONS	1,581	478	222	585	296	2,274	213	797	861	403
ACUTE URINARY CONDITIONS	760	46	132	217	365	3,777	451	418	1,870	1,038
DISORDERS OF MENSTRUATION	...	...	...	...	...	1,141	...	323	754	64
OTHER DISORDERS OF FEMALE GENITAL TRACT	...	...	...	...	...	1,927	120	156	1,409	241
DELIVERY AND OTHER CONDITIONS OF PREGNANCY AND PUERPERIUM	...	...	...	...	...	4,974	...	37	4,870	66
SKIN CONDITIONS	2,400	601	384	854	561	2,828	496	863	847	621
ACUTE MUSCULOSKELETAL CONDITIONS	3,175	26	266	1,759	1,124	3,812	53	295	1,650	1,814
HEADACHE, EXCLUDING MIGRAINE	963	-	668	227	68	2,205	100	573	1,096	436
FEVER, UNSPECIFIED	1,426	870	490	-	66	1,817	824	649	344	-
ALL OTHER ACUTE CONDITIONS	9,081	1,773	1,389	2,923	2,997	12,527	1,134	1,608	5,591	4,194

NOTES: EXCLUDED FROM THESE ESTIMATES ARE CONDITIONS INVOLVING NEITHER MEDICAL ATTENTION NOR ACTIVITY RESTRICTION.

THE STANDARD ERRORS AND RELATIVE STANDARD ERRORS (RSE'S) CAN BE COMPUTED BY USING PARAMETER SET I OF TABLE I AND THE FORMULA PRESENTED IN RULE 1 OF APPENDIX I. AN ESTIMATE OF 8.7 MILLION HAS A 10-PERCENT RSE; OF 2.1 MILLION, A 20-PERCENT RSE; AND OF 948,000, A 30-PERCENT RSE.

Figure XIV. Example of National Health Interview Survey table (from Series 10, No. 160, September 1986)

Table 1

Number of persons with selected musculoskeletal conditions and rate per 1,000 population, by sex, age, and race: United States, 1980

Sex, age, and race	Number of persons in thousands	All musculoskeletal conditions		Joints only		Back only		Joints and back	
		Number of persons in thousands	Rate per 1,000 population	Number of persons in thousands	Rate per 1,000 population	Number of persons in thousands	Rate per 1,000 population	Number of persons in thousands	Rate per 1,000 population
Male, all ages	107,481	19,408	180.6	12,271	114.2	4,959	46.1	2,177	20.3
Under 19 years	35,451	2,416	68.2	1,938	54.7	†394	†11.1	‡84	‡2.4
19–44 years	41,709	7,381	177.0	4,067	97.5	2,424	58.1	891	21.4
45–64 years	20,828	6,448	309.6	3,796	182.3	1,696	81.4	955	45.9
65 years and over	9,491	3,162	333.2	2,470	260.3	†445	†46.9	‡248	‡26.1
Female, all ages	115,344	24,704	214.2	16,307	141.4	5,543	48.1	2,854	24.7
Under 19 years	34,233	2,810	82.1	1,918	56.0	767	22.4	‡126	‡3.7
19–44 years	44,383	7,773	175.1	4,015	90.5	2,862	64.5	896	20.2
45–64 years	22,750	7,727	339.7	5,441	239.2	1,309	57.6	976	42.9
65 years and over	13,978	6,393	457.4	4,932	352.9	†605	†43.3	856	61.3
Race:									
Black	26,046	4,216	161.9	2,880	110.6	996	38.2	†341	†13.1
White and other	196,779	39,895	202.7	25,698	130.6	9,507	48.3	4,691	23.8

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

Figure XV. Example of National Medical Care Utilization and Expenditure Survey table (from Series C, Analytical Report No. 5, September 1986)

Table 6. Number and proportion of definite hypertensives diagnosed, medicated, and controlled, by race, sex, and age: United States, 1976–80

Race, sex, and age	Sample size	Definite hypertensives[1]	Definite hypertensives who were diagnosed[2]		Definite hypertensives who were medicated[3]		Definite hypertensives who were controlled[4]	Medicated definite hypertensives who were controlled
		Number in thousands		Percent	Number in thousands	Percent	Number in thousands	Percent
ALL RACES								
Both sexes								
18–74 years[5]	2,901	25,065	18,438	73.6	13,975	74.6	8,637	61.8
18–24 years	46	562	246	*43.8	101	*40.9	92	*91.2
25–34 years	150	2,155	1,139	52.8	655	57.5	458	69.8
35–44 years	205	2,891	1,807	62.5	1,111	61.5	656	59.1
45–54 years	380	5,861	4,518	77.1	3,289	72.8	1,908	58.0
55–64 years	919	7,065	5,517	78.1	4,370	79.2	2,800	64.1
65–74 years	1,201	6,531	5,211	79.8	4,450	85.4	2,724	61.2
Men								
18–74 years[5]	1,292	11,748	7,603	66.4	5,213	68.9	2,890	55.7
18–24 years	32	369	122	*33.0	46	*37.6	37	*80.6
25–34 years	95	1,472	689	46.8	331	48.1	184	*55.4
35–44 years	108	1,520	797	52.4	474	59.5	243	*51.2
45–54 years	176	2,856	2,017	70.6	1,249	61.9	596	47.7
55–64 years	410	3,128	2,237	71.5	1,687	75.4	961	57.0
65–74 years	471	2,402	1,743	72.5	1,426	81.8	870	61.0
Women								
18–74 years[5]	1,609	13,317	10,835	80.5	8,763	79.3	5,747	65.9
18–24 years	14	193	124	*64.4	55	*44.0	55	*100.0
25–34 years	55	683	450	66.0	324	71.9	274	*84.6
35–44 years	97	1,371	1,011	73.7	637	63.0	414	65.0
45–54 years	204	3,005	2,501	83.2	2,040	81.6	1,313	64.3
55–64 years	509	3,936	3,280	83.3	2,683	81.8	1,838	68.5
65–74 years	730	4,129	3,468	84.0	3,024	87.2	1,854	61.3
WHITE ADULTS								
Both sexes								
18–74 years[5]	2,371	20,805	15,105	72.3	11,610	75.1	7,331	63.2
18–24 years	37	443	186	*41.9	62	*33.2	53	*85.6
25–34 years	117	1,768	932	52.7	527	56.6	375	*71.2
35–44 years	152	2,126	1,274	60.0	786	61.7	483	61.5
45–54 years	300	4,820	3,638	75.5	2,700	74.2	1,576	58.4
55–64 years	763	6,013	4,616	76.8	3,728	80.8	2,464	66.1
65–74 years	1,002	5,636	4,460	79.1	3,807	85.4	2,380	62.5
Men								
18–74 years[5]	1,086	10,135	6,538	65.4	4,496	68.8	2,543	56.9
18–24 years	28	332	100	*30.0	34	*33.8	25	*73.7
25–34 years	77	1,236	587	47.5	283	48.3	160	*56.4
35–44 years	86	1,184	592	50.0	331	55.8	202	*61.0
45–54 years	157	2,584	1,819	70.4	1,140	62.6	538	47.2
55–64 years	343	2,707	1,917	70.8	1,460	76.2	866	59.3
65–74 years	395	2,092	1,524	72.8	1,248	81.9	753	60.3
Women								
18–74 years[5]	1,285	10,670	8,567	79.3	7,114	81.0	4,788	67.7
18–24 years	9	111	86	*77.5	28	*32.5	28	*100.0
25–34 years	40	532	345	64.8	244	*70.7	216	*88.4
35–44 years	66	942	682	72.5	456	66.8	282	*61.8
45–54 years	143	2,235	1,819	81.4	1,560	85.8	1,038	66.5
55–64 years	420	3,306	2,699	81.6	2,268	84.0	1,598	70.5
65–74 years	607	3,544	2,937	82.9	2,559	87.1	1,626	63.6

