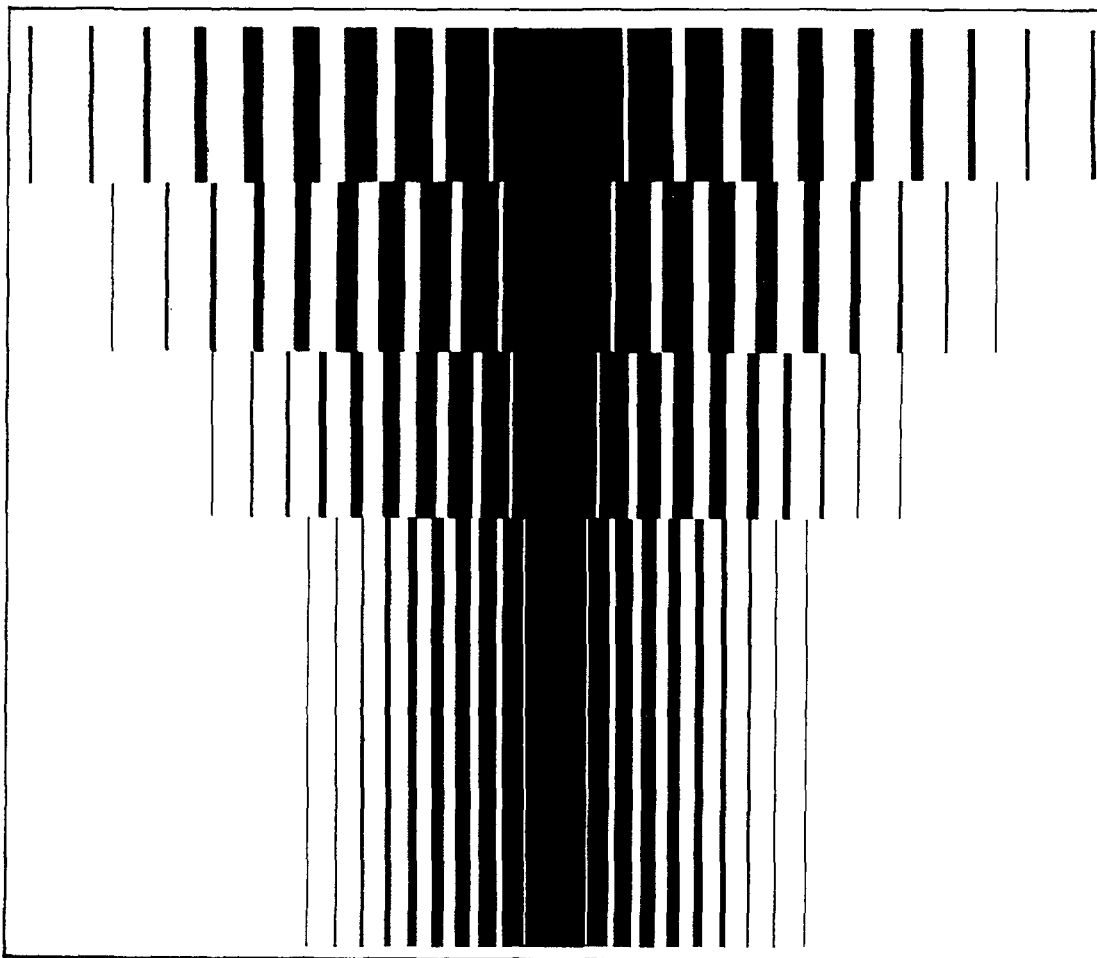


Visits to Selected Health Care Practitioners United States, 1980

Series B, Descriptive Report No. 8



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National Medical Care Utilization and Expenditure Survey

The National Medical Care Utilization and Expenditure Survey (NMCUES) is a unique source of detailed national estimates on the utilization of and expenditures for various types of medical care. NMCUES is designed to be directly responsive to the continuing need for statistical information on health care expenditures associated with health services utilization for the entire U.S. population.

NMCUES will produce comparable estimates over time for evaluation of the impact of legislation and programs on health status, costs, utilization, and illness-related behavior in the medical care delivery system. In addition to national estimates for the civilian noninstitutionalized population, it will also provide separate estimates for the Medicaid-eligible populations in four States.

The first cycle of NMCUES, which covers calendar year 1980, was designed and conducted as a collaborative effort between the National Center for Health Statistics, Public Health Service, and the Office of Research and Demonstrations, Health Care Financing Administration. Data were obtained from three survey components. The first was a national household survey and the second was a survey of Medicaid enrollees in four States (California, Michigan, Texas, and New York). Both of these components involved five interviews over a period of 15 months to obtain information on medical

care utilization and expenditures and other health-related information. The third component was an administrative records survey that verified the eligibility status of respondents for the Medicare and Medicaid programs and supplemented the household data with claims data for the Medicare and Medicaid populations.

Data collection was accomplished by Research Triangle Institute, Research Triangle Park, N.C., and its subcontractors, the National Opinion Research Center of the University of Chicago, Ill., and SysteMetrics, Inc., Berkeley, Calif., under Contract No. 233-79-2032.

Co-Project Officers for the Survey were Robert R. Fuchsberg of the National Center for Health Statistics (NCHS) and Allen Dobson of the Health Care Financing Administration (HCFA). Robert A. Wright of NCHS and Larry Corder of HCFA also had major responsibilities. Daniel G. Horvitz of Research Triangle Institute was the Project Director primarily responsible for data collection, along with Associate Project Directors Esther Fleishman of the National Opinion Research Center, Robert H. Thornton of Research Triangle Institute, and James S. Lubalin of SysteMetrics, Inc. Barbara Moser of Research Triangle Institute was primarily responsible for data processing.

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Symbols

---	Data not available
...	Category not applicable
—	Quantity zero
0.0	Quantity more than zero but less than 0.05
*	Relative standard error is 30 percent or more

Visits to Selected Health Care Practitioners: United States, 1980

By Robert H. Mugge, Ph.D.
National Center for Health Statistics

Executive Summary

This report, based on data from the 1980 National Medical Care Utilization and Expenditure Survey, presents statistical estimates on visits to different types of practitioners by the noninstitutionalized civilian population of the United States. The report does not include dental visits, telephone visits, emergency room visits, or visits in which a physician was also seen. The practitioners whose visits are reported vary from the highly independent practitioners with doctorate degrees (opticians, chiropractors, podiatrists, and many psychologists); to the nurses, paramedics, social workers, and counselors who often provide services less independently; to the physical therapists and the laboratory, radiology, and other technicians who largely provide services under physician prescriptions or on teams headed by physicians.

In general it was found that the most independent practitioners (optometrists, chiropractors, and podiatrists) tended most to provide services in their own facilities and to be paid directly by the patients or their families. Persons who visited technicians and physical therapists almost invariably saw a physician at least once during the year.

- *Physicians* were visited by 70.8 percent of the population. Persons seeing physicians averaged 4.5 visits to them during the year. There were nearly twice as many physician visits—by the survey's definition—than there were visits to all of the other types of practitioners reported on here. Nearly three-fourths of the physician visits took place in the doctors' offices, and about one-twentieth in doctors' clinics. The patient or the patient's family paid 40 percent of the charges for physician visits, and insurance and prepayment plans paid another 30 percent.

Each of the remaining practitioner types is compared with all others and with physicians in terms of particular features of their practices. Following are some of the more notable findings for the respective practitioners:

- *Nurses* made more visits to the home than any other practitioner type. They also accounted for more clinic visits. More than half of the nurse visits for specific problems involved respiratory or circulatory diseases. Visits to nurses were the least expensive kind of visits reported.
- Most people who saw *optometrists* saw them only once or twice during the year. Optometry visits usually took place in the optometrist's office and usually involved eye examinations for glasses. The average visit was expensive, partly because it often included the cost of the eyeglasses.
- People who saw *chiropractors* tended to see them often during the year. Visits were usually in the chiropractor's office or clinic. The problems presented to chiropractors most often involved musculoskeletal diseases or injuries.
- The great majority of visits with *podiatrists* took place in the office. They usually involved skin or musculoskeletal problems. Forty-four percent of the charges were paid by the patient and his or her family, 34 percent by insurance or prepayment plans, and 12 percent by Medicare.
- Persons who saw *psychologists* in 1980 tended to see them often. Twenty-six percent also saw psychiatrists. More than half of the visits took place outside of the psychologists' offices. Fifty-six percent of the people seeing psychologists were reported to have mental disorders.
- People saw *paramedics* for a wide variety of medical problems. Forty-three percent of the paramedic visits took place in hospital outpatient departments. The median charge for paramedic visits was only \$13.
- The average number of visits during the year for *physical therapists'* patients was higher than for patients of any other type of practitioner. Of the people seeing physical therapists, 46 percent also saw orthopedic surgeons, and 34 percent also saw internists during the year. Total cost of treatments for the year averaged \$302; the patients and their families paid an average of only 12 percent of the total charges.

NOTE: Significant contributions to this report were made by Mary Grace Kovar, Dr.P.H., who reviewed the draft, Robert J. Casady, Ph.D., who wrote Appendix I, Technical Notes on Methods, and Mary Olmsted, who edited the manuscript.

- The average person with visits to *social workers* or *counselors* saw them frequently during the year. Fifty-nine percent of the visits to social workers and counselors were occasioned by mental disorders. The average charge for visits to these practitioners was \$25.
- Fifty-eight percent of *laboratory technician* visits took place in hospital outpatient departments; 31 percent were in laboratories. Patients who saw laboratory technicians had a wide variety of conditions; for 18 percent it was reported that they had no condition. The average charge per visit was \$38.
- Fifty-one percent of the visits to *radiology technicians* were in hospital outpatient departments. The most commonly reported condition (19 percent of all visits) was malignant neoplasms. The average cost of visits was \$65.
- Forty-six percent of visits to *other technicians* were associated with genitourinary diseases. The average charge was \$55. Fifty-five percent of total charges were paid by Medicare.

Introduction

Health care practitioners other than physicians perform a wide variety of valuable services in meeting health care needs, but until now there has been only limited statistical information available on their practices and clients. One of the purposes of the National Medical Care Utilization and Expenditure Survey (NMCUES) was to fill this information gap. Estimates from this survey indicate that there are 11 other kinds of health care practitioners besides physicians who had visits with more than 1 million noninstitutionalized civilian persons in 1980: Nurses, optometrists, chiropractors, podiatrists, psychologists, paramedics, physical therapists, social workers and counselors, laboratory technicians, radiology technicians, and other technicians.

This report considers conditions and circumstances of visits made by the public to physicians and the other types of practitioners in 1980; a profile is developed on the services provided by each type of practitioner. The data available for these comparisons include the number of visits per person during the year; physician specialists also seen during the year; types of service provided; places where the visits occurred; health conditions occasioning the visits; the extent to which x-rays, laboratory tests, and other special tests were provided to patients; the charges for the visits; and the sources of payment for those charges.

Each of the nonphysician practitioner types is unique in certain respects—in the training the practitioners receive, in the types of service they provide, and in the kinds of people and the types of problems they treat. An earlier report describes the differences in their respective clienteles (Mugge, 1984).

In spite of the uniqueness of the particular types of practitioners, there are certain commonalities and systematic differences among them. One very noticeable variable, which could have serious impacts on various aspects of their practices, is the degree of independence that they have from the rest of the medical establishment—especially how they relate to physicians. Some practitioners appear to work quite independently in treating patients—especially optometrists, chiropractors, and

podiatrists.¹ Some practitioners, at the other extreme appear to provide their services almost entirely as prescribed by physicians or as members of teams headed by physicians—especially the technicians of various types and physical therapists. Other practitioners, including psychologists, nurses, paramedics, social workers and counselors, would seem to occupy an intermediate position between the other two groups in their degree of autonomy.

It may be expected that the following characteristics of the practitioners' practices would vary, depending upon their degrees of autonomy:

1. The more independent practitioners would be more likely to work out of their own facilities and less in community clinics or hospitals.
2. Patients of the more independent practitioners would be less likely than others to receive treatment from physicians.
3. The more independent practitioners would be more likely than others to be paid directly by their clients rather than through insurance or other plans, as such plans tend to be oriented mainly toward physician practices.

In addition to presenting statistical descriptions of the characteristics of visits to practitioners other than physicians, this report will test these three hypotheses.

For a discussion of the sample design, imputation procedures, estimation methods, and statistical hypothesis testing, see Appendix I. For a further definition of terms, see Appendix II.

In the statements of findings in this report, differences between percents and amounts are noted only if they are statistically significant at the .05 level, unless the text indicates otherwise.

¹Reports indicate that these three types of practitioners tend to be self-employed. For optometrists see Bureau of Health Professions (1982), page VII-3; for podiatrists see page IX-2 in the same publication; and for chiropractors see Croner (1979), page 45.

Source and Limitations of the Data

The 1980 National Medical Care Utilization and Expenditure Survey (NMCUES) was a survey of the health care received by a representative sample of the noninstitutionalized civilian population of the United States during that year. To make the survey as complete and as accurate as possible, interviewers talked with the sample families on five different occasions, at 3-month intervals, and they gave respondents diaries to record all instances of medical care that they received between interviews. Thus the survey serves as an invaluable source of information on health problems and health services, with attendant costs, of the U.S. civilian noninstitutionalized population in a recent year.

The ambulatory care visits reported here include all those occurring outside of hospitals to noninstitutionalized civilian persons; they also include visits in hospital outpatient clinics or departments. The reported visits do not include any occurring in emergency rooms, nor do they include visits involving hospital inpatients. Telephone visits also were not counted.

If a respondent reported that a physician was seen during a visit, then the respondent was not asked whether any other type of practitioner was also seen in the course of the visit. Only if a physician was not seen was the respondent asked what types of nonphysician practitioners were seen. Therefore, the numbers of persons receiving services and the numbers of services received from specified types of practitioners in 1980 are understated in the numbers of persons and visits given in this report, but the degree of understatement varies greatly by type of practitioner. In general those practitioners who seldom provide their services as assistants to physicians, or to hospital inpatients or nursing home residents, or in emergency rooms, will have had their services understated only to a small degree. It is understood that optometrists, chiropractors, and podiatrists tend to provide their services independently of physicians and outside the hospital or institutional setting, so there should be relatively little understating of their services or clients. On the other hand, it is understood that nurses, paramedics, physical therapists, and technicians frequently provide their services in hospitals or along with visits to physicians; thus a more substantial portion of their actual services and clients are not likely to be included in this and other reports based on NMCUES.