See footnotes at end of table.

Figure XVI. Example of National Health and Nutrition Examination Survey table (from Series 11, No. 234, July 1986)

Table 6. Number and proportion of definite hypertensives diagnosed, medicated, and controlled, by race, sex, and age: United States, 1976–80—Con.

Race, sex, and age	Sample size	Definite hypertensives[1]	Definite hypertensives who were diagnosed[2]		Definite hypertensives who were medicated[3]		Definite hypertensives who were controlled[4]	Medicated definite hypertensives who were controlled
BLACK ADULTS								
Both sexes		Number in thousands		Percent	Number in thousands	Percent	Number in thousands	Percent
18–74 years[5]	485	3,790	3,043	80.9	2,180	72.7	1,218	55.6
18–24 years	8	98	61	*62.1	39	*64.2	39	*100.0
25–34 years	31	348	200	*57.4	128	*64.1	82	*64.2
35–44 years	48	645	508	78.8	300	59.1	149	*49.5
45–54 years	78	980	819	83.6	589	71.9	332	*56.4
55–64 years	143	948	806	85.0	563	69.9	308	54.7
65–74 years	177	772	650	84.2	560	86.2	308	55.1
Men								
18–74 years[5]	183	1,388	938	69.1	607	66.0	280	51.8
18–24 years	4	37	22	*59.5	12	*54.7	12	*100.0
25–34 years	17	205	102	*49.6	48	*47.2	24	*49.6
35–44 years	19	264	180	*68.2	119	*66.2	17	*13.9
45–54 years	19	272	198	*72.8	109	*55.2	58	*53.1
55–64 years	61	372	270	72.7	189	69.8	81	*42.7
65–74 years	63	239	166	69.6	130	78.5	89	*68.5
Women								
18–74 years[5]	302	2,403	2,105	87.6	1,572	75.9	938	58.6
18–24 years	4	61	39	*63.6	27	*69.6	27	*100.0
25–34 years	14	143	98	*68.5	80	*81.6	58	*73.0
35–44 years	29	381	328	86.2	181	*55.2	132	*72.9
45–54 years	59	709	621	87.7	480	77.3	274	*57.2
55–64 years	82	576	536	93.0	375	69.9	227	60.7
65–74 years	114	533	483	90.7	430	88.9	219	51.0

[1]Based on average of 3 blood pressures. Systolic blood pressure (SBP) ≥160 mmHg, diastolic blood pressure (DBP) ≥95 mmHg, taking antihypertensive medication.
[2]Physician diagnosed high blood pressure or hypertension.
[3]Reported taking antihypertensive medication "always," "often," or "sometimes."
[4]SBP < 160 mmHg and DBP < 95 mmHg.
[5]Age-adjusted by the direct method to the combined population of hypertensives at the midpoint of the survey.

Figure XVI. Example of National Health and Nutrition Examination Survey table (from Series 11, No. 234, July 1986)—Con.

TABLE 10. NUMBER OF PATIENTS DISCHARGED FROM SHORT-STAY HOSPITALS, RATE OF DISCHARGES, AND AVERAGE LENGTH OF STAY, BY CATEGORY OF FIRST-LISTED DIAGNOSIS, SEX, AND RACE: UNITED STATES, 1984

(DISCHARGES FROM NONFEDERAL HOSPITALS. EXCLUDES NEWBORN INFANTS. DIAGNOSTIC GROUPINGS AND CODE NUMBER INCLUSIONS ARE BASED ON THE INTERNATIONAL CLASSIFICATION OF DISEASES, 9TH REVISION, CLINICAL MODIFICATION)

	CATEGORY OF FIRST-LISTED DIAGNOSIS AND ICD-9-CM CODE	SEX					
		BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE
		NUMBER OF PATIENTS DISCHARGED IN THOUSANDS			RATE OF PATIENTS DISCHARGED PER 10,000 POPULATION		
01	ALL CONDITIONS	37,162	14,899	22,263	1,585.1	1,316.2	1,836.2
02	INFECTIOUS AND PARASITIC DISEASES....001-139	658	301	357	28.1	26.6	29.4
03	NEOPLASMS....140-239	2,576	1,060	1,516	109.9	93.7	125.1
04	MALIGNANT NEOPLASMS....140-208,230-234	2,059	943	1,117	87.8	83.3	92.1
05	MALIGNANT NEOPLASM OF TRACHEA, BRONCHUS, AND LUNG....162,197.0,197.3	340	214	126	14.5	18.9	10.4
06	MALIGNANT NEOPLASM OF BREAST....174-175,198.81	234	*	231	10.0	*	19.1
07	BENIGN NEOPLASMS AND NEOPLASMS OF UNCERTAIN BEHAVIOR AND UNSPECIFIED NATURE....210-229,235-239	517	118	400	22.1	10.4	33.0
08	ENDOCRINE, NUTRITIONAL AND METABOLIC DISEASES, AND IMMUNITY DISORDERS....240-279	1,139	427	712	48.6	37.7	58.8
09	DIABETES MELLITUS....250	593	238	354	25.3	21.0	29.2
10	DISEASES OF THE BLOOD AND BLOOD-FORMING ORGANS....280-289	354	152	202	15.1	13.4	16.7
11	ANEMIAS....280-285	244	101	143	10.4	8.9	11.8
12	MENTAL DISORDERS....290-319	1,690	875	815	72.1	77.3	67.3
13	PSYCHOSES....290-299	625	283	341	26.6	25.0	28.2
14	NEUROTIC AND PERSONALITY DISORDERS....300-301	228	77	151	9.7	6.8	12.4
15	ALCOHOL DEPENDENCE SYNDROME....303	392	288	104	16.7	25.5	8.6
16	DISEASES OF THE NERVOUS SYSTEM AND SENSE ORGANS....320-389	1,669	709	960	71.2	62.6	79.2
17	DISEASES OF THE CENTRAL NERVOUS SYSTEM....320-336,340-349	441	211	230	18.8	18.6	19.0
18	CATARACT....366	481	165	316	20.5	14.6	26.1
19	DISEASES OF THE EAR AND MASTOID PROCESS....380-389	321	158	162	13.7	14.0	13.4
20	DISEASES OF THE CIRCULATORY SYSTEM....390-459	5,593	2,856	2,737	238.6	252.3	225.8
21	ESSENTIAL HYPERTENSION....401	266	110	155	11.3	9.8	12.8
22	HEART DISEASE....391-392.0,393-398,402,404,410-416,420-429	3,599	1,905	1,694	153.5	168.3	139.7
23	ACUTE MYOCARDIAL INFARCTION....410	700	435	266	29.9	38.4	21.9
24	ATHEROSCLEROTIC HEART DISEASE....414.0	365	225	140	15.6	19.9	11.5
25	OTHER ISCHEMIC HEART DISEASE....411-413,414.1-414.9	969	535	434	41.3	47.3	35.8
26	CONGESTIVE HEART FAILURE....428.0	531	228	303	22.6	20.1	25.0
27	CEREBROVASCULAR DISEASE....430-438	896	420	476	38.2	37.1	39.3
28	DISEASES OF THE RESPIRATORY SYSTEM....460-519	3,365	1,654	1,711	143.5	146.1	141.1
29	ACUTE RESPIRATORY INFECTIONS, EXCEPT INFLUENZA....460-466	449	207	243	19.2	18.2	20.0
30	CHRONIC DISEASE OF TONSILS AND ADENOIDS....474	327	142	185	14.0	12.5	15.3
31	PNEUMONIA, ALL FORMS....480-486	837	424	413	35.7	37.4	34.1
32	ASTHMA....493	465	197	268	19.8	17.4	22.1
33	DISEASES OF THE DIGESTIVE SYSTEM....520-579	4,305	2,013	2,292	183.6	177.8	189.0
34	ULCERS OF THE STOMACH AND SMALL INTESTINE....531-534	327	179	148	13.9	15.8	12.2
35	GASTRITIS AND DUODENITIS....535	266	108	158	11.3	9.5	13.0
36	APPENDICITIS....540-543	270	154	116	11.5	13.6	9.6
37	INGUINAL HERNIA....550	440	390	50	18.8	34.4	4.1
38	NONINFECTIOUS ENTERITIS AND COLITIS....555-556,558	540	213	327	23.0	18.8	27.0
39	DIVERTICULA OF INTESTINE....562	188	63	126	8.0	5.5	10.4
40	CHOLELITHIASIS....574	488	141	347	20.8	12.5	28.6
41	DISEASES OF THE GENITOURINARY SYSTEM....580-629	3,116	1,043	2,073	132.9	92.1	171.0
42	CALCULUS OF KIDNEY AND URETER....592	328	222	106	14.0	19.6	8.7
43	HYPERPLASIA OF PROSTATE....600	270	270	---	11.5	23.8	---
44	DISORDERS OF MENSTRUATION AND OTHER ABNORMAL VAGINAL BLEEDING....626	254	---	254	10.8	---	21.0
45	COMPLICATIONS OF PREGNANCY, CHILDBIRTH, AND THE PUERPERIUM....1/ 630-676	969	---	969	41.3	---	79.9
46	ABORTIONS AND ECTOPIC AND MOLAR PREGNANCIES....630-639	418	---	418	17.8	---	34.5
47	DISEASES OF THE SKIN AND SUBCUTANEOUS TISSUE....680-709	568	263	305	24.2	23.2	25.1
48	DISEASES OF THE MUSCULOSKELETAL SYSTEM AND CONNECTIVE TISSUE....710-739	2,375	1,007	1,368	101.3	89.0	112.8
49	ARTHROPATHIES AND RELATED DISORDERS....710-719	536	207	329	22.9	18.3	27.1
50	INTERVERTEBRAL DISC DISORDERS....722	509	288	221	21.7	25.4	18.2
51	CONGENITAL ANOMALIES....740-759	317	174	143	13.5	15.4	11.8
52	CERTAIN CONDITIONS ORIGINATING IN THE PERINATAL PERIOD....760-779	167	88	79	7.1	7.8	6.5
53	SYMPTOMS, SIGNS, AND ILL-DEFINED CONDITIONS....780-799	520	245	276	22.2	21.6	22.7
54	INJURY AND POISONING....800-999	3,472	1,892	1,580	148.1	167.2	130.3
55	FRACTURES, ALL SITES....800-829	1,114	541	573	47.5	47.8	47.2
56	FRACTURE OF NECK OF FEMUR....820	244	64	179	10.4	5.7	14.8
57	SPRAINS AND STRAINS OF BACK (INCLUDING NECK)....846-847	269	128	142	11.5	11.3	11.7
58	INTRACRANIAL INJURIES (EXCLUDING THOSE WITH SKULL FRACTURE)....850-854	270	157	112	11.5	13.9	9.3
59	LACERATIONS AND OPEN WOUNDS....870-904	315	230	86	13.5	20.3	7.1
60	SUPPLEMENTARY CLASSIFICATIONS....V01-V82	4,308	141	4,167	183.8	12.5	343.7
61	PERSONS ADMITTED FOR STERILIZATION....V25.2	113	*	111	4.8	*	9.2
62	FEMALES WITH DELIVERIES....V27	3,853	---	3,853	164.4	---	317.8

1/ FIRST-LISTED DIAGNOSIS FOR FEMALES WITH DELIVERIES IS CODED V27, SHOWN UNDER "SUPPLEMENTARY CLASSIFICATIONS."

Figure XVII. Example of National Hospital Discharge Survey table (from Series 13, No. 84, March 1986)

TABLE 10. NUMBER OF PATIENTS DISCHARGED FROM SHORT-STAY HOSPITALS, RATE OF DISCHARGES, AND AVERAGE LENGTH OF STAY, BY CATEGORY OF FIRST-LISTED DIAGNOSIS, SEX, AND RACE: UNITED STATES, 1984--CON.