NMCUES was designed to provide estimates on utilization and the expenditures for various types of medical

care, on health insurance coverage and amounts paid by insurers for health care, and on the health of the civilian noninstitutionalized population of the United States. Specific data relating to the Medicare and Medicaid programs were also collected. The NMCUES data were obtained from three sources:

- The national household sample.
- Four State Medicaid household samples.
- Medicare and Medicaid administrative records.

All of the data in the present report were derived from the national household survey sample, which included 17,123 persons. Information for all family members was collected from a single household respondent through a set of five interviews approximately 3 months apart.

Data from the national household sample survey complement data collected in the National Household Interview Survey, which was sponsored by the National Center for Health Statistics (NCHS). The data also update and show time trends from 1977 when largely comparable data were obtained through the National Medical Care Expenditure Survey. This survey was sponsored jointly by the National Center for Health Services Research and NCHS.

Understanding the data requires knowledge of the sequence of questions by which the data were obtained. All instances of health care services received during the reference period were elicited through a series of probe questions on the Core Questionnaire. (See Appendix III.) Visits to "selected practitioners" were counted only when they took place during a "medical visit" or during a visit to a hospital outpatient department or clinic. For each reported medical visit or visit to a hospital outpatient department or clinic the respondent was asked whether the person saw a medical doctor on that visit. If the answer was no, then the respondent was asked, "What type of medical person did (PERSON) see?" The questionnaire contained precodes to circle if the answer was chiropractor, podiatrist, optometrist, psychologist, social worker, nurse, or physical therapist; if some other type of practitioner was mentioned, then the interviewer wrote in that type.

Thus the classifications of nonphysician practitioners and those of the medical specialists in this survey are as reported by the respondents; therefore the accuracy of these classifications is based on the knowledge and understanding of the respondents. Although there is no

good evidence supporting the validity of their responses in this area, a reasonable degree of validity is assumed.

Regarding the medical provider visit, the respondent was asked the reason for the visit, and the interviewer was given codes for the following options: Diagnosis or treatment, General checkup, Eye examination for glasses, Immunization, Family Planning, and Other (SPECIFY). The interviewer then asked, "Was this for a specific condition?" and, if yes, "For what condition did (PERSON) visit (PROVIDER) on (DATE)?" and "Any other condition?" Each condition mentioned was noted. Then the interviewer asked, "Did (PROVIDER) discover any condition?" and, if yes, "What was it?" and other conditions mentioned were also noted. Thus the nature of the complaint or condition occasioning the visit, as presented in this report, was as perceived and as understood by the survey respondent.

Questions followed on some particular tests made during the visit, on charges for the visit, and on how the charges were paid, as shown in Appendix III.

It should be noted that there is an apparent discrepancy between Tables 8 and 9: For each type of practitioner, the number of visits for which there was "no charge" as shown in Table 8 exceeds the number of

visits that were "free from provider" as shown in Table 9. The largest discrepancies are for "other practitioners," with 7.1 percent of visits reported as free from provider and 16.6 percent of visits reported as zero charges; for social workers and counselors, with 2.6 percent of visits free from provider and 11.3 percent with zero charges; and for nurses, with 22.9 percent and 30.7 percent, respectively.

These discrepancies apparently result from respondents reporting who was paying for their care but not reporting a charge for the specific visit. Of the payments for visits made by "self or family," only 2 percent were reported as a zero charge; for payments made by "other relatives or individuals," only 3 percent were reported as zero; for all other sources, involving various types of third party payments, 7 percent of visits or more were reported as zero charges. This apparent overreporting of zero charges results in some understatements in the data on total and average charges by type of practitioner in Table 8. However, it is highly unlikely that the relative size of the total or average charge for any practitioner in comparison with all other practitioners is affected.

Findings

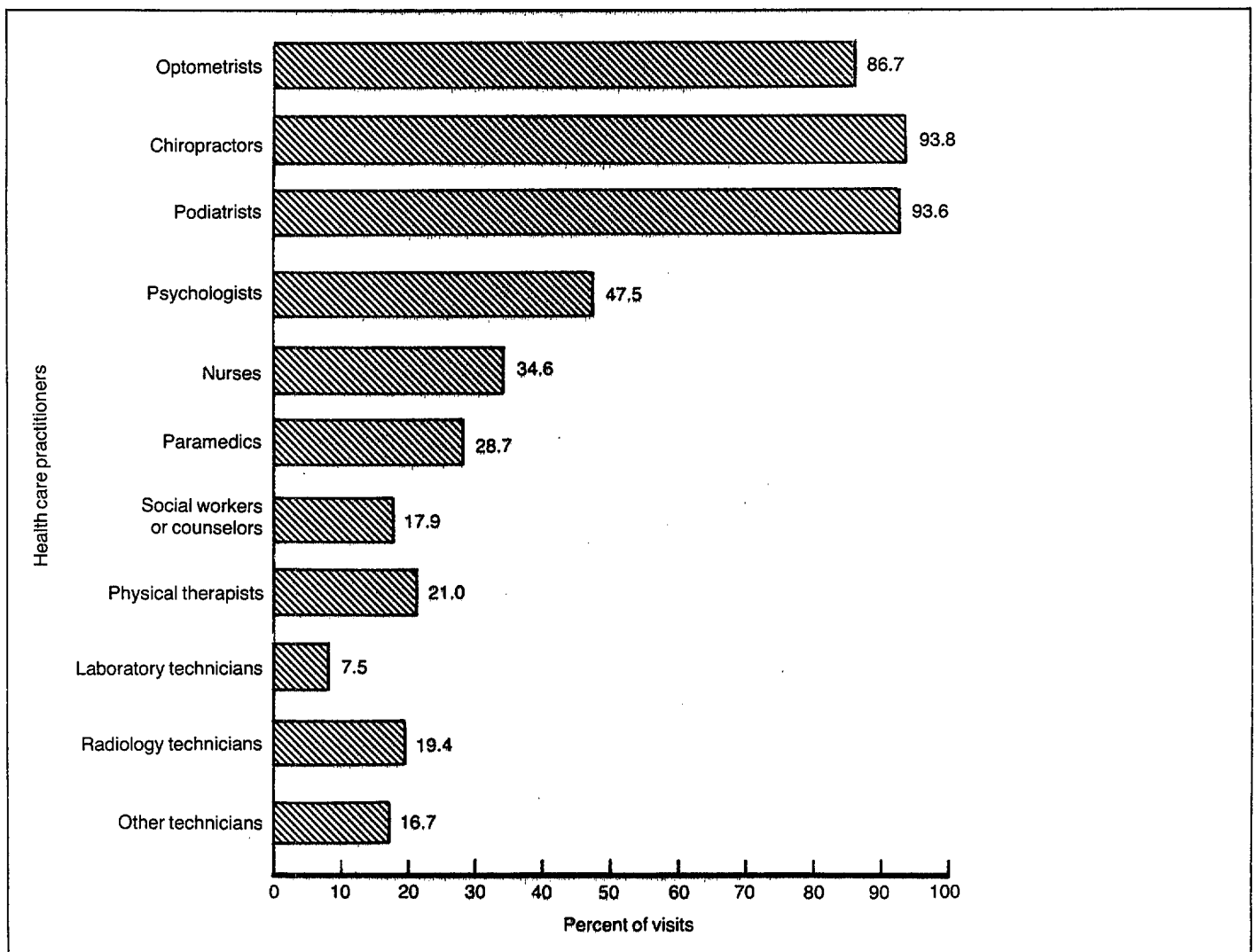
Characteristics Related to Autonomy of Practitioner

The first hypothesis in connection with practitioner autonomy was that the more independent practitioners would tend to work primarily out of their own facilities. This is indicated by the data in Table I and Figure 1 concerning the places in which visits occurred. It is assumed that because optometrists, chiropractors,

podiatrists, and psychologists are referred to as "doctors," the offices and clinics of these practitioners were usually intended when visits to them were reported as at the "doctor's office" or "doctor's clinic." In most other instances, "doctor's office" and "doctor's clinic" refer to that of a physician.

The data therefore indicate that the great majority of visits to optometrists, chiropractors, and podiatrists

Figure 1
Percent of visits to each type of health care practitioner taking place in the "doctor's office or clinic:"
United States, 1980



occurred in their facilities, with very few taking place in clinics other than the practitioner's. Psychologist visits took place in their offices or clinics less than half the time, but still much more often than visits to the other practitioners assumed to be less autonomous. A further look at Table 1 reveals that very large proportions of the visits to paramedics, physical therapists, laboratory technicians, and radiology technicians took place in hospital outpatient clinics.

Thus, that the place-of-visit factor clearly discriminates between the group of three practitioner types assumed to be most autonomous and all others strongly supports the first hypothesis, that independent practitioners work primarily out of their own facilities.

The second hypothesis is that patients of more independent practitioners would be less likely to receive treatment from physicians. The relevant data are found in Table 2 and Figure 2. The data here indicate that persons who saw physical therapists and each of the three types of technicians in most instances also saw

physicians in much higher proportions than did persons who saw the other types of practitioners. The only exception to this statement was that the proportion of psychologists' patients who saw physicians was not significantly below the proportion of radiology technicians' patients or below the proportion of other technicians' patients who saw physicians. To this extent the data support the second hypothesis.

The third hypothesis is that the more independent practitioners would be more likely to be paid directly by clients and less likely through insurance and other plans than the less independent practitioners. Data bearing on this hypothesis are found in Table 3 and Figure 3. It is seen that each of the three "relatively autonomous" practitioners, together with psychologists, did indeed receive a significantly larger share of their total payments directly from patients and their families than did any of the other specific types of practitioner (excluding the miscellaneous "other practitioners" patient group). This finding supports the third hypothesis.

Figure 2
Persons with visits to selected health care practitioners, by percent also seeing physicians during the year:
United States, 1980

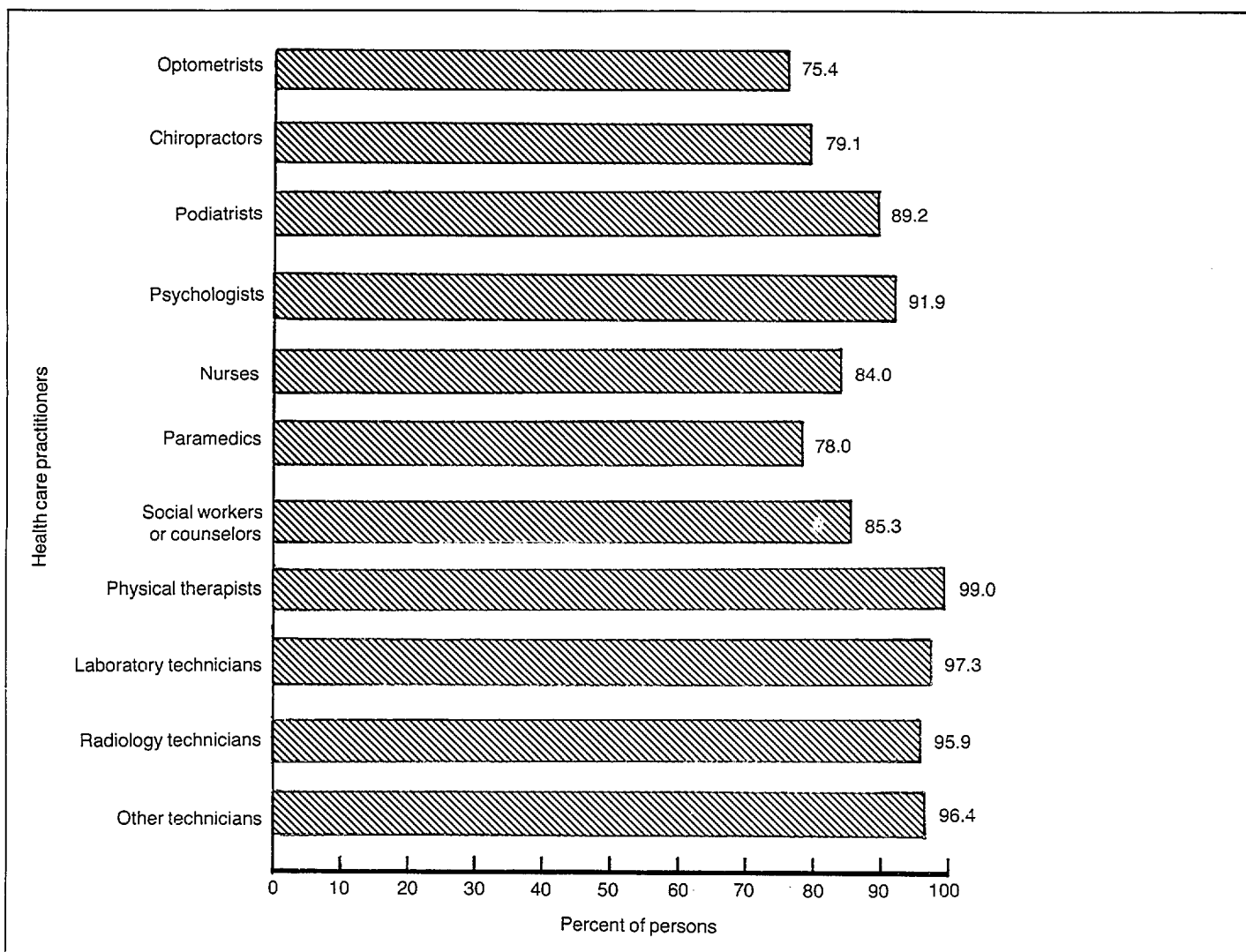
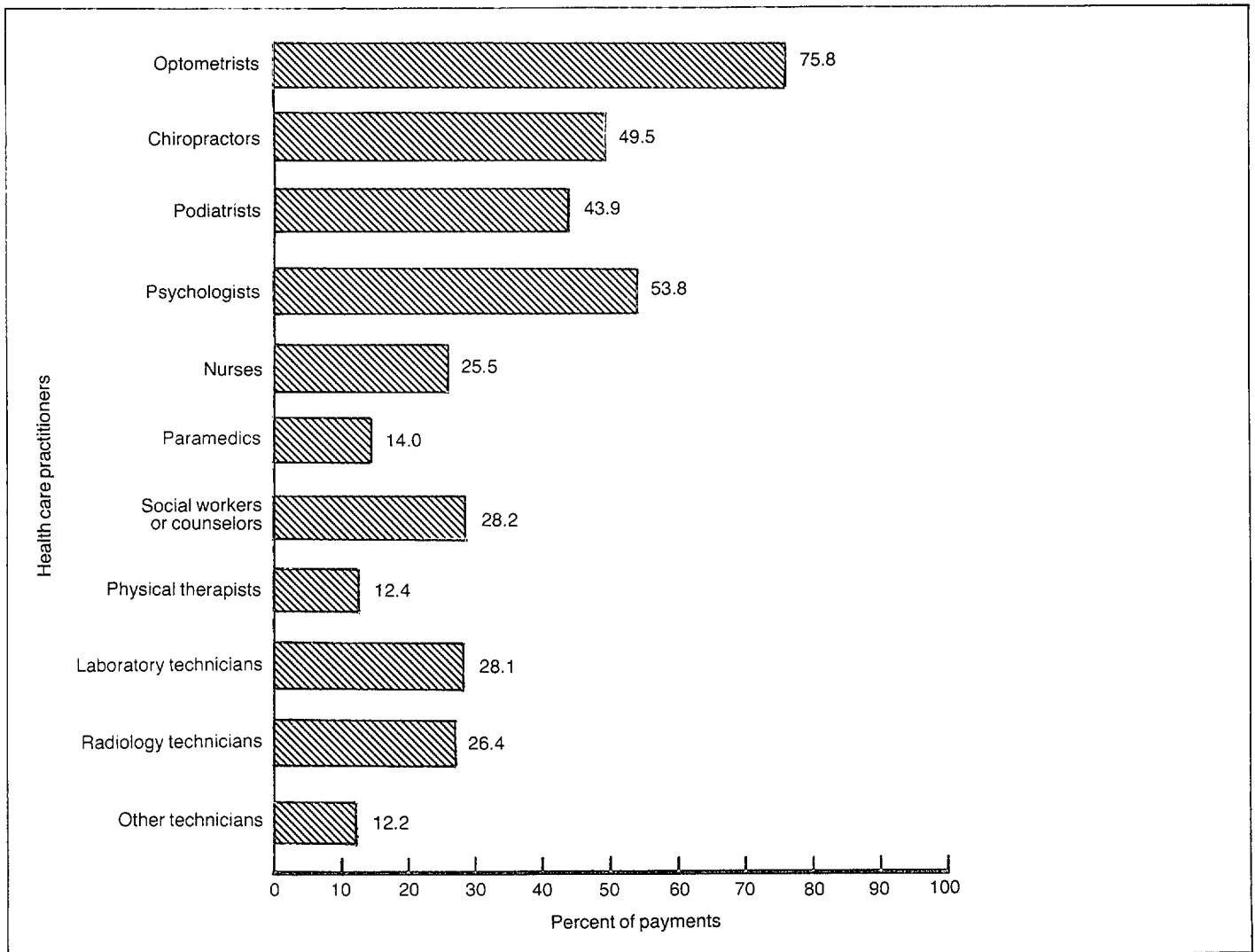


Figure 3
Percent of payments for visits to each type of health care practitioner made by patients or their families:
United States, 1980



Profiles of the Respective Practices

Physician visits—It is estimated from NMCUES that 158 million persons, 70.8 percent of the total civilian noninstitutionalized population, had physician visits in 1980 (Mugge, 1983). This was roughly double the number of persons who visited all other types of practitioners that year—78.2 million. The visits to physicians totaled an estimated 714 million in 1980—nearly twice the 375 million visits to all other practitioners combined.

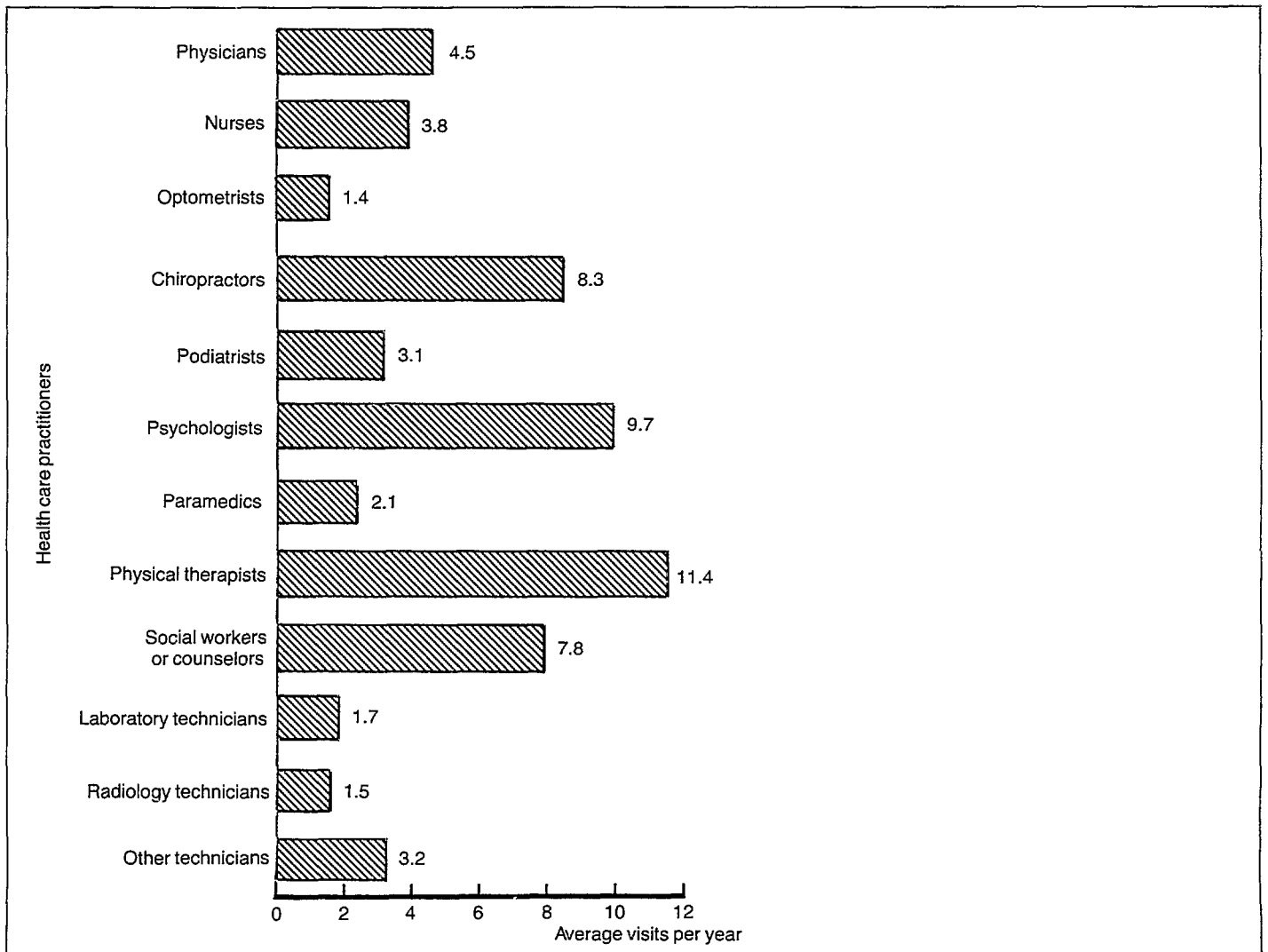
By contrast, the estimate based on the National Health Interview Survey was that 75.4 percent of the civilian noninstitutionalized population had physician visits in 1980, with an average of 4.8 physician visits per person for that population during the year (Collins, 1983). The definition of physician visits in NHIS, contrary to the definition in NMCUES, included telephone contacts and emergency clinic visits, and it also counted contacts with other practitioners in the physicians' offices as physician visits. These differences in definitions may largely have accounted for the higher estimates in NHIS.

Persons who visited physicians averaged 4.5 physician visits during the year (Table 4 and Figure 4). Three-fifths had three or fewer visits in the year. Four-fifths saw physicians for diagnosis or treatment; about one-ninth visited for a general checkup (Table 5). Nearly three-fourths of the physician visits took place in doctors' offices, and about one-twentieth in doctors' clinics (Table 1). About one-eighth were in hospital outpatient clinics. Only a tiny fraction were in patients' homes.

Visits to physicians were occasioned by a wide variety of health conditions as reported by the survey respondents (Table 6). Diseases of the respiratory system accounted for 15 percent of the visits, followed by diseases of the circulatory system (13 percent), injury and poisoning (9 percent), and diseases of the musculoskeletal system and connective tissue (9 percent). No health condition was reported by respondents in 16 percent of the visits.

Seven percent of the visits to physicians involved x-rays; 24 percent involved ordering laboratory tests; and 10 percent involved electrocardiograms (EKG's),

Figure 4
Average number of visits per year to each type of health care practitioner:
United States, 1980



electroencephalograms (EEG's), or other similar tests (Table 7).

The average charge for a physician visit in 1980 was \$33; the median charge was \$20 (Table 8). Nearly 45 percent of all visits carried charges between \$10 and \$25. For 9 percent of the visits a zero charge was reported. The average cost per person for ambulatory physician visits during the year, for persons having such visits, was \$150.

In nearly two-thirds of all cases the patient or the patient's family was a source of payment for physician charges (Table 9). A private insurance or other prepayment plan (paying all or some of the bill) was involved in 31 percent of the visits. Medicare was involved in 12 percent of the visits, and Medicaid was involved in 10 percent. Four percent of the visits were reported as "free from provider."

Of the total payments for visits to physicians, the patient or the patient's family paid 40 percent, insurance or prepayment plans covered 30 percent, Medicare

covered 9 percent, Medicaid covered 8 percent, and the remainder was distributed among a variety of sources (Table 3).

Nurse visits—A total of 110 million visits to nurses were reported in the survey, involving 29 million persons—13 percent of the total civilian noninstitutionalized population (Mugge, 1984). Again, these visits do not include any in which a physician was also seen, and they also exclude all nurse services associated with inpatients of hospitals or residents of nursing homes. Considering the large proportion of nurse services provided in hospitals, nursing homes, and emergency rooms, and in the same visits in which physicians are seen, it must be recognized that this report probably covers less than half of all services actually provided by nurses. Persons with nurse visits averaged 3.8 such visits during the year, but 62 percent of all persons visiting nurses did so only once during the year (Tables 1 and 4 and Figure 4).

Eighty-four percent of the people who saw nurses without physicians present also had one or more visits

with physicians during the year (Table 2 and Figure 2). They included 14 percent who saw an internal medicine specialist at some time during the year, 13 percent who saw a pediatrician, 13 percent who saw an ophthalmologist, and 12 percent who saw a gynecologist or obstetrician. In 77 percent of the cases the visit to the nurse involved diagnosis or treatment; 10 percent of the time it involved an immunization (Table 5).

Twenty-nine percent of the nurse visits took place in the doctor's office; 24 percent were held in the patient's home (Table 1). Most of the rest of the visits took place in some type of clinic or a neighborhood health center. Of the estimated 120 million visits with nonphysician practitioners in clinics, it is estimated that 42 million were with nurses (calculated from Table 1).

The most frequent health conditions occasioning visits to nurses were diseases of the respiratory system, 24 percent; diseases of the circulatory system, 23 percent; and injury and poisoning, 10 percent (Table 6). In 25 percent of the nurse visits there were no illness conditions reported.

Nurse visits involved x-rays an estimated 1 percent of the time; lab tests about 14 percent of the time; and EKG's, EEG's, or other tests 3 percent of the time (Table 7).

Nurse visits were the least costly of all the types of practitioner visits reported (Table 8). These charges averaged \$14, with a median cost of only \$6. For 31 percent of the nurse visits the amount of charges was reported as zero.

For 42 percent of the nurse visits one source of payment was the patient or the patient's family (Table 9). Twenty-four percent of the nurse visits were fully or partly covered by payments from private insurance or other prepayment plans. Twenty-three percent of the nurse visits were provided free. Eleven percent involved coverage by Medicare, and 8 percent by Medicaid.

Payments for nurse visits totaled \$1,502 million in 1980 (Table 3). Thirty-one percent of this amount was paid by private insurance or some other prepayment plan, 26 percent was paid by the patient and family (Figure 3), 13 percent was paid by Medicare, 9 percent by Medicaid, and 8 percent was paid for by State and local governments.

Optometrist visits—An estimated 20.6 million persons—9 percent of the population—visited optometrists in 1980, totaling more than 28 million visits. They averaged only 1.4 visits to optometrists during the year, with nearly four-fifths of the people visiting optometrists only once during the year (Tables 1 and 4 and Figure 4).

Of the people who visited optometrists, 75 percent also saw a physician at least once during the year (Table 2). Only 8.1 percent of the people who saw optometrists also saw an ophthalmologist. By comparison, of *all* individuals seeing a practitioner other than a physician, 12.3 percent saw an ophthalmologist. Perhaps this indicates that to some extent optometry visits may be made in lieu of ophthalmology visits.

Optometrists are the only type of practitioner for whom the majority of visits were not reported as being for "diagnosis or treatment." Seventy-two percent were said to be for eye examination for glasses (Table 5). Twenty-three percent were for diagnosis or treatment, and 14 percent were for another unspecified type of service. Eighty-three percent of optometry visits took place in the practitioner's office (Table 1).

In over three-fourths of the optometry visits no health condition was reported (Table 6). One-fifth of the visits involved a diagnosis of disorders of the eye and adnexa. It is estimated that hardly any of the optometry visits involved x-rays; 5 percent involved laboratory tests; and 6 percent involved some other form of test—presumably, tests other than the regular eye exams (Table 7).

Visits to optometrists were relatively expensive, with charges per visit averaging \$47 (Table 8). However, in a large proportion of the cases the charge included the eyeglasses that were prescribed. The median charge was considerably less—\$33. For 9 percent of the visits the charge was reported as "none."

For nearly four-fifths of all visits one source of payment was the patient or the family (Table 9). Payments also came from a wide variety of other sources. For example, insurance or a prepayment plan was a source of payment for 16 percent of all visits (Table 10).

The estimated total charges for all optometric visits was \$1,331 million (Table 3). Of this total, 76 percent was paid by the patient or the patient's family (Figure 3), and 12 percent was covered by insurance or prepayment plans.

Chiropractor visits—An estimated 9 million persons made a total of 75 million visits to chiropractors in 1980. There were frequent visits to the chiropractors: The average number of visits for chiropractic patients in 1980 was 8.3, and nearly half of all patients had 5 or more visits (Tables 1 and 4 and Figure 4). At the upper end of the scale, 10 percent of all patients had 21 or more chiropractic visits during the year.