(DISCHARGES FROM NONFEDERAL HOSPITALS. EXCLUDES NEWBORN INFANTS. DIAGNOSTIC GROUPINGS AND CODE NUMBER INCLUSIONS ARE BASED ON THE INTERNATIONAL CLASSIFICATION OF DISEASES, 9TH REVISION, CLINICAL MODIFICATION)

SEX--CON.			RACE												
BOTH SEXES	MALE	FEMALE	ALL RACES	WHITE	ALL OTHER	NOT STATED	ALL RACES	WHITE	ALL OTHER	NOT STATED	ALL RACES	WHITE	ALL OTHER	NOT STATED	
AVERAGE LENGTH OF STAY IN DAYS			NUMBER OF PATIENTS DISCHARGED IN THOUSANDS				RATE OF PATIENTS DISCHARGED PER 10,000 POPULATION				AVERAGE LENGTH OF STAY IN DAYS				
6.6	7.0	6.3	37,162	28,449	5,302	3,412	1,585.1	1,425.0	1,523.4	...	6.6	6.6	6.7	5.8	01
6.6	6.9	6.4	658	489	115	54	28.1	24.5	33.0	...	6.6	6.4	8.2	5.2	02
9.0	9.6	8.5	2,576	2,047	322	207	109.9	102.5	92.5	...	9.0	8.9	10.2	7.7	03
9.8	10.1	9.5	2,059	1,667	228	164	87.8	83.5	65.6	...	9.8	9.6	11.8	8.4	04
9.5	9.4	9.8	340	271	43	26	14.5	13.6	12.3	...	9.5	9.3	10.9	9.6	05
8.3	*	8.3	234	194	22	19	10.0	9.7	6.2	...	8.3	8.3	9.6	6.6	06
5.7	5.6	5.8	517	380	94	43	22.1	19.0	26.9	...	5.7	5.7	6.2	5.0	07
7.6	7.5	7.7	1,139	832	203	104	48.6	41.7	58.2	...	7.6	7.6	8.2	6.9	08
8.2	7.8	8.5	593	408	119	66	25.3	20.4	34.3	...	8.2	8.2	8.8	7.1	09
6.2	5.7	6.5	354	249	84	21	15.1	12.5	24.2	...	6.2	6.0	6.5	6.1	10
6.6	5.9	7.0	244	159	73	11	10.4	8.0	21.1	...	6.6	6.5	6.5	7.5	11
11.9	11.5	12.4	1,690	1,216	282	192	72.1	60.9	81.1	...	11.9	12.3	11.0	10.8	12
14.5	14.0	14.9	625	472	106	46	26.6	23.7	30.5	...	14.5	14.9	13.3	12.9	13
11.2	10.1	11.7	228	184	25	18	9.7	9.2	7.2	...	11.2	11.2	13.6	7.7	14
10.6	10.4	11.2	392	230	80	82	16.7	11.5	23.0	...	10.6	10.9	9.2	11.0	15
4.8	5.1	4.5	1,669	1,315	176	179	71.2	65.9	50.5	...	4.8	4.8	5.5	3.8	16
9.3	9.9	8.8	441	341	60	40	18.8	17.1	17.4	...	9.3	9.6	9.1	7.2	17
2.4	2.2	2.5	481	392	34	55	20.5	19.6	9.9	...	2.4	2.4	3.0	2.3	18
3.2	3.2	3.1	321	247	35	38	13.7	12.4	10.2	...	3.2	3.2	3.3	2.7	19
8.2	7.9	8.6	5,593	4,549	609	435	238.6	227.9	175.1	...	8.2	8.1	9.5	7.6	20
5.6	5.4	5.8	266	191	56	18	11.3	9.6	16.2	...	5.6	5.3	7.0	4.3	21
7.8	7.5	8.1	3,599	2,976	348	274	153.5	149.1	100.1	...	7.8	7.7	8.6	6.9	22
10.0	9.5	10.8	700	589	57	54	29.9	29.5	16.3	...	10.0	10.0	10.8	8.8	23
7.2	7.2	7.3	365	319	23	23	15.6	16.0	6.7	...	7.2	7.3	6.6	5.9	24
6.0	5.8	6.3	969	816	80	73	41.3	40.9	22.9	...	6.0	6.0	6.2	5.7	25
8.6	8.2	8.9	531	423	69	39	22.6	21.2	19.7	...	8.6	8.6	9.1	7.7	26
10.4	9.8	10.8	896	714	108	74	38.2	35.8	31.0	...	10.4	10.0	12.6	10.2	27
6.0	5.9	6.1	3,365	2,672	429	263	143.5	133.8	123.3	...	6.0	6.1	5.7	5.3	28
4.6	4.3	4.8	449	358	62	29	19.2	17.9	17.9	...	4.6	4.8	4.1	3.7	29
1.7	1.6	1.7	327	267	25	34	14.0	13.4	7.3	...	1.7	1.7	2.0	1.4	30
7.8	7.3	8.2	837	660	112	65	35.7	33.0	32.3	...	7.8	7.9	7.1	7.3	31
5.2	4.6	5.6	465	316	113	35	19.8	15.8	32.6	...	5.2	5.3	4.7	5.3	32
6.3	6.0	6.6	4,305	3,419	512	374	183.6	171.3	147.1	...	6.3	6.3	6.5	5.8	33
7.4	7.5	7.3	327	259	41	27	13.9	13.0	11.8	...	7.4	7.5	7.3	6.3	34
4.7	4.5	4.8	266	212	38	17	11.3	10.6	10.8	...	4.7	4.7	4.7	4.2	35
5.1	4.9	5.4	270	211	29	30	11.5	10.6	8.4	...	5.1	5.0	6.6	4.6	36
3.8	3.7	3.9	440	350	45	45	18.8	17.5	12.9	...	3.8	3.8	3.8	3.5	37
4.9	4.7	5.0	540	432	65	43	23.0	21.6	18.6	...	4.9	5.1	4.4	4.1	38
7.9	7.6	8.0	188	163	12	14	8.0	8.1	3.5	...	7.9	7.6	9.7	9.5	39
7.6	8.1	7.4	488	390	46	52	20.8	19.5	13.1	...	7.6	7.7	8.3	6.8	40
5.4	5.9	5.2	3,116	2,415	449	252	132.9	121.0	129.0	...	5.4	5.3	6.1	5.0	41
4.2	4.0	4.7	328	279	21	28	14.0	14.0	6.0	...	4.2	4.1	7.3	3.7	42
7.3	7.3	...	270	231	18	21	11.5	11.6	5.1	...	7.3	7.2	8.2	7.5	43
3.5	...	3.5	254	184	45	25	10.8	9.2	13.0	...	3.5	3.6	3.3	3.6	44
2.6	...	2.6	969	619	260	90	41.3	31.0	74.6	...	2.6	2.6	2.9	2.0	45
2.3	...	2.3	418	255	131	32	17.8	12.8	37.5	...	2.3	2.2	2.5	2.1	46
8.0	7.8	8.1	568	429	97	43	24.2	21.5	27.8	...	8.0	8.1	7.9	7.1	47
7.0	6.5	7.3	2,375	1,861	260	253	101.3	93.2	74.8	...	7.0	7.0	7.0	6.7	48
8.1	7.0	8.8	536	415	62	59	22.9	20.8	17.9	...	8.1	8.1	7.7	8.1	49
7.6	7.0	8.3	509	390	51	67	21.7	19.5	14.8	...	7.6	7.6	8.2	6.6	50
6.0	5.9	6.2	317	239	49	30	13.5	12.0	14.0	...	6.0	5.9	6.4	6.3	51
12.2	11.1	13.4	167	114	36	17	7.1	5.7	10.2	...	12.2	11.9	14.8	8.7	52
4.1	4.0	4.3	520	383	84	53	22.2	19.2	24.3	...	4.1	3.9	4.8	4.6	53
6.8	6.3	7.5	3,472	2,634	520	318	148.1	132.0	149.3	...	6.8	7.0	6.6	5.8	54
9.3	8.2	10.3	1,114	910	107	97	47.5	45.6	30.7	...	9.3	9.5	9.3	7.8	55
15.8	16.1	15.6	244	212	12	20	10.4	10.6	3.3	...	15.8	15.8	17.9	13.8	56
6.4	6.0	6.8	269	193	55	21	11.5	9.7	15.8	...	6.4	6.4	6.7	6.0	57
5.3	5.2	5.3	270	198	41	31	11.5	9.9	11.8	...	5.3	5.4	6.2	3.4	58
4.5	4.4	4.9	315	204	88	23	13.5	10.2	25.3	...	4.5	4.6	4.7	2.8	59
3.4	3.7	3.4	4,308	2,966	815	528	183.8	148.5	234.2	...	3.4	3.4	3.6	3.2	60
1.8	*	1.8	113	75	30	*9	4.8	3.8	8.5	...	1.8	1.8	2.1	*1.5	61
3.4	...	3.4	3,853	2,644	724	485	164.4	132.5	208.1	...	3.4	3.4	3.7	3.2	62