Of all persons who visited chiropractors during the year, 79.1 percent also saw a physician (doctor of medicine or doctor of osteopathy) during the year (Figure 2)—a significantly higher proportion than the 70.8 percent of the total population who saw physicians (Table 2 and Mugge, 1983). Chiropractic patients did not see any particular types of physician specialist in unusually large numbers, and the proportion of chiropractic patients who saw orthopedic surgeons during the year was not notably different from the proportion of patients of all other practitioners who saw them.

Ninety-four percent of all visits to chiropractors were for diagnosis or treatment; 8 percent of the visits were for unspecified other services (Table 5). Eighty-seven percent of all visits took place in the practitioners' offices, and 7 percent were in the practitioners' clinics (Table 1).

The health condition occasioning visits to chiropractors was most often (66 percent of all visits) diseases of the musculoskeletal system and connective tissue (Table 6). Injuries accounted for 15 percent, and diseases of the nervous system accounted for 9 percent. For 6 percent of all visits no health condition was reported. The remaining 14 percent of all visits to chiropractors were reported to be for a variety of other conditions. (Percents total more than 100 because more than one condition was reported for some patients.)

Six percent of all visits to chiropractors involved x-rays; hardly any involved lab tests or other types of tests (Table 7).

Charges for chiropractic visits were less expensive than those associated with most other types of practitioner; they averaged \$16 per visit, and their median cost was \$12 (Table 8). For 57 percent of all visits the charge was between \$10 and \$20. But patients made a large number of chiropractic visits on the average, so the average charge to all patients for chiropractic services during the year came to \$132.

The individual patient or the patient's family was a source of payment for 71 percent of all chiropractic visits. Private insurance or prepayment plans were sources for 30 percent of the visits (Table 9).

Total charges for chiropractic visits in 1980 are estimated at \$1,186 million. The patient or the patient's family paid about half of this total, and insurance or prepayment plans covered 35 percent (Table 3 and Figure 3).

Podiatrist visits—An estimated 4.4 million persons made 13 million visits to podiatrists in 1980, for an average of 3.1 visits per person with such visits (Tables 1 and 4 and Figure 4). Nearly three-fifths of all podiatry patients made only one or two visits, but 20 percent made five or more. Eighty-nine percent of all persons seeing podiatrists also saw a physician during the year (Table 2 and Figure 2). Significantly large proportions of the podiatry patients also saw certain physician specialists during the year: 29 percent saw internists and 24 percent saw ophthalmologists. This finding accords with the fact that podiatry patients tend to be older than patients of most other types of practitioners (Mugge, 1984).

Ninety-five percent of the podiatry visits were for diagnosis or treatment, and 8 percent were for other, unspecified services (Table 5). Ninety-three percent of the visits took place in practitioners' offices (Table 1).

The reported conditions most often necessitating podiatric visits were diseases of the skin and subcutaneous tissue, 45 percent; diseases of the musculoskeletal system and connective tissue, 28 percent; and infectious and parasitic diseases, 15 percent (Table 6). An estimated 7 percent of the podiatric visits involved x-rays, 1 percent involved lab tests, and 1 percent involved other types of special tests (Table 7).

The average charge for a podiatric visit was estimated to be \$26, and the median charge was \$15 (Table 8). For about two-thirds of all visits the charge was between \$10 and \$25.

In 71 percent of all visits the patient or the patient's family paid all or part of the charges (Table 9). For 35 percent of the visits insurance or prepayment plans were sources of payment for all or part of the charges.

Total payments for podiatric visits in 1980 were an estimated \$350 million (Table 3). Of this total, 44 percent was paid by the patient or his or her family (Figure 3), 34 percent by insurance or prepayment plans, and 12 percent by Medicare.

Psychologist visits—An estimated 2.9 million persons had 28 million visits to psychologists in 1980, for an average of 9.7 visits per person making such visits (Tables 1 and 4 and Figure 4). The median number of visits was only 4, but 10 percent of the patients had 28 or more visits.

Taube, Kessler, and Feuerberg reported on mental health visit data from NMCUES (1984). They estimated 79 million such visits in 1980, of which the 28 million psychologist visits reported here were a part. No data in that report are directly comparable to data in this report.

Ninety-two percent of the persons who saw psychologists also saw a physician at least once during the year (Table 2 and Figure 2). Twenty-six percent of the people who saw psychologists also saw a psychiatrist, 20 percent received services from an obstetrician or gynecologist, 17 percent saw an internist, 17 percent saw an ophthalmologist, and 12 percent saw a pediatrician. Eighty-two percent of psychologist visits were for diagnosis or treatment, and 32 percent of the visits were for other purposes (Table 5). This high proportion of persons with physician visits may partly result from the fact that some insurance plans are known to require the patient to obtain certification from a physician before they will pay for psychologist visits.

Forty-five percent of the psychologist visits took place in doctors' offices, and 3 percent occurred in doctors' clinics (Table 1). It is not known how many of these offices and clinics belonged to the psychologists themselves and how many belonged to other persons. Most of the remaining visits took place in other clinics or neighborhood health centers.

Fifty-six percent of the visits were reportedly occasioned by mental disorders, and 19 percent by signs, symptoms, and ill-defined conditions (Table 6). No health problem was reported for 23 percent of the visits.

The average charge for a psychologist visit was estimated at \$30 in 1980; the median charge was \$25 (Table 8). In view of the large average number of visits per patient, the average charge per patient for all psychologist visits in the year was high at \$294.

For 70 percent of the visits one source of payment of charges was the patient or family (Table 9). Insurance or prepayment plans were involved in paying some or all charges in 23 percent of the visits, State or local governments were involved in 10 percent, and Medicaid was involved in 9 percent of them.

Total payments for psychologist visits in 1980 came to an estimated 843 million dollars (Table 3). Of this

total, 54 percent was paid by the patient or family (Figure 3), 16 percent by insurance or prepayment plans, and 9 percent by Medicaid.

Paramedic visits—An estimated 2.7 million persons had 5.8 million visits with paramedics (including physician assistants, medics, and corpsmen) in 1980 (Tables 1 and 4). Those who visited paramedics averaged only 2.1 such visits during the year; 70 percent of the patients had only 1 such visit (Figure 4). Treatments provided by paramedics in ambulances were not recorded in this survey.

Seventy-eight percent of those persons who visited paramedics also saw a physician at least once during the year (Table 2 and Figure 2). This proportion was lower than for most other groups who saw nonphysician practitioners, indicating that to some extent paramedics were substituting for physicians in providing needed services.

Seventy-four percent of the visits to paramedics were for diagnosis or treatment, and 18 percent were for immunizations (Table 5).

Forty-three percent of the paramedic visits took place in hospital outpatient clinics, 15 percent in doctors' offices, and 14 percent in doctors' clinics (Table 1). The most frequently reported conditions related to the visits to paramedics were diseases of the respiratory system, 19 percent; diseases of the skin and subcutaneous tissue, 17 percent; and injury and poisoning, 16 percent (Table 6). For 27 percent of the cases no condition was reported.

An estimated 6 percent of the visits with paramedics involved x-rays; 22 percent involved lab tests; and 6 percent involved EKG's, EEG's, or other tests (Table 7).

The average charge for a paramedic visit was estimated at \$25; the median charge was only \$13 (Table 8). The most common charge was between \$10 and \$15; 22 percent of the visits were in this group. For 15 percent of the visits with paramedics there was no charge amount reported.

Most frequently mentioned as sources of payments for paramedic visits were the military, which was involved in paying some charges in 41 percent of all visits; the patient or his or her family, 26 percent; and private insurance or other prepayment plans, 22 percent (Table 9). Eleven percent of the visits were given free by the provider.

Charges for paramedic visits totaled an estimated \$145 million (Table 3). Major sources for the payments of these charges were the military, accounting for 37 percent of the total; insurance or prepayment plans, 31 percent; and the patient or the patient's family, 14 percent (Figure 3).

Physical therapist visits—An estimated 2.7 million persons made a total of 31.2 million visits with physical therapists in 1980 (Tables 1 and 4). This averages to 11.4 visits per patient during the year—the highest for any of the practitioners reported on in the survey (Figure 4). The median number of visits was 6, but

10 percent of the patients made 27 or more visits to physical therapists during the year.

Ninety-nine percent of all persons visiting physical therapists also had one or more visits with physicians, suggesting that physicians were nearly always involved in the decision for the patient to seek physical therapy (Table 2 and Figure 2). Many of the physical therapy patients saw physician specialists during the year, especially orthopedic surgeons, 46 percent; internists, 34 percent; and ophthalmologists, 21 percent.

Physical therapy services were reported to involve diagnosis or treatment in virtually all visits (undoubtedly treatment rather than diagnosis in most cases), and 10 percent of the visits were reported to involve additional unspecified services (Table 5). Nearly half (45 percent) of all visits with physical therapists took place in hospital outpatient clinics (Table 1). Other frequently mentioned sites for physical therapy visits included doctors' offices (18 percent) and school clinics (11 percent).

Health conditions most frequently mentioned as necessitating physical therapy visits were diseases of the musculoskeletal system and connective tissue, 42 percent; injury and poisoning, 33 percent; diseases of the nervous system, 21 percent; and diseases of the circulatory system, 13 percent (Table 6).

The average charge for a physical therapy visit was estimated at \$27; the median charge was \$18 (Table 8). The average total charge per patient receiving physical therapy services for the year was \$302, which was the highest annual cost for any type of practitioner reported on in the survey.

The more frequent sources of payments for physical therapy services were insurance and prepayment plans, 32 percent of all visits, and the patient or his or her family, 30 percent (Table 9).

Charges for all physical therapy visits in 1980 are estimated to have totaled \$830 million (Table 3). A wide variety of sources accounted for the payments of these charges. The major sources of the payments were insurance and prepayment plans, 30 percent; company or employer clinic, 13 percent; the patient or the patient's family, 12 percent (Figure 3); and Medicare, 12 percent.

Social worker and counselor visits—Social workers and counselors are combined here in one category because their tasks are quite similar and because each group separately did not have enough sample cases to permit statistical estimates. They are different from all other categories of practitioners mentioned in this report because it may be said that they do not provide direct medical services to clients. However, in helping patients and their families to make the necessary arrangements and psychological adjustments to best facilitate the treatment and healing processes, they perform a very important service in the health care programs. It is estimated that 1.6 million persons had 12.3 million visits related to health care with social workers and counselors in 1980 (Tables 1 and 4).

Twenty-nine percent of the people who saw social workers or counselors during the year had only one

visit, and another 20 percent had only two (Table 4). However, many others had large numbers of visits: 18 percent had 10 or more visits during the year. The average was 7.8 visits for all persons visiting social workers or counselors (Figure 4).

Eighty-five percent of the people who saw social workers or counselors also saw a physician at least once during the year (Table 2 and Figure 2). Among the specialists seen by these people the following types were seen in relatively large numbers: Ophthalmologists, seen by 15 percent of the people who had visits with social workers or counselors; obstetricians and gynecologists, seen by 14 percent; orthopedic surgeons, seen by 14 percent; psychiatrists, seen by 13 percent; and internists, seen by 12 percent.

Eighty-one percent of the people who visited with social workers or counselors reported seeing them for "diagnosis or treatment;" 50 percent said the visit entailed "other services" (Table 5). Nineteen percent of the social worker and counselor visits took place in neighborhood health centers (Table 1). Seventeen percent were in doctors' offices, and 14 percent were in clinics other than physician, company, or school clinics. A full 35 percent of the visits were reported to take place in "other" places, which probably included an unknown number of visits occurring in social service agency offices.

The most frequently reported health conditions involved in visits to social workers and counselors were mental disorders, 59 percent, and signs, symptoms, and ill-defined conditions, 16 percent (Table 6). No condition was reported for 19 percent of the visits.

The average charge for a visit with a social worker or counselor was \$25, and the median charge was \$19 (Table 8). An unexplained 21 percent of visits carried charges between \$40 and \$45. The average number of visits per patient, multiplied by the average cost per visit, yields an estimated \$198 for the average patient's cost of all visits during the year.

The most frequently mentioned source of payment for visits to social workers and counselors was the patient or the patient's family, 53 percent of all visits, and next most frequent was Medicaid, 21 percent (Table 9). State and local governments were involved in payments for 20 percent of the visits, and private insurance or prepayment plans were involved in 17 percent.

Charges for the social worker and counselor visits were estimated to total \$314 million (Table 3). The major sources of payments for these charges were as follows: Self or family, 28 percent (Figure 3); State or local government, 22 percent; insurance and prepayment plans, 20 percent; and Medicaid, 19 percent.

Laboratory technician visits—It is estimated from NMCUES that 14.6 million persons made 25.1 million visits to laboratory, or "lab," technicians during 1980 (Tables 1 and 4). Seventy-one percent of these people had only one visit to a lab technician, and another 17 percent had only two. The average number of visits

for all persons with lab technician services was 1.7 (Figure 4).

Fully 97 percent of those individuals visiting lab technicians also saw a physician during the year, suggesting what would be expected—that nearly all lab tests are done on the recommendation of a physician (Table 2 and Figure 2). Persons utilizing lab technician services mentioned seeing certain physician specialists on a relatively frequent basis: Internists were seen by 32 percent of these people, obstetricians and gynecologists by 22 percent, and ophthalmologists by 17 percent.

Eighty percent of the visits to lab technicians were for diagnosis or treatment, and 33 percent were for unspecified other purposes (Table 5). The majority of the visits to the lab technicians, 58 percent, took place in hospital outpatient clinics, and 31 percent occurred at laboratories (Table 1).

Lab technician visits were occasioned by a wide variety of medical conditions. Most frequently mentioned by the respondents were endocrine and metabolic diseases and immunity disorders, 15 percent, and diseases of the circulatory system, 14 percent (Table 6).

Seventy-seven percent of the lab technician visits were reported to involve laboratory tests, and 25 percent reported x-rays and 10 percent reported EKG's, EEG's, or other such tests (Table 7). Some of the 25 percent involving x-rays may actually have been visits with radiological technicians misreported as lab technicians.

Charges for lab technician visits totaled an estimated \$948 million; they averaged \$38 per visit, and the median charge was \$21 (Table 8). For about half of all visits (51 percent) a source of payment was the patient or the patient's family, and for 48 percent, insurance and prepayment plans were involved (Table 9). Medicare was involved in payments for 16 percent of the visits, and Medicaid in 10 percent.

Major sources of payments of the estimated \$948 million in total charges were reported to have been insurance and prepayment plans, 42 percent; self or family, 28 percent (Figure 3); and Medicare, 11 percent (Table 3).

Radiology technician visits—An estimated 6 million persons made an estimated 8.7 million visits with radiology technicians in 1980 (Tables 1 and 4). It was reported that 85 percent of these people had only one such visit and that 96 percent had only one or two. The overall average number of visits was 1.5 (Figure 4). Thus, the estimated average number of visits to radiology technicians was almost as low as the estimated average number of visits to optometrists.

Ninety-six percent of the people visiting radiology technician also saw a physician at least once during the year (Table 2 and Figure 2). Physician specialists seen relatively often by these people included internists, 31 percent; obstetricians and gynecologists, 15 percent; ophthalmologists, 15 percent; orthopedic surgeons, 14 percent; and general surgeons, 11 percent.

Eighty-nine percent of the visits to radiology technicians were said to have been made for diagnosis or treatment, 4 percent for general checkup, and 27 percent for unspecified other purposes (Table 5). Most frequent sites of the visits were hospital outpatient clinics, 51 percent; doctors' offices, 18 percent; and laboratories, 18 percent (Table 1).

The most frequent conditions occasioning the radiology technician services were malignant neoplasms, 19 percent; injury and poisoning, 16 percent; and diseases of the musculoskeletal system and connective tissue, 12 percent (Table 6).

Visits to radiology technicians were reported to involve x-rays in 78 percent of the cases; lab tests in 8 percent; and EKG's, EEG's, or other tests in 5 percent of the cases (Table 7). In more than 8 percent of the visits none of the above was said to be involved. It is unknown whether or not respondents misreported types of services or types of technicians for visits that did not include x-rays.

Radiologic visits were the most expensive of all practitioner visits reported in the survey (Table 8). They averaged \$65 per visit; the median charge was \$50. Forty-six percent of the visits cost \$60 or more, and 16 percent cost \$100 or more.

The most frequent sources of payments for radiology charges were reported as insurance and prepayment plans, 62 percent of all visits; self or family, 45 percent; and Medicare, 20 percent (Table 9).

Total charges for radiology technician visits were estimated from the survey to have amounted to \$568 million. Major sources of the payments of these charges were insurance and prepayment plans, 47 percent; self and family, 26 percent; and Medicare, 15 percent (Table 3 and Figure 3).

Other technician visits—Visits to technicians other than laboratory and radiology technicians were reported for 1.6 million persons; 5.2 million such visits were reported (Tables 1 and 4). Sixty-eight percent of these persons had only one such visit, and 15 percent had only two. However, the rest of these people had so many visits that the overall average was 3.2 visits (Figure 4).

Ninety-six percent of the people seeing other technicians also saw a physician at least once during the year (Table 2 and Figure 2). Physician specialists seen relatively often were internists, 34 percent; ophthalmologists, 21 percent; obstetricians and gynecologists, 17 percent; orthopedic surgeons, 13 percent; and general surgeons, 13 percent. The purposes of the visits were given as diagnosis or treatment for 90 percent and "other" for 46 percent (Table 5). Principal sites of the visits were reported as "other clinic" for 25 percent, laboratory for 24 percent, doctor's office for 15 percent, and "other" for 22 percent (Table 1).

The most common conditions giving rise to the visits to other technicians were diseases of the genitourinary system, 46 percent, and diseases of the respiratory system, 12 percent (Table 6). Eleven percent of the visits

involved x-rays; 29 percent involved lab tests; and 9 percent involved EKG's, EEG's, or other tests (Table 7).

Charges for visits to other technicians tended to be higher than visits to lab technicians but lower than visits to radiology technicians: They averaged \$55 per visit, and their median amount was \$25 (Table 8). Twenty-six percent of the visits resulted in charges of \$100 or more.

Most frequently mentioned sources of the payments of charges were insurance and prepayment plans, 74 percent; Medicare, 49 percent; the patient or the patient's family, 37 percent; and State or local governments, 14 percent (Table 9).

Charges to all patients for other technician visits totaled an estimated \$284 million in 1980 (Table 3). By far the greatest share of the payments of these charges came from Medicare (55 percent). Other important sources of payments were insurance and prepayment plans, accounting for 27 percent of the total, and self or family, accounting for 12 percent (Figure 3).

Other practitioner visits—A reported 10.4 million persons had 32.3 million visits in 1980 with "other practitioners" (Tables 1 and 4). These other practitioners included a wide variety of types such as dietitians, nutritionists, mental health professionals, aides, faith healers, and various types of therapists, together with a large number of "nonphysician practitioners, unspecified."

In many respects the visits to "other practitioners" were similar in character to visits to all nonphysician practitioners, but they were notably different in the following respects:

- A high proportion of visits took place in patients' homes, relatively few in doctors' offices (Table 1).
- Relatively high proportions of the visits involved diseases of the circulatory system, endocrine and metabolic diseases, and immunity disorders (Table 6).
- Medicare and Medicaid were particularly prominent as sources of payment for other practitioners' services (Tables 3 and 9).

Comparisons With Earlier Findings

The only instance in which data on visits to nonphysician practitioners generally comparable with data presented in this report were collected from a nationally representative sample was in the National Health Interview Survey (NHIS), when visits to selected medical practitioners in the year from July 1963 through June 1964 were ascertained (Hannaford, 1966). This survey lacked comparability with NMCUES, however, in the respect that it was based on the respondent's recall at one point in time of what occurred over the previous 12 months, rather than on the longitudinal method, based on five different interviews, as used in NMCUES. The respective findings from the two surveys on average number of visits over the year's time to three types of practitioners were as follows:

<i>Practitioners</i>	<i>Average visits per year, per person with visits</i>	
	<i>NHIS 1963-64</i>	<i>NMCUES 1980</i>
Optometrists	1.4	1.4
Chiropractors	4.7	8.3
Podiatrists	3.6	3.1

Thus the estimated average number of visits was the same for optometrists for both surveys, and the difference was not large for podiatrists. For chiropractors the average number of visits reported was much higher

in 1980 than in 1963-64. The 1963-64 data were based on 12-month recall on the part of the interview respondent; the 1980 data, based on much shorter recall periods, are assumed to be more accurate.

Data for 1980 relating to physician visits are presented in Collins (1983). These data are also based on NHIS and utilize a somewhat different definition of physician visits than that used for NMCUES. When allowances are made for these definitional differences, the data on physician visits from the two surveys are quite similar.

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Table 1

Number of visits to selected health care practitioners and percent distribution by place of visit: United States, 1980

[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.]

Place of visit	Physicians	All other practitioners	Nurses	Optometrists	Chiropractors	Podiatrists	Psychologists	Paramedics	Physical therapists	Social workers or counselors	Laboratory technicians	Radiology technicians	Other technicians	Other practitioners
Visits in thousands														
All visits	714,416	374,586	109,539	28,499	74,662	13,456	27,793	5,833	31,220	12,319	25,104	8,707	*5,166	32,288
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	100.0	100.0	100.0
Doctor's office	74.1	44.3	29.3	83.3	87.3	92.5	44.7	14.9	18.1	*16.8	5.4	18.4	*15.3	23.8
Doctor's clinic	6.4	4.2	5.3	3.4	*6.5	*1.1	*2.8	13.8	*2.9	*1.1	2.1	*1.0	*1.4	2.0
Neighborhood health center	1.7	3.4	5.5	*0.4	—	*1.7	*9.5	*2.6	*0.3	*19.3	*0.5	*1.0	*0.8	*2.5
Company clinic	0.6	2.0	6.2	*0.4	—	—	*0.0	*1.3	—	*0.1	*0.1	*0.2	*0.6	*1.3
School clinic	0.7	3.7	7.6	*0.3	—	—	*1.9	—	*11.0	*0.2	*0.1	*0.5	*0.5	*4.5
Other clinic	1.6	6.8	8.2	2.6	*0.9	*0.6	21.7	*8.8	5.7	13.7	*1.1	*4.1	*24.9	9.1
Home	*0.8	10.0	24.3	*0.0	*0.7	*1.2	—	*4.4	*4.7	*4.5	*0.3	—	*3.5	*24.1
Laboratory	0.2	3.6	1.7	—	—	*0.1	—	*1.6	*0.1	—	30.9	17.6	*23.9	3.0
Hospital outpatient clinic	11.6	12.4	5.4	1.1	*0.0	*0.8	*3.3	43.4	45.1	*4.7	57.6	51.3	*5.9	8.5
Other	1.1	7.7	5.3	6.9	*2.6	*0.5	*14.2	8.3	10.6	34.6	*1.3	5.7	*22.1	16.1
Unknown	1.3	1.8	1.1	1.6	2.0	1.6	*1.8	*1.0	*1.5	*5.0	*0.5	*0.3	*1.1	*5.1

*Standard error equals or exceeds 30 percent of the estimate.

NOTE: For the standard errors of estimates in this table, see Table I.

SOURCE: National Medical Care Utilization and Expenditure Survey.

Table 2
Number of persons with visits to selected health care practitioners and percent distribution by
M.D. specialists also seen during the year: United States, 1980

[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]

M.D. specialist	Physicians	All other practitioners	Nurses	Optometrists	Chiropractors	Podiatrists	Psychologists	Paramedics	Physical therapists	Social workers or counselors	Laboratory technicians	Radiology technicians	Other technicians	Other practitioners
Persons in thousands														
All persons	157,742	78,247	29,095	20,613	8,985	4,393	2,865	2,745	2,745	1,585	14,599	5,952	*1,622	10,424
Percent distribution ¹														
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Any physician	100.0	83.0	84.0	75.4	79.1	89.2	91.9	78.0	99.0	85.3	97.3	95.9	96.4	85.2
General practitioners	63.3	54.8	55.6	52.2	58.3	58.8	54.5	50.0	61.1	56.0	65.9	67.8	66.3	56.3
Specialists in:														
Allergy	1.4	1.9	3.7	1.2	2.5	*1.6	*2.7	*0.6	*2.1	*2.9	2.1	*2.1	*0.8	2.0
Dermatology	4.8	4.4	4.2	4.6	3.9	4.7	*5.9	*6.1	8.0	*6.6	6.1	4.6	*3.2	3.5
Internal medicine	14.8	16.7	14.3	13.3	14.4	28.7	17.3	15.3	34.1	11.8	32.1	30.7	34.0	18.6
Pediatrics	13.3	8.8	13.0	4.6	1.9	3.7	11.7	*13.7	7.2	9.1	7.2	4.6	*7.4	9.6
General surgery	5.3	5.7	4.7	4.0	3.3	8.6	*4.9	6.2	9.7	*4.5	9.1	10.9	12.5	6.3
Obstetrics and gynecology ...	13.1	12.5	11.8	10.7	12.6	12.4	20.2	14.3	11.5	14.1	21.6	15.4	17.3	12.9
Ophthalmology	13.6	12.3	12.5	8.1	12.5	24.4	16.5	6.7	21.2	14.8	17.4	14.8	20.7	12.2
Orthopedic surgery	7.5	8.2	6.8	6.2	7.4	9.4	9.7	8.9	45.5	14.0	8.8	13.5	12.5	8.3
Otolaryngology	5.0	5.4	4.7	4.7	3.9	6.5	7.2	7.3	*5.8	*9.9	9.4	6.6	*6.8	7.9
Urology	2.5	2.8	2.6	1.5	2.9	4.1	*0.4	*3.7	*3.8	—	4.7	4.7	*4.8	3.4
Other surgical specialties	1.8	2.1	1.2	1.3	2.5	2.6	*1.8	*2.5	7.9	*0.9	2.9	4.7	*1.5	2.0
Neurology	1.3	1.8	1.5	1.0	2.7	*0.8	*2.2	*1.2	11.3	*3.0	3.6	*2.0	*7.1	2.1
Psychiatry	2.0	2.7	1.7	2.0	2.2	*2.1	26.3	*2.4	*5.1	12.6	2.9	*2.3	*0.9	5.1
Radiology	2.0	2.5	1.9	2.0	1.9	*3.5	*3.5	*1.2	*6.9	*4.4	5.2	6.9	*6.1	2.9
Other specialty	1.7	1.8	1.6	0.9	2.0	*3.2	*4.6	*1.4	5.6	*3.5	2.0	3.3	*2.4	2.7
Osteopaths	0.6	0.6	*0.3	*0.4	*0.7	*1.3	*0.5	—	*2.2	—	*0.8	*0.4	*1.0	*1.1
Unknown type of specialty	5.2	6.0	6.1	4.0	7.2	16.3	8.6	*4.2	10.8	*6.8	8.5	6.5	10.2	7.5
Unknown if GP or specialist	8.1	8.5	8.7	5.7	8.5	9.2	10.2	6.6	16.7	14.3	11.1	8.0	*5.1	11.9

*Standard error equals or exceeds 30 percent of the estimate.

¹Totals exceed 100.0 percent because some persons saw more than one type of specialist.

NOTE: For the standard errors of estimates in this table, see Table II.

SOURCE: National Medical Care Utilization and Expenditure Survey.