Figure XVII. Example of National Hospital Discharge Survey table (from Series 13, No. 84, March 1986)—Con.

Table H. Mean length of stay since admission and standard error of the mean, by primary diagnosis at last examination and age: United States, 1977

Primary diagnosis at last examination[1]	Length of stay since admission in days					
	Mean			Standard error		
	All ages	Under 65 years	65 years and over	All ages	Under 65 years	65 years and over
Total	957.9	1,122.9	931.9	16.8	47.0	17.0
Diseases of the circulatory system						
Total	944.7	995.9	942.3	21.5	94.6	22.1
Congestive heart failure	751.9	*732.1	752.9	55.0	247.8	56.0
Arteriosclerosis	1,044.1	1,013.6	1,044.6	33.0	232.2	33.3
Hypertension	1,034.6	1,277.5	1,013.3	66.5	300.4	67.8
Stroke	774.7	849.8	766.0	39.8	120.3	42.4
Heart attack, ischemic heart disease	883.9	*1,049.1	876.8	93.9	423.8	96.1
Other	890.4	1,222.5	845.0	86.2	303.4	88.7
Mental disorders and senility without psychosis						
Total	1,148.1	1,315.8	1,074.2	38.6	73.9	42.8
Senile psychosis	840.5	*	834.6	78.5	*	76.9
Other psychosis	1,266.5	1,177.6	1,344.0	84.0	111.2	109.3
Chronic brain syndrome	987.3	1,069.0	976.1	45.5	133.0	48.0
Senility without psychosis	1,019.5	395.0	1,031.9	90.9	101.8	92.5
Mental retardation	1,669.6	1,648.5	1,732.7	115.0	125.9	267.0
Alcoholism and other mental disorders	990.6	992.3	989.3	149.2	197.9	214.6
Other diagnoses[2]						
Total	884.4	914.9	879.7	24.4	66.2	25.9
Diseases of the musculoskeletal system and connective tissues:						
Arthritis and rheumatism	927.9	682.4	945.7	52.3	149.7	53.8
Diseases of the nervous system and sense organs:						
Parkinson's disease	1,042.3	1,043.6	1,042.2	94.6	208.8	101.0
Accidents, poisonings, and violence:						
Hip fracture	430.7	158.2	445.2	52.6	46.3	54.8
Other bone fracture	461.1	431.7	463.6	83.9	60.1	91.0
Endocrine, nutritional, and metabolic diseases:						
Diabetes	1,001.4	1,134.8	983.5	54.5	244.0	52.5
Neoplasms:						
Cancer	475.6	180.6	503.0	53.4	51.6	57.7
Diseases of the respiratory system:						
Emphysema	797.4	896.4	787.8	74.6	265.5	76.0
Diagnosis unknown[3]						
Total	822.5	1,072.1	774.3	64.9	168.6	67.7

[1]Disease group categories based on *Eighth Revision International Classification of Diseases, Adapted for Use in the United States* (ICDA).
[2]Only diagnoses of sufficient magnitude are noted.
[3]Includes those who received no physician visit while in facility.