Table 3

Total amounts of payments for visits to selected health care practitioners and percent distribution by source of payments: United States, 1980

[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]

Source of payment	Physicians	All other practitioners	Nurses	Optometrists	Chiropractors	Podiatrists	Psychologists	Paramedics	Physical therapists	Social workers or counselors	Laboratory technicians	Radiology technicians	Other technicians	Other practitioners
Amounts in millions of dollars														
All sources	\$23,704	\$9,197	\$1,502	\$1,331	\$1,186	\$350	\$843	\$145	\$830	\$314	\$948	\$568	*\$284	\$897
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	100.0	100.0	100.0
Medicare	9.4	10.5	12.7	*1.8	3.0	*11.8	*1.6	*0.9	*12.1	*0.5	11.2	*14.6	55.4	*23.3
Medicaid	8.0	6.5	9.1	3.9	3.8	*4.0	*9.3	*3.6	*3.6	*19.3	7.6	5.1	*0.1	8.2
Other government—military:														
Military	*2.1	*1.5	*1.6	*0.5	—	*0.3	*1.6	*36.6	*1.3	*0.8	*1.6	*0.1	—	*1.4
Veterans Administration	*1.1	*0.7	*0.4	—	—	—	*3.0	*0.7	*0.4	*2.2	*0.4	—	—	*2.0
CHAMPUS or CHAMPVA	*0.5	*0.3	*0.2	*0.0	—	*0.3	—	*1.7	*0.9	—	*1.1	*0.1	*0.5	*0.1
Other government—nonmilitary:														
Federal Government	*0.7	*1.0	*1.0	*0.1	*0.3	—	*0.5	*6.1	*5.1	—	*0.1	*0.1	*1.8	*1.2
Indian Health Service	*0.1	*0.0	—	—	—	—	—	—	—	—	*0.2	—	—	—
State or local government	1.2	3.3	7.5	*0.2	*0.0	*0.0	*5.4	*1.3	*3.5	*22.4	*1.1	*1.8	*1.4	*1.5
Workers compensation	1.0	1.4	*0.3	—	*5.2	—	—	*0.3	*5.8	—	*0.1	*1.3	*0.9	*0.3
Public assistance	0.7	*0.3	*0.4	*0.4	*0.3	—	*0.7	*0.2	—	*3.4	*0.0	—	—	—
Insurance or prepayment plan ..	29.8	27.8	31.2	11.7	34.5	34.4	16.3	30.6	29.8	*19.7	41.9	46.5	27.0	19.5
Individuals:														
Self or family	40.3	38.6	25.5	75.8	49.5	43.9	53.8	14.0	12.4	28.2	28.1	26.4	*12.2	34.0
Other relatives or individuals	0.2	*0.4	*0.2	*0.7	*0.3	*1.2	*1.6	*0.1	*0.1	—	*0.1	—	—	*0.3
Other sources:														
Company or employer clinic ..	1.8	*2.4	*3.2	*0.9	*0.5	*0.5	*0.0	*1.2	*12.9	—	*2.3	*1.9	—	*1.3
Union	0.9	1.0	*0.1	3.1	*1.5	*2.0	*0.2	—	*0.8	*0.3	*1.3	*0.5	*0.4	*0.3
School or school clinic	0.4	*1.8	*3.4	—	—	—	*5.2	*1.0	*3.8	*0.5	*0.0	*0.6	—	*3.2
Philanthropy	*0.0	*0.1	*0.4	*0.0	—	—	*0.1	—	*0.1	*0.2	—	—	—	*0.1
Other sources	1.2	*1.6	*1.8	*0.6	*0.4	*0.1	*0.8	*1.7	*6.5	*2.2	*2.2	*0.4	*0.1	*2.1
Unknown	0.6	0.7	*0.9	*0.4	*0.7	*1.4	*0.0	*0.1	*1.1	*0.2	*0.8	*0.8	*0.3	*1.3

*Standard error equals or exceeds 30 percent of the estimate.

NOTE: For the standard errors of estimates in this table, see Table III.

SOURCE: National Medical Care Utilization and Expenditure Survey.

Table 4
Number of persons with visits to selected health care practitioners and percent distribution by number of visits
during the year, average number of visits, and percentiles: United States, 1980

[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]

Number of visits	Physicians	All other practitioners	Nurses	Optometrists	Chiropractors	Podiatrists	Psychologists	Paramedics	Physical therapists	Social workers or counselors	Laboratory technicians	Radiology technicians	Other technicians	Other practitioners
Persons in thousands														
All persons	157,742	78,247	29,095	20,613	8,985	4,393	2,865	2,745	2,745	1,585	14,599	5,952	1,622	10,424
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	100.0	100.0	100.0
1 visit	27.5	48.3	61.6	78.7	23.0	40.0	25.3	69.9	20.4	29.4	70.8	85.1	68.2	71.6
2 visits	18.6	18.0	15.5	15.2	12.2	19.2	13.5	16.0	7.5	19.5	17.2	11.0	15.4	11.7
3 visits	12.9	8.7	6.3	3.2	9.4	12.7	9.7	7.7	7.6	*5.3	4.5	*2.2	*6.0	4.7
4 visits	9.7	4.4	3.0	1.0	7.6	8.0	*3.5	*2.7	6.3	*5.8	3.0	*0.5	*1.6	2.3
5-9 visits	20.6	9.6	5.7	1.4	21.0	15.4	18.1	*2.2	23.8	13.6	3.2	*0.2	*4.9	4.0
10-14 visits	6.7	4.0	2.9	*0.3	9.8	4.0	9.7	*0.3	12.2	*12.6	*0.8	*0.2	-	*1.9
15-19 visits	2.1	1.9	1.3	-	5.0	*0.9	6.9	-	*4.6	*5.0	*0.5	*0.3	-	*1.3
20-29 visits	1.3	2.4	1.9	*0.1	6.6	-	*4.7	*0.3	10.5	*3.9	-	*0.1	*2.9	1.1
30-49 visits	0.5	1.8	1.1	-	4.0	-	6.3	*0.5	*3.3	*3.9	*0.1	*0.4	-	*0.8
50 visits or more	*0.1	0.9	0.7	-	*1.4	-	*2.3	*0.4	*3.8	*1.1	-	-	*0.9	*0.6
Average per person														
Average number of visits	4.5	4.8	3.8	1.4	8.3	3.1	9.7	2.1	11.4	7.8	1.7	1.5	*3.2	3.1
Percentiles														
10th percentile	1	1	1	1	1	1	1	1	1	1	1	1	1	1
25th percentile	1	1	1	1	2	1	1	1	2	1	1	1	1	1
50th percentile	3	2	1	1	4	2	4	1	6	3	1	1	1	1
75th percentile	5	3	2	1	10	4	11	2	12	10	2	1	2	2
90th percentile	10	11	7	2	21	7	28	3	27	18	3	2	4	4

*Standard error equals or exceeds 30 percent of the estimate.

NOTE: For the standard errors of estimates in this table, see Table IV.

SOURCE: National Medical Care Utilization and Expenditure Survey.

Table 5

Number of visits to selected health care practitioners and percent distribution by type of service: United States, 1980

[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 service	Physicians	All other practitioners	Nurses	Optometrists	Chiropractors	Podiatrists	Psychologists	Paramedics	Physical therapists	Social workers or counselors	Laboratory technicians	Radiology technicians	Other technicians	Other practitioners
Visits in thousands														
All visits	714,416	374,586	109,539	28,499	74,662	13,456	27,793	5,833	31,220	12,319	25,104	8,707	*5,166	32,288
Percent distribution ¹														
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Diagnosis or treatment	81.3	80.0	76.7	22.7	94.2	95.2	82.1	73.6	99.9	80.8	80.1	88.6	90.4	78.3
General checkup	10.9	2.5	4.8	2.3	*0.6	*1.2	*0.2	*5.6	—	—	5.8	3.6	*1.6	2.3
Prenatal or postnatal	4.5	1.3	1.9	*0.0	*0.1	*0.1	—	*1.0	—	*4.7	4.8	*1.7	*1.2	*1.9
Immunization	1.9	3.5	10.1	*0.1	—	*0.1	—	*17.9	—	*0.2	*0.4	*0.2	—	*2.2
Eye exam for glasses	2.2	6.0	*0.2	72.2	*0.0	*0.5	—	*0.7	—	—	*0.1	—	*0.3	4.6
Family planning	1.0	0.6	1.1	*0.1	—	—	—	*2.0	—	*1.5	1.4	*0.9	*0.3	*0.8
Other	5.9	22.9	28.4	14.4	*7.9	8.1	31.5	*14.8	9.5	49.8	33.3	26.5	46.2	36.0
Unknown	0.2	0.5	*0.1	*0.1	—	—	*0.2	*0.4	—	—	*0.2	*0.1	—	*4.6

*Standard error equals or exceeds 30 percent of the estimate.

¹Totals exceed 100.0 percent because some visits included multiple types of service.

NOTE: For the standard errors of estimates in this table, see Table V.

SOURCE: National Medical Care Utilization and Expenditure Survey.

Table 6
Number of visits to selected health care practitioners and percent distribution by condition: United States, 1980

[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]

Condition	Physicians	All other practitioners	Nurses	Optometrists	Chiropractors	Podiatrists	Psychologists	Paramedics	Physical therapists	Social workers or counselors	Laboratory technicians	Radiology technicians	Other technicians	Other practitioners
	Visits in thousands													
All visits	714,416	374,586	109,539	28,499	74,662	13,456	27,793	5,833	31,220	12,319	25,104	8,707	*5,166	32,288
	Percent distribution ¹													
Total	100.0	100.0	100.0	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	4.0	1.4	1.2	*0.1	*0.0	15.1	*0.2	6.6	—	—	3.6	*1.1	*1.5	1.0
Malignant neoplasms	2.4	1.1	*1.0	—	*0.1	—	—	*0.2	—	*0.3	*3.0	*18.6	*1.5	*1.1
Endocrine and metabolic diseases, immunity disorders ..	4.0	4.8	7.6	*0.0	*0.9	*1.5	—	*2.7	*1.9	*2.9	14.6	*1.1	*5.5	*11.1
Mental disorders	4.0	7.8	*1.6	*0.1	*1.3	—	56.2	*0.7	*0.1	58.5	*3.3	*0.8	*0.3	8.7
Diseases of the nervous system	2.0	6.0	*6.3	*0.1	9.2	*1.3	—	*0.3	20.7	*0.4	1.6	*1.4	*0.6	*4.8
Disorders of the eye and adnexa	3.3	2.3	*0.5	20.1	*0.7	*0.2	—	*1.3	*0.8	—	*0.6	*0.7	*0.5	*3.2
Diseases of the ear and mastoid process	3.8	0.8	0.9	*0.1	*1.3	—	*0.1	*2.8	*0.0	—	*1.1	*0.3	*1.0	*1.9
Diseases of the circulatory system	12.8	10.6	22.5	*0.1	*2.3	*0.6	*0.7	*5.0	12.5	*0.9	13.8	*2.7	*9.4	*14.4
Diseases of the respiratory system	14.8	9.2	23.9	*0.1	2.2	*0.3	—	19.0	*1.3	*0.1	5.4	9.0	*11.7	7.9
Diseases of the digestive system	3.9	1.6	*2.2	—	*0.8	—	*0.1	*1.9	*0.2	*0.2	6.4	8.8	*1.0	0.8
Diseases of the genitourinary system	6.5	2.8	3.3	—	*0.2	—	—	4.6	—	*0.2	7.7	8.8	*45.8	*4.2
Obstetric and gynecological conditions	4.1	1.2	1.7	*0.0	*0.1	—	—	*1.0	—	*4.7	4.1	*1.7	*0.9	*1.6
Diseases of skin and subcutaneous tissue	4.4	3.0	2.7	*0.1	*0.7	44.8	—	*16.5	—	—	*0.9	*1.2	*2.4	1.4
Diseases of the musculoskeletal system and connective tissue	9.1	22.0	7.5	*0.1	65.9	27.6	*0.4	*2.9	41.5	*0.1	6.5	11.9	*2.8	16.2
Signs, symptoms, and ill-defined conditions	5.4	5.1	2.4	*0.4	*1.8	*2.0	*19.1	*2.8	*6.7	*15.8	6.1	6.1	*4.4	*9.2
Injuries and poisonings	9.3	10.4	9.5	*1.3	15.1	*5.2	—	15.8	32.7	*0.1	5.2	16.3	*3.1	6.9
Other or unknown conditions ...	3.3	*2.7	*4.7	*0.0	*1.4	*3.1	*0.7	*1.6	*3.4	*0.4	6.2	*1.7	*3.4	*1.4
No condition	15.5	20.8	24.7	77.6	*6.2	6.2	22.8	26.6	*0.1	18.9	17.7	11.6	*9.3	21.5

*Standard error equals or exceeds 30 percent of the estimate.

¹Totals exceed 100.0 percent because some visits involved more than one condition.

NOTE: For the standard errors of estimates in this table, see Table VI.

SOURCE: National Medical Care Utilization and Expenditure Survey.

Table 7

Number of visits to selected health care practitioners and percent of visits with x-rays, percent with laboratory tests, and percent with EKG's, EEG's, or other tests: United States, 1980

[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.]

Item	Physicians	All other practitioners	Nurses	Optometrists	Chiropractors	Podiatrists	Psychologists	Paramedics	Physical therapists	Social workers or counselors	Laboratory technicians	Radiology technicians	Other technicians	Other practitioners
	Visits in thousands													
All visits	714,416	374,586	109,539	28,499	74,662	13,456	27,793	5,833	31,220	12,319	25,104	8,707	*5,166	32,288
	Percent													
Percent with x-rays	7.3	6.0	1.3	*0.7	6.0	6.8	...	5.5	...	...	25.3	78.2	10.5	4.0
Percent with laboratory tests	24.1	11.3	13.5	4.5	*0.8	*1.2	...	21.6	...	...	76.6	8.2	*29.0	7.8
Percent with EKG's, EEG's, or other tests	9.9	2.7	2.9	5.9	*0.5	*1.1	...	6.0	...	...	9.8	5.4	*8.8	3.2

*Standard error equals or exceeds 30 percent of the estimate.

NOTE: For the standard errors of estimates in this table, see Table VII.

SOURCE: National Medical Care Utilization and Expenditure Survey.