Figure XVIII. Example of National Nursing Home Survey table (from Series 13, No. 51, March 1981)

Table 10. Number of office visits to internists by sex and age of patient and prior visit status, old problem rate by principal diagnosis categories, and percent distribution by principal diagnosis categories, according to sex and age of patient and prior visit status: United States, January 1980–December 1981

Principal diagnoses and ICD–9–CM code[1]	Both sexes	Sex		Age					Prior visit status			Old problem rate[2] per new problem visit
		Female	Male	Under 15 years	15–24 years	25–44 years	45–64 years	65 years and over	New patient	Old patient		
										New problem	Old problem	
	Number in thousands											
All visits	144,172	84,798	59,374	3,027	9,346	29,866	53,543	48,389	17,451	28,133	98,588	2.2
	Percent distribution											
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	...
Infectious and parasitic diseases 001–139	1.8	1.8	1.8	*4.0	6.8	2.8	1.3	*0.8	3.2	4.2	0.9	0.5
Neoplasms 140–239	4.1	4.1	4.0	*2.5	*1.0	2.3	4.5	5.3	2.1	*1.1	5.2	7.7
Endocrine, nutritional and metabolic diseases, and immunity disorders 240–279	8.7	9.0	8.3	*5.4	*5.0	8.4	10.2	8.2	7.0	3.4	10.5	4.8
Mental disorders 290–319	3.3	3.6	2.9	*1.9	*3.4	6.3	2.8	2.0	4.7	3.2	3.1	1.8
Diseases of the nervous system and sense organs 320–389	2.8	3.0	2.5	*7.7	*3.5	4.0	2.0	2.4	2.9	4.6	2.3	1.3
Diseases of the circulatory system 390–459	25.5	23.3	28.7	*5.5	*4.7	12.1	27.9	36.4	12.2	8.0	32.8	7.4
Diseases of the respiratory system 460–519	11.7	10.6	13.2	31.5	18.0	15.9	10.4	7.9	13.5	20.4	8.8	1.1
Diseases of the digestive system 520–579	6.2	6.2	6.2	*3.8	6.8	7.8	6.5	4.9	6.3	8.5	5.6	1.6
Diseases of the genitourinary system 580–629	3.3	4.0	2.3	*2.4	7.0	4.0	3.1	2.5	3.9	4.8	2.8	1.4
Diseases of the skin and subcutaneous tissue 680–709	2.3	2.3	2.3	*2.0	*4.3	2.9	1.8	2.1	*2.4	5.9	1.3	0.6
Diseases of the musculoskeletal system and connective tissue 710–739	11.2	13.2	8.4	*5.7	5.2	9.7	12.5	12.2	10.6	9.6	11.8	2.5
Symptoms, signs, and ill-defined conditions 780–799	5.2	5.2	5.2	*1.7	6.2	6.9	4.8	4.6	6.9	8.3	4.0	1.1
Injury and poisoning 800–999	3.7	3.6	3.9	*5.6	7.3	4.5	3.4	2.7	5.4	7.9	2.2	0.7
Supplementary classification V01–V82	7.8	7.6	8.2	*14.2	17.2	9.8	7.0	5.2	15.5	7.9	6.4	1.3
All other diagnoses	1.4	1.4	1.2	*2.2	*1.3	*1.3	1.0	1.7	*2.2	*0.7	1.4	...
Unknown diagnoses	1.1	1.2	1.0	*4.0	*2.4	*1.2	*0.8	1.0	*1.2	1.7	0.9	...

[1]Based on the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM).[7]
[2]Old problem visits divided by new problem and new patient visits.

Figure XIX. Example of National Ambulatory Medical Care Survey table (from Series 13, No. 80, September 1984)

Table 9. Deaths and death rates for 72 selected causes: United States, 1984 and 1985

[Based on a 10-percent sample of deaths. Rates per 100,000 population. For information on standard errors of the estimates and further discussion, see Technical notes]

Cause of death (Ninth Revision, International Classification of Diseases, 1975)	*Number*		*Rate*	
	1985	*1984*	*1985*	*1984*
All causes	2,084,000	2,047,000	874.8	866.8
Shigellosis and amebiasis 004,006	50	40	0.0	0.0
Certain other intestinal infections 007–009	390	320	0.2	0.1
Tuberculosis 010–018	1,690	1,800	0.7	0.8
Tuberculosis of respiratory system 010–012	1,270	1,330	0.5	0.6
Other tuberculosis 013–018	420	470	0.2	0.2
Whooping cough 033	-	-	-	-
Streptococcal sore throat, scarlatina, and erysipelas 034–035	10	40	0.0	0.0
Meningococcal infection 036	180	300	0.1	0.1
Septicemia 038	17,040	15,030	7.1	6.4
Acute poliomyelitis 045	-	-	-	-
Measles 055	-	-	-	-
Viral hepatitis 070	1,050	800	0.4	0.3
Syphilis 090–097	50	60	0.0	0.0
All other infectious and parasitic diseases 001–003,005,020–032,037,039–041,046–054,056–066,071–088,098–139	6,990	6,250	2.9	2.6
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues 140–208	457,670	452,470	191.7	191.6
Malignant neoplasms of lip, oral cavity, and pharynx 140–149	8,320	8,500	3.5	3.6
Malignant neoplasms of digestive organs and peritoneum 150–159	116,830	115,240	48.9	48.8
Malignant neoplasms of respiratory and intrathoracic organs 160–165	125,230	123,880	52.5	52.5
Malignant neoplasm of breast 174–175	40,300	40,100	16.9	17.0
Malignant neoplasms of genital organs 179–187	49,550	48,710	20.8	20.6
Malignant neoplasms of urinary organs 188–189	19,000	18,590	8.0	7.9
Malignant neoplasms of all other and unspecified sites 170–173,190–199	56,130	55,320	23.5	23.4
Leukemia 204–208	17,310	17,800	7.3	7.5
Other malignant neoplasms of lymphatic and hematopoietic tissues 200–203	24,990	24,330	10.5	10.3
Benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior and of unspecified nature 210–239	6,450	6,810	2.7	2.9
Diabetes mellitus 250	38,620	36,830	16.2	15.6
Nutritional deficiencies 260–269	2,600	2,630	1.1	1.1
Anemias 280–285	3,410	3,240	1.4	1.4
Meningitis 320–322	1,170	1,100	0.5	0.5
Major cardiovascular diseases 390–448	980,550	975,190	410.7	412.9
Diseases of heart 390–398,402,404–429	775,890	766,130	325.0	324.4
Rheumatic fever and rheumatic heart disease 390–398	6,180	6,880	2.6	2.9
Hypertensive heart disease 402	20,420	20,580	8.6	8.7
Hypertensive heart and renal disease 404	2,860	3,070	1.2	1.3
Ischemic heart disease 410–414	540,800	540,380	226.5	228.8
Acute myocardial infarction 410	276,220	279,810	115.7	118.5
Other acute and subacute forms of ischemic heart disease 411	3,790	3,730	1.6	1.6
Angina pectoris 413	950	1,030	0.4	0.4
Old myocardial infarction and other forms of chronic ischemic heart disease 412,414	259,850	255,810	108.8	108.3
Other diseases of endocardium 424	9,760	9,020	4.1	3.8
All other forms of heart disease 415–423,425–429	195,870	186,200	82.0	78.8
Hypertension with or without renal disease 401,403	7,380	6,920	3.1	2.9
Cerebrovascular diseases 430–438	152,710	155,010	64.0	65.6
Intracerebral and other intracranial hemorrhage 431–432	20,020	19,880	8.4	8.4
Cerebral thrombosis and unspecified occlusion of cerebral arteries 434.0,434.9	24,230	24,790	10.1	10.5
Cerebral embolism 434.1	730	890	0.3	0.4
All other and late effects of cerebrovascular diseases 430,433,435–438	107,730	109,450	45.1	46.3
Atherosclerosis 440	23,580	24,550	9.9	10.4
Other diseases of arteries, arterioles, and capillaries 441–448	20,990	22,580	8.8	9.6
Acute bronchitis and bronchiolitis 466	580	520	0.2	0.2
Pneumonia and influenza 480–487	66,630	59,020	27.9	25.0
Pneumonia 480–486	64,720	57,710	27.1	24.4
Influenza 487	1,910	1,310	0.8	0.6
Chronic obstructive pulmonary diseases and allied conditions 490–496	74,420	70,270	31.2	29.8
Bronchitis, chronic and unspecified 490–491	3,630	3,370	1.5	1.4
Emphysema 492	14,180	13,430	5.9	5.7
Asthma 493	3,760	3,790	1.6	1.6
Other chronic obstructive pulmonary diseases and allied conditions 494–496	52,850	49,680	22.1	21.0
Ulcer of stomach and duodenum 531–533	6,600	6,780	2.8	2.9
Appendicitis 540–543	420	570	0.2	0.2
Hernia of abdominal cavity and intestinal obstruction without mention of hernia 550–553,560	5,050	5,550	2.1	2.4
Chronic liver disease and cirrhosis 571	26,770	26,750	11.2	11.3
Cholelithiasis and other disorders of gallbladder 574–575	2,880	3,260	1.2	1.4

Figure XX. Example of National Mortality Registration System table (from MVSR Vol. 34, No. 13, September 1986)

Table 9. Deaths and death rates for 72 selected causes: United States, 1984 and 1985—Con.

[Based on a 10-percent sample of deaths. Rates per 100,000 population. For information on standard errors of the estimates and further discussion, see Technical notes]

Cause of death (Ninth Revision, International Classification of Diseases, 1975)		*Number*		*Rate*	
		1985	*1984*	*1985*	*1984*
Nephritis, nephrotic syndrome, and nephrosis	580–589	22,560	20,050	9.4	8.5
Acute glomerulonephritis and nephrotic syndrome	580–581	320	320	0.1	0.1
Chronic glomerulonephritis, nephritis and nephropathy, not specified as acute or chronic, and renal sclerosis, unspecified	582–583,587	1,640	1,750	0.7	0.7
Renal failure, disorders resulting from impaired renal function, and small kidney of unknown cause	584–586,588–589	20,600	17,980	8.6	7.6
Infections of kidney	590	1,920	1,820	0.8	0.8
Hyperplasia of prostate	600	540	530	0.2	0.2
Complications of pregnancy, childbirth, and the puerperium	630–676	350	220	0.1	0.1
Pregnancy with abortive outcome	630–638	70	30	0.0	0.0
Other complications of pregnancy, childbirth, and the puerperium	640–676	280	190	0.1	0.1
Congenital anomalies	740–759	13,230	13,120	5.5	5.6
Certain conditions originating in the perinatal period	760–779	18,250	18,930	7.6	8.0
Birth trauma, intrauterine hypoxia, birth asphyxia, and respiratory distress syndrome	767–769	5,170	5,230	2.2	2.2
Other conditions originating in the perinatal period	760–766,770–779	13,070	13,700	5.5	5.8
Symptoms, signs, and ill-defined conditions	780–799	32,410	31,920	13.6	13.5
All other diseases	Residual	150,900	138,240	63.2	58.5
Accidents and adverse effects	E800–E949	92,070	94,610	38.6	40.1
Motor vehicle accidents	E810–E825	44,930	46,380	18.8	19.6
All other accidents and adverse effects	E800–E807,E826–E949	47,140	48,230	19.7	20.4
Suicide	E950–E959	28,620	29,060	12.0	12.3
Homicide and legal intervention	E960–E978	19,420	19,530	8.1	8.3
All other external causes	E980–E999	2,970	3,170	1.2	1.3

Figure XX. Example of National Mortality Registration System table (from MVSR Vol. 34, No. 13, September 1986)—Con.

Appendix III
The International Classification of Diseases (ICD)

Introduction

ICD, a statistical classification, was first developed in 1893 from an international list of causes of death and has been revised approximately every 10 years since then. Use of the current Ninth Revision began in 1979. As pointed out in the introduction of the 1975 revision of the ICD,

> A statistical classification of disease must be confined to a limited number of categories which will encompass the entire range of morbid conditions. The categories should be chosen so that they will facilitate the statistical study of disease phenomena. A specific disease entity should have a separate title in the classification only when its separation is warranted, because the frequency of its occurrence, or its importance as a morbid condition, justifies its isolation as a separate category. On the other hand, many titles in the classification will refer to groups of separate but usually related morbid conditions. Every disease or morbid condition, however, must have a definite and appropriate place as an inclusion in one of the categories of the statistical classification. A few items of the statistical list will be residual titles for other and miscellaneous conditions which cannot be classified under more specific titles. These miscellaneous categories should be kept to a minimum.[1]

Uniform definitions and a uniform system of classification of mortality data are provided through ICD, and, beginning with the Ninth Revision, the selection of a single cause for presentation of morbidity statistics is provided for as well. The following section summarizes the general characteristics of the Ninth Revision of ICD:

1. Care has been taken to ensure that categories are meaningful at the three-digit level. These three-digit codes are categorized according to 17 major chapters, plus 2 supplementary classifications.