Table 8

Number of visits to selected health care practitioners and percent distribution by amount of charge for visit, total charges, average charges, and median charges: United States, 1980

[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]

Charge for visit	Physicians	All other practitioners	Nurses	Optometrists	Chiropractors	Podiatrists	Psychologists	Paramedics	Physical therapists	Social workers or counselors	Laboratory technicians	Radiology technicians	Other technicians	Other practitioners
Visits in thousands														
All visits	714,416	374,586	109,539	28,499	74,662	13,456	27,793	5,833	31,220	12,319	25,104	8,707	*5,166	32,288
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	100.0	100.0	100.0
None	9.3	15.3	30.7	9.3	*7.5	4.1	8.4	15.0	8.8	11.3	5.9	*4.7	*5.8	16.6
\$3.00 or less	1.1	4.0	7.1	*0.5	*2.3	*1.3	*4.3	*6.1	*4.5	*6.7	*2.2	*0.3	*2.3	2.6
\$3.01-4.99	0.5	2.7	5.7	*0.4	*0.7	*0.7	*1.0	*0.8	*1.8	*1.6	1.7	*0.6	*0.2	*5.2
\$5.00-9.99	4.4	13.7	20.4	3.1	14.4	3.8	7.1	*13.8	9.1	13.2	18.4	*2.6	*20.1	11.1
\$10.00-14.99	12.9	15.8	11.4	4.6	34.3	18.1	8.2	21.7	14.4	*10.5	10.0	6.2	*11.4	13.4
\$15.00-19.99	18.8	12.2	6.0	6.3	22.2	35.8	10.3	9.3	14.4	*7.2	9.1	3.6	*6.3	12.4
\$20.00-24.99	12.8	6.2	3.2	9.1	6.3	11.9	*5.2	*8.2	12.8	*2.4	7.5	4.6	*2.2	6.5
\$25.00-29.99	8.9	5.3	3.8	10.8	3.2	5.1	*6.3	2.9	9.4	*4.0	6.4	*8.7	7.6	4.6
\$30.00-34.99	5.7	3.8	1.7	6.9	2.1	*3.4	*7.9	3.1	6.6	*7.0	5.1	5.9	*3.8	3.5
\$35.00-39.99	4.9	2.9	1.4	6.9	*1.9	*1.1	*5.1	*2.4	2.3	*1.8	4.1	4.5	*2.3	*5.7
\$40.00-44.99	2.9	3.4	*2.2	5.6	*0.7	*3.1	*8.4	*1.3	2.2	*20.7	2.9	5.0	*1.6	3.0
\$45.00-49.99	2.2	2.0	0.5	3.5	*1.1	*0.5	*10.2	*1.8	*1.7	*0.9	2.5	*2.8	*3.3	1.3
\$50.00-59.99	3.6	2.9	1.2	5.8	0.6	*3.0	*6.9	2.4	2.5	*9.2	4.6	4.8	*2.6	3.5
\$60.00-74.99	3.4	2.4	0.8	6.8	0.9	*1.5	3.0	*2.4	1.2	*0.8	5.9	16.8	*2.7	2.0
\$75.00-99.99	3.2	3.5	*2.3	9.0	0.7	*3.5	*7.1	*4.7	*4.9	*1.4	5.2	13.0	*1.3	2.3
\$100.00 or more	5.3	3.9	1.5	11.4	1.0	3.2	*0.6	4.1	3.4	*1.3	8.6	16.1	*26.4	*6.3
Charges in millions of dollars														
Total charges	\$23,704	\$9,197	\$1,502	\$1,331	\$1,186	\$350	\$843	\$145	\$830	\$314	\$948	\$568	*\$284	\$897
Charges in dollars														
Average charge	\$33.18	\$24.55	\$13.71	\$46.69	\$15.88	\$26.00	\$30.34	\$24.92	\$26.57	\$25.46	\$37.77	\$65.25	*\$54.93	\$27.77
Median charge	\$20	\$14	\$6	\$33	\$12	\$15	\$25	\$13	\$18	\$19	\$21	\$50	\$25	\$15
Median charge for visits with charges	\$20	\$15	\$10	\$35	\$12	\$16	\$30	\$15	\$20	\$27	\$23	\$54	\$25	\$16
Average annual charge per person with visits	\$150	\$118	\$52	\$65	\$132	\$80	\$294	\$53	\$302	\$198	\$65	\$95	*\$175	\$86

*Standard error equals or exceeds 30 percent of the estimate.

NOTE: For the standard errors of estimates in this table, see Table VIII.

SOURCE: National Medical Care Utilization and Expenditure Survey.

Table 9

Number of visits to selected health care practitioners and percent distribution by sources of payments for visits: United States, 1980

[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]

Source of payment	Physicians	All other practitioners	Nurses	Optometrists	Chiropractors	Podiatrists	Psychologists	Paramedics	Physical therapists	Social workers or counselors	Laboratory technicians	Radiology technicians	Other technicians	Other practitioners
Visits in thousands														
All visits	714,416	374,586	109,539	28,499	74,662	13,456	27,793	5,833	31,220	12,319	25,104	8,707	*5,166	32,288
Percent distribution ¹														
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Medicare	11.7	10.1	10.9	2.5	5.4	17.3	*2.1	*1.6	*10.0	*1.1	16.4	*20.1	*49.0	20.3
Medicaid	9.8	7.5	7.7	4.9	4.0	*6.2	*8.7	*2.6	*4.7	*20.6	9.6	8.1	*0.8	*14.3
Other government—military:														
Military	1.3	*1.3	*0.7	*0.6	—	0.5	*0.7	*41.3	*0.8	*0.4	*1.9	*0.3	—	*1.0
Veterans Administration	0.7	*0.7	*0.2	—	—	—	*4.0	*0.9	*0.5	*0.7	*1.4	—	—	*2.2
CHAMPUS or CHAMPVA	0.5	*0.2	*0.3	*0.1	—	*0.1	—	*1.1	*0.9	—	*0.5	*0.3	*0.5	*0.1
Other government—nonmilitary:														
Federal	0.5	*0.7	*0.6	*0.2	*0.2	—	*0.7	*2.1	*3.1	—	*0.2	*0.3	*1.1	*0.9
Indian Health Service	*0.0	*0.0	—	—	—	—	—	—	—	—	*0.1	—	—	—
State or local government	1.0	3.6	4.3	*0.6	*0.1	*0.1	*10.3	*1.5	*4.3	*19.8	*0.9	*2.7	*13.6	*1.9
Workers compensation	0.9	1.4	*0.6	—	*3.5	—	—	*0.3	*5.7	—	*0.1	*1.1	*0.6	*0.4
Public assistance	0.6	*0.4	*0.2	*0.4	*0.1	—	*1.9	*0.4	—	*4.4	*0.1	*0.2	—	—
Insurance or prepayment plan ..	31.0	27.9	23.9	15.5	29.8	34.9	22.9	21.5	31.6	*17.1	47.6	62.4	74.1	18.8
Individuals:														
Self or family	65.7	53.0	41.7	79.8	70.5	70.9	69.5	25.6	29.5	52.5	50.5	45.1	*36.6	40.4
Other relatives or individuals ..	0.3	*0.4	*0.3	*0.6	*0.2	*0.5	*2.1	*0.4	*0.1	—	*0.1	—	—	*0.6
Other sources:														
Company or employer clinic ..	1.7	2.0	2.6	1.1	*0.3	*0.4	*0.1	*1.0	*8.7	—	*2.3	*2.2	—	*1.8
Union	1.1	*1.0	*0.1	3.3	*1.9	*1.2	*0.1	—	*1.2	*0.2	1.1	0.9	*2.1	*0.3
School or school clinic	0.4	*2.4	*3.5	*0.1	—	—	*4.9	*0.7	*6.9	*0.4	*0.1	1.1	*0.2	*5.2
Philanthropy	*0.0	*0.0	*0.0	*0.0	—	—	*0.0	—	*0.0	*0.0	—	—	—	*0.0
Other sources	1.3	*1.9	*1.7	*1.1	*0.4	*0.2	*1.7	*1.2	*7.6	*2.7	1.9	*0.8	*0.5	*2.2
Free from provider	3.9	10.3	22.9	6.4	*6.9	1.9	*4.7	*10.8	*4.2	*2.6	1.2	*0.9	*2.8	*7.1
Unknown source or unpaid	0.2	0.4	*0.3	*0.1	*0.0	—	*0.0	—	*1.5	*0.1	*0.3	*0.2	*0.5	1.1
Not applicable	0.2	0.3	0.3	*0.1	*0.1	*0.1	*0.3	*0.1	*0.5	*0.6	*0.1	—	—	*0.6

*Standard error equals or exceeds 30 percent of the estimate.

¹Totals exceed 100.0 percent because there were many visits having more than one source of payment.

NOTE: For the standard errors of estimates in this table, see Table IX.

SOURCE: National Medical Care Utilization and Expenditure Survey.

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Appendix I

Technical Notes on Methods

Survey Background

The National Medical Care Utilization and Expenditure Survey was a panel survey designed to collect data about the U.S. civilian noninstitutionalized population in 1980. During the course of the survey, information was obtained on health, access to and use of medical services, associated charges and sources of payment, and health insurance coverage. The survey was cosponsored by the National Center for Health Statistics and the Health Care Financing Administration. Data collection was provided under contract by the Research Triangle Institute and its subcontractors, National Opinion Research Center and SysteMetrics, Inc.

The basic survey plan for NMCUES drew heavily on two surveys, the National Health Interview Survey (NHIS), conducted by the National Center for Health Statistics, and the National Medical Care Expenditure Survey (NMCES), cosponsored by the National Center for Health Services Research and the National Center for Health Statistics.

NHIS is a continuing, multipurpose, cross-sectional survey first conducted in 1957. The main purpose of NHIS is to collect information on illness, disability, and the use of medical care. Although some information on medical expenditures and insurance payments has been collected in NHIS, the cross-sectional nature of the survey design is not well suited for providing annual data on expenditures and payments.

NMCES was a panel survey in which a sample of households was interviewed six times over an 18-month period in 1977 and 1978. NMCES was specifically designed to provide comprehensive data on how health services were used and paid for in the United States in 1977.

NMCUES is similar to NMCES in survey design and questionnaire wording, so that analysis of some of the change during the 3 years between 1977 and 1980 is possible. Both NMCUES and NMCES used question wording that was similar to NHIS in areas common to the three surveys. Together they provide extensive information on illness, disability, use of medical care, costs of medical care, sources of payment for medical care, and health insurance coverage at two points in time.

Sample Design of NMCUES

The NMCUES sample of housing units and group quarters, hereafter jointly referred to as dwelling units, is a concatenation of two independently selected national samples, one provided by the Research Triangle Institute and the other by the National Opinion Research Center. The sample designs used by these two organizations are similar with respect to principal design features; both can be characterized as stratified, four-stage area probability designs. The principal differences between the two designs are the type of stratification variables and the specific definitions of sampling units at each stage. The salient design features of the two sample surveys are summarized in the following sections.

The target population for NMCUES consisted of all persons who were members of the U.S. civilian noninstitutionalized population at any time between January 1, 1980 and December 31, 1980. All persons living in a sample dwelling unit at the time of the first interview contact became part of the national sample. Unmarried students 17–22 years of age who lived away from home were included in the sample when a parent or guardian was included in the sample. In addition, persons who died or were institutionalized between January 1 and the date of first interview were included in the sample if they were related to persons living in the sampled dwelling units. All of these persons were considered “key” persons, and data were collected for them for the full 12 months of 1980 or for the proportion of time they were part of the U.S. civilian noninstitutionalized population. In addition, babies born to key persons were considered key persons, and data were collected for them from the time of birth. Relatives from outside the original population (that is, institutionalized, in the Armed Forces, or outside the United States between January 1 and the first interview) who moved in with key persons after the first interview were also considered key persons, and data were collected for them from the time they joined the key person. Relatives who moved in with key persons after the first interview but were part of the civilian noninstitutionalized population on January 1, 1980, were classified as “non-key” persons. Data were collected for nonkey persons

for the time that they lived with a key person but, because they had a chance of selection in the initial sample, their data are not used for general person-level analysis. However, data for nonkey persons are used in family analysis because they do contribute to the family's utilization of and expenditures for health care during the time they are part of the family.

Persons included in the sample were grouped into "reporting units" for data collection purposes. Reporting units were defined as all persons related to each other by blood, marriage, adoption, or foster care status and living in the same dwelling unit. The combined NMCUES sample consisted of 7,244 eligible reporting units, of which 6,599 agreed to participate in the survey. In total, data were obtained on 17,123 key persons. The Research Triangle Institute sample yielded 8,326 key persons and the National Opinion Research Center sample 8,797.

Research Triangle Institute Sample Design

A primary sampling unit (PSU) is defined as a county, a group of contiguous counties, or parts of counties with a combined minimum 1970 population size of 20,000. A total of 1,686 disjointed PSU's exhaust the land area of the 50 states and Washington, D.C. The PSU's are classified as one of two types. The 16 largest standard metropolitan statistical areas (SMSA's) are designated as self-representing PSU's, and the remaining 1,670 PSU's in the primary sampling frame are designated as non-self-representing PSU's.

PSU's are grouped into strata whose members tend to be relatively alike within strata and relatively unlike between strata. PSU's derived from the 16 largest SMSA's had sufficient population in 1970 to be treated as primary strata. The 1,659 non-self-representing PSU's from the continental United States were stratified into 42 primary strata with approximately equal populations. Each of these primary strata had a 1970 population of about 3½ million. One supplementary primary stratum of 11 PSU's, with a 1970 population of about 1 million, was added to the Research Triangle Institute primary frame to include Alaska and Hawaii.

The total first stage sample for Research Triangle Institute consisted of 59 PSU's, of which 16 were self-representing PSU's. The non-self-representing PSU's were obtained by selecting one PSU from each of the 43 non-self-representing primary strata. These PSU's were selected with probability proportional to 1970 population size.

In each of the 59 sample PSU's the entire PSU was divided into smaller disjointed area units called secondary sampling units (SSU's). Each SSU consisted of one or more 1970 Census-defined enumeration districts or block groups. Within each PSU the SSU's were ordered and then partitioned to form secondary strata of approximately equal size. Two secondary strata were formed in the non-self-representing PSU drawn from

Alaska and Hawaii, and four secondary strata were formed in each of the remaining 42 non-self-representing PSU's. Thus, the non-self-representing PSU's were partitioned into a total of 170 secondary strata. In a similar manner the 16 self-representing PSU's were partitioned into 144 secondary strata.

In the second stage of selection one SSU was selected from each of the 144 secondary strata covering the self-representing PSU's, and two SSU's were selected from each of the remaining secondary strata. All second-stage sampling was with replacement and with probability proportional to the SSU's total noninstitutionalized population. The total number of sample SSU's was $2 \times 170 + 144 = 484$.

For the third stage of selection each SSU was first divided into smaller disjointed geographic areas, and one area within the SSU was selected with probability proportional to the total number of housing units in 1970. Next, one or more disjointed segments of at least 60 housing units were formed in the selected area. One segment was selected from each SSU with probability proportional to the segment housing unit count. In response to the sponsoring agencies' request that the expected household-sample size be reduced, a systematic sample of one-sixth of the segments was deleted from the sample. Thus, the total third-stage sample was reduced to 404 segments.

For the fourth stage of selection all of the dwelling units within the segment were listed, and a systematic sample of dwelling units was selected. The procedures used to determine the sampling rate for segments guaranteed that all dwelling units had an approximately equal overall probability of selection. All of the reporting units within the selected dwelling units were included in the sample.

National Opinion Research Center Sample Design

The land of the 50 States and Washington, D.C., was also divided into disjointed PSU's for the National Opinion Research Center sample design. A PSU consisted of SMSA's, parts of SMSA's, counties, parts of counties, or independent cities. Grouping of counties into a single PSU occurred when individual counties had a 1970 population of less than 10,000.