   I. Infectious and parasitic diseases
   II. Neoplasms
   III. Endocrine, nutritional and metabolic diseases, and immunity disorders
   IV. Diseases of the blood and blood-forming organs
   V. Mental disorders
   VI. Diseases of the nervous system and sense organs
   VII. Diseases of the circulatory system
   VIII. Diseases of the respiratory system
   IX. Diseases of the digestive system
   X. Diseases of the genitourinary system
   XI. Complications of pregnancy, childbirth, and the puerperium
   XII. Diseases of the skin and subcutaneous tissue
   XIII. Diseases of the musculoskeletal system and connective tissue
   XIV. Congenital anomalies
   XV. Certain conditions originating in the perinatal period
   XVI. Symptoms, signs, and ill-defined conditions
   XVII. Injury and poisoning
   - Supplementary classification of external causes of injury and poisoning
   - Supplementary classification of factors influencing health status and contact with health services

2. Optional fifth digits are provided in certain places; for example, for the mode of diagnosis in tuberculosis, for method of delivery in chapter XI, for anatomical site in musculoskeletal disorders, and for place of accident in the E code, external causes of injury and poisoning.
3. An independent four-digit coding system is provided to classify histological varieties of neoplasm, prefixed by the letter M (for morphology) and followed by a fifth digit indicating behavior. This code is for optional use in addition to the normal code indicating topography.
4. The role of the E code for external causes has changed. In the Sixth, Seventh, and Eighth Revisions, chapter XVII consisted of two alternative classifications, one according to the nature of the injury (the N code) and one according to external cause (the E code). In the Ninth Revision of ICD, the N prefix was dropped and nature of injury is considered as part of the main classification. The E code became a supplementary classification to be used, where relevant, in conjunction with codes from any part of the classification. For mortality statistics, however, the E code should still be used in preference to chapter XVII, injury and poisoning, in presenting underlying causes of death, when only one is used.
5. The Ninth Revision includes dual classification of certain diagnostic statements that contain information about both etiology and manifestation.
6. The impairments classification is now a supplement rather than an integral part of ICD.
7. The Ninth Revision recommends that the condition selected for single-cause analysis for health-care records should be the main condition treated or investigated during the relevant episode of hospital care. If no diagnosis was made, the main symptom or problem should be selected.

Specifications for the tabular list ICD–9–CM

1. Three-digit rubrics and their contents are unchanged from ICD–9.
2. The sequence of three-digit rubrics is unchanged from ICD–9.
3. Three-digit rubrics are not added to the main body of the classification.
4. Unsubdivided three-digit rubrics are subdivided where necessary:
   a. To add clinical detail.
   b. To isolate terms for clinical accuracy.
5. The modification in ICD–9–CM is accomplished by the addition of a fifth digit to existing ICD–9 rubrics, except
6. Four-digit rubrics are added to subdivided three-digit codes only when there are no other means of achieving desired detail.
7. The optional dual classification in ICD–9 is modified.
8. The format of ICD–9–CM is revised from that used in ICD–9.
   a. The American spelling of medical terms is used.
   b. Inclusion terms are indented beneath the titles of codes.
   c. Codes not to be used for primary tabulation of disease are printed in italics with the notation, "code also underlying disease."

Comparison of diagnostic subcategories normally used by NAMCS and NHDS in NCHS publications

NAMCS	*NHDS*
I. Infectious and parasitic diseases (001–139)	
Streptococcal sore throat and scarlet fever (034)	(Only total for this category is published)
II. Neoplasms (140–239)	
Benign neoplasms of skin (216)	Malignant neoplasms (140–208) Benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior (210–239)
III. Endocrine, nutritional and metabolic diseases, and immunity disorders (240–279)	
Diabetes mellitus (250)	Diabetes mellitus (250)
Obesity (278.0)	
Myxedema (244)	
IV. Diseases of the blood and blood-forming organs (280–289)	
(No estimates published for this category)	(Only total for this category is published)
V. Mental disorders (290–319)	
Neurotic disorders (300) Personality disorders (301) Schizophrenic disorders (295)	Psychoses (290–299) Alcohol dependence syndrome (303)
VI. Diseases of the nervous system and sense organs (320–389)	
Otitis media (381–382) Disorders of refraction and accommodation (367) Conjunctivitis (372.0–372.3) Cataract (366) Glaucoma (365)	Diseases of the central nervous system (320–336, 340–349) Cataract (366) Diseases of the ear and mastoid process (380–389)

NAMCS	*NHDS*
VII. Diseases of the circulatory system (390–459)	
Essential hypertension (401)	Essential hypertension (401)
Chronic ischemic heart disease (412–414)	Heart disease (391–392.0, 393–398, 402, 404, 410–416, 420–429)
Symptomatic heart disease (426–428)	Acute myocardial infarction (410)
Angina pectoris (413)	Atherosclerotic heart disease (414.0)
	Other ischemic heart disease (411–413, 414.1–414.9)
	Congestive heart failure (428.0)
	Cerebrovascular disease (430–438)
VIII. Diseases of the respiratory system (460–519)	
Acute respiratory infections (except influenza) (460–466)	Acute bronchitis and bronchiolitis (466)
Influenza (487)	Other acute upper respiratory infections, except influenza (460–465)
Allergic rhinitis (477)	Chronic disease of tonsils and adenoids (474)
Bronchitis, unqualified (490)	Pneumonia, all forms (480–486)
Asthma (493)	Asthma (493)
Emphysema (492)	
IX. Diseases of the digestive system (520–579)	
Gastritis and duodenitis (535)	Ulcers of the stomach and small intestine (531–534)
Noninfectious enteritis and colitis (555–558)	Gastritis and duodenitis (535)
	Appendicitis (540–543)
	Inguinal hernia (550)
	Noninfectious enteritis and colitis (555–558)
	Cholelithiasis (574)
X. Diseases of the genitourinary system (580–629)	
Diseases of male genital organs (600–608)	Calculus of kidney and ureter (592)
Diseases of female genital organs (614–629)	Disorders of menstruation and other abnormal vaginal bleeding (626)
XI. Complications of pregnancy, childbirth, and the puerperium (630–676)	
(No estimates published for this category)	All abortions, including ectopic and molar pregnancies (630–639)
XII. Diseases of the skin and subcutaneous tissue (680–709)	
Contact dermatitis and other eczema (692)	(Only total for this category is published)
XIII. Diseases of the musculoskeletal system and connective tissue (710–739)	
Arthropathies and related disorders (710–719)	Arthropathies and related disorders (710–719)
	Intervertebral disc disorders (722)
XIV. Congenital anomalies (740–759)	
(No estimates published for this category)	(Only total for this category is published)

NAMCS	*NHDS*
XV. Certain conditions originating in the perinatal period (760–779)	
(No estimates published for this category)	(Only total for this category is published)
XVI. Symptoms, signs, and ill-defined conditions (780–799)	
(Only total for this category is published)	(Only total for this category is published)
XVII. Injury and poisoning (800–999)	
Fractures (800–829)	Fractures, all sites (800–829)
Dislocations (830–839)	Sprains and strains of back (including neck) (846–847)
Sprains and strains (840–848)	Intracranial injuries (excluding those with skull fracture) (850–854)
Supplementary classification (V01–V82)	
Medical or special examination or screening (V70–V82)	Persons admitted for sterilization (V25.2)
Prenatal care (V22–V23)	Females with deliveries (V27)
Medical and surgical aftercare (V50–V59)	

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