The PSU's were classified into two groups according to metropolitan status—SMSA or not SMSA. These two groups were individually ordered and then partitioned into zones with a 1970 census population size of approximately 1 million.

A single PSU was selected within each zone with a probability proportional to its 1970 population. It should be noted that this procedure allowed a PSU to be selected more than one time. For instance, an SMSA primary sampling unit with a population of 3 million could be selected at least twice and possibly as many as 4 times. The full general-purpose sample contained 204 PSU's. These 204 PSU's were systematically allocated for four subsamples of 51 PSU's. The final set

of 76 sample PSU's was chosen by randomly selecting two complete subsamples of 51 PSU's; one subsample was included in its entirety, and 25 of the PSU's in the other subsample were selected systematically for inclusion in NMCUES.

For the second stage each of the PSU's selected in the first stage was partitioned into a disjointed set of SSU's defined by block groups, enumeration districts, or a combination of the two types of Census units. Within each sample PSU the SSU's were ordered and then partitioned into 18 zones such that each zone contained approximately the same number of households. One SSU had the opportunity to be selected more than once, as was the case in the PSU selection. If a PSU had been hit more than once in the first stage, the second-stage selection process was repeated as many times as there were first-stage hits. The 405 SSU's were identified by selecting 5 SSU's from each of the 51 PSU's in the subsample that was included in its entirety, and 6 SSU's from each of the 25 PSU's in the group for which only one-half of the PSU's were included.

The SSU's selected in the second stage were then subdivided into area segments with a minimum size of 100 housing units each. One segment was then selected with probability proportional to the estimated number of housing units.

The fourth stage sample selection of housing units for the National Opinion Research Center was essentially the same as that used by the Research Triangle Institute.

Collection of Data

Field operations for NMCUES were performed by the Research Triangle Institute and the National Opinion Research Center under specifications established by the sponsoring agencies. Persons in the sample dwelling units were interviewed at approximately 3-month intervals beginning in February 1980 and ending in March 1981. The core questionnaire was administered during each of the five rounds of interviews to collect data on health, health care, health care charges, sources of payment, and health insurance coverage. A summary of responses was used to update information reported in previous rounds. Supplements to the core questionnaire were used during the first, third, and fifth rounds of interviews to collect data that were not expected to change during the year or that were needed only once. Approximately 80 percent of the third and fourth rounds of interviews were conducted by telephone; all remaining interviews were conducted in person. The respondent for the interview was required to be a household member 17 years of age or older. A proxy respondent not residing in the household was permitted only if all eligible household members were unable to respond because of health, language, or mental condition.

Imputation

Nonresponse in panel surveys such as NMCUES occurs when sample individuals refuse to participate in the survey (total nonresponse), when initially participating individuals drop out of the survey (attrition nonresponse), or when data for specific items on the questionnaire are not collected (item nonresponse). In general, response rates for NMCUES were excellent: Approximately 90 percent of the sample reporting units agreed to participate in the survey, and approximately 94 percent of the individuals in the participating reporting units supplied complete annual information. Even though the overall response rates are quite high for NMCUES, the estimates of means and proportions may be biased if nonrespondents have different health care experiences than respondents, or if there is a substantial response rate differential across subgroups of the target population. Furthermore, totals will tend to be underestimated unless allowance is made for the loss of data due to nonresponse.

Two methods commonly used to compensate for survey nonresponse are data imputation and the adjustment of sampling weights. For NMCUES, imputation was used to compensate for attrition and item nonresponse, and weight adjustment was used to compensate for total nonresponse. The calculation of the weight adjustment factors is discussed in the section on sampling weights.

A specialized form of the sequential hot-deck imputation method was used for attrition imputation. First, each sample person with incomplete annual data (hereafter referred to as a "recipient") was linked to a sample person with similar demographic and socioeconomic characteristics who had complete annual data (hereafter referred to as a "donor"). Second, the time periods for which the recipient had missing data were divided into two categories: imputed eligible days and imputed ineligible days. The imputed eligible days were those days for which the donor was eligible (that is, in scope) and the imputed ineligible days were those days for which the donor was ineligible (that is, out of scope). For the recipient's imputed eligible days, the donor's medical care experiences (such as medical provider visits, dental visits, or hospital stays) were imputed into the recipient's record. Finally, the results of the attrition imputation were used to make the final determination of a person's respondent status. If more than two-thirds of the person's total eligible days (both reported and imputed) were imputed, then the person was considered to be a total nonrespondent, and all data for the person were removed from the analytic data file.

The data collection methodology and field quality control procedures for NMCUES were designed so that the data would be as accurate and complete as possible subject to budget considerations. However, individuals cannot report data that are unknown to them, or they may choose not to report the data even if known. This latter situation is especially true for data relating to

expenditures, income, and other sensitive topics. Because of the size and complexity of the NMCUES data base it was not feasible, from the standpoint of cost, to replace all missing data for all data items. The 12-month data files, for example, contain approximately 1,400 data items per person. With this in mind, the NMCUES approach was to designate a subset of the total items on the data base for imputation of the missing data. Thus, for 5 percent of the NMCUES data items the responses were edited and missing data imputed by a combination of logic and hot-deck procedures to produce revised variables for use in analysis. Items for which imputations were made cover the following data areas:

- Visit charges.
- Source of payment codes and amounts.
- Annual disability days.
- Health insurance premium amount.
- Length of hospital stay.
- Total weeks worked in 1980.
- Average hours worked per week.
- Educational level.
- Hispanic ethnicity.
- Income.
- Age and birthdate.
- Race.
- Sex.
- Health insurance coverage.
- Visit dates.

These items were selected as the most important variables for statistical analyses.

Weighting and Estimation

For the analysis of NMCUES data, sample weights are required to reflect the complex sample design and to adjust for the potential biasing effects of systematic nonsampling errors related to total nonresponse and sampling frame undercoverage. Data imputation procedures, discussed in the preceding section, were used to compensate for attrition and item nonresponse.

Development of weights reflecting the sample design of NMCUES was the first step in the computation of person-level analytical weights. The basic sample-design weight for a dwelling unit is the product of four weight components that correspond to the four stages of sample selection. Each of the four weight components is either the inverse of the probability of selection at the stage when sampling was without replacement, or it is the inverse of the expected number of selections when sampling was with replacement and multiple selection of the sample unit was possible.

As previously discussed, the NMCUES sample is

composed of two independently selected samples. Each sample, together with its basic sampling weights, yields independent unbiased estimates of population parameters. Because the two NMCUES samples were of approximately equal size, a simple average of the two independent estimators was used for the combined sample estimator. This is equivalent to defining an adjusted basic weight by dividing each basic sample weight by 2. Hereafter only the combined sample and the adjusted basic weights are considered.

The total nonresponse-undercoverage adjustment factor is computed at the reporting unit (RU) level. Because every RU within a dwelling unit is included in the sample, the adjusted basic weight assigned to an RU is simply the adjusted basic weight for the dwelling unit in which the RU is located. As noted above, an RU was classified as responding if the RU initially agreed to participate in NMCUES and as nonresponding otherwise.

Initially 96 RU weight adjustment cells were formed by cross-classifying the following RU variables: race of RU head (white or all other), type of RU head (female, male, or husband-wife), age of RU head (four levels), and size of RU (four levels). These cells were then collapsed to 63 cells so that each cell contained at least 20 responding RU's.

The formula for computing the total nonresponse-undercoverage adjustment factor for RU's in cell C was

$$A_1(C) = \frac{\text{CPS}(C)}{\sum_{k \in C} \phi(k) W_1(k)}$$

where $\text{CPS}(C)$ = March 1980 Current Population Survey estimate of the number of RU's in cell C

$$\phi(k) = \begin{cases} 1 & \text{if } k\text{th RU was classified as} \\ & \text{responding} \\ 0 & \text{otherwise} \end{cases}$$

$W_1(k)$ = the adjusted basic weight for the k th RU

The nonresponse-undercoverage adjusted weight for the k th RU, denoted by $W_2(k)$, was then computed as the product of the adjusted basic weight for k th RU and the nonresponse-undercoverage adjustment factor for the cell containing the RU.

The poststratification adjustment factor is computed at the person level. As each person within an RU is included in the sample, the nonresponse-undercoverage adjusted weight for a sample person is the nonresponse-undercoverage adjusted weight for the RU in which the person resides. Each person was classified as responding or nonresponding as discussed in the section on attrition imputation.

Initially, 60 poststrata were formed by cross-classifying the following three variables: age (15 levels), race (black or all other), and sex (male or female). One

poststratum (black males over 75 years of age) had fewer than 20 respondents, so it was combined with an adjacent poststratum (black males 65–74 years of age), resulting in 59 poststrata.

Estimates based on the 1980 census of the U.S. civilian noninstitutionalized population by age, race, and sex for February 1, May 1, August 1, and November 1, 1980, were obtained from the U.S. Bureau of the Census. The mean of the mid-quarter population estimates for each of the poststrata was computed and used as the 1980 average target population in calculating the poststrata adjustment factors. Similarly, survey based estimates of the average poststrata population were developed using the nonresponse-undercoverage adjusted weights. First, a survey based estimate of the target population of poststratum p at mid-quarter q was computed as follows:

$$S(p, q) = \sum_{j \in p} \delta(q, j) W_2(j)$$

where

$$\delta(q, j) = \begin{cases} 1 & \text{if survey respondent } j \text{ was in} \\ & \text{scope at mid-quarter } q \\ 0 & \text{otherwise} \end{cases}$$

$W_2(j)$ = nonresponse-undercoverage adjusted weight of respondent j .

The survey based estimate of the 1980 average population for poststratum p was computed as the mean of the 4 mid-quarter estimates, or

$$S(p) = \frac{1}{4} \times \sum_{q=1}^4 S(p, q)$$

The poststratification adjustment factor for the p th poststratum was then computed as

$$A_2(p) = \frac{C(p)}{S(p)}$$

where $C(p)$ = mean 1980 population for poststratum p based on U.S. Bureau of Census data. The poststratified weight for the j th respondent, denoted by $W_3(j)$, was then computed as the product of the nonresponse-undercoverage adjusted weight for the j th respondent and poststratification adjustment factor for the poststrata containing the respondent.

For many analyses estimates of the average 1980 population are required. Because some respondents were eligible for only a portion of the year, the aggregation of the W_3 weights for all respondents is an estimate of the total number of persons who were in the civilian noninstitutionalized population of the United States in 1980 and is an overestimate of the average 1980 population size. Therefore an adjustment factor was calculated for each respondent to reflect the proportion of time

during 1980 the respondent was eligible to report NMCUES data. This adjustment factor for respondent j is

$$A_3(j) = \frac{E(j)}{366}$$

where $E(j)$ = number of days during 1980 respondent j was in scope.

Estimators

Weighted linear estimators are used for estimating population and population subdomain aggregates. Suppose, for example, an estimate of the parameter “total doctor visit charges for persons 65 years of age and over” is desired.

The estimator of this parameter, denoted by $\hat{\theta}$, is given by

$$\hat{\theta} = \sum_{j \in A} W_3(j) X_j$$

where A is the collection of all NMCUES respondents 65 years of age and over and X_j is the total doctor visit charges reported by the j th respondent during the eligible period.

Ratio estimators are used for estimating population and population subdomain parameters such as means, proportions, and rates. As will be illustrated in the following examples, care must be taken in determining the appropriate weights to be used in the denominator of the ratio estimator.

Example 1—NMCUES estimator for the proportion of doctor visits attributable to persons 65 years of age and over is given by

$$\hat{\theta} = \frac{\sum_{j \in A} W_3(j) Y_j}{\sum_{\text{All } j} W_3(j) Y_j}$$

where Y_j is the number of doctor visits reported by the j th respondent.

Example 2—The NMCUES estimator for mean annual doctor visit charges for persons 65 years of age and over is given by

$$\hat{\theta} = \frac{\sum_{j \in A} W_3(j) X_j}{\sum_{j \in A} W_3(j) A_3(j)}$$

where X_j is the total doctor visit charges reported by the j th respondent during his or her eligible period, and $A_3(j)$ is the time adjustment factor for the j th respondent. The time adjustment factor is used in this

situation to adjust for the fact that the j th respondent contributed doctor visit charges to the numerator only during the period of eligibility.

Reliability of Estimates

The estimates presented in this report are based on a sample of the target population rather than on the entire population. Thus the values of the estimates may be different from values that would be obtained from a complete census. The difference between a sample estimate and the population value is referred to as the sampling error, and the expected magnitude of the sampling error is measured by a statistic called the standard error. Estimated standard errors for the estimates presented in Table 1 are shown in Table I, estimated standard errors for estimates presented in Table 2 are shown in Table II, and so forth, to Tables 9 and IX.

The SESUDAAN (Shah, 1981) standard error estimation software package was used to produce the estimates of standard errors. SESUDAAN is a Taylor Series procedure, developed and released by the Research Triangle Institute. It runs within the Statistical Analysis System (SAS Institute, Inc., 1982).

It should also be noted that in addition to sampling error, the estimates presented in this report are subject to nonsampling errors such as biased interviewing and reporting, undercoverage, and nonresponse. The standard error does not provide an estimate of these types of errors. However, as discussed in preceding sections, every effort was made to minimize these errors.

Suppose that θ is an unbiased estimator for the parameter θ , and $S_{\hat{\theta}}$ is a consistent estimator for the standard error of $\hat{\theta}$. Under appropriate central limit theorem assumptions regarding $\hat{\theta}$, the statistic $Z = (\hat{\theta} - \theta) / S_{\hat{\theta}}$ has an approximate standard normal distribution for large samples. Thus, an approximate $(1 - \alpha) \times 100$ -percent confidence interval for θ is given by

$$(\hat{\theta} + z_{\alpha/2} S_{\hat{\theta}}, \hat{\theta} + z_{1-\alpha/2} S_{\hat{\theta}})$$

where $z_{\alpha/2}$ and $z_{1-\alpha/2}$ are the appropriate values from a standard normal table.

As an example, Table 1 shows the estimate that 29.3 percent of all visits to nurses by persons in the civilian noninstitutionalized population of the United States occurred in doctors' offices. Table I shows a standard error estimate of 3.68 percentage points for this particular estimate. Because 68 percent of the area under the normal curve is within 1 standard error of the midpoint, 95 percent of the area within 2 standard errors, and 99 percent of the area within 2.5 standard errors, we infer the following: Chances are 68 out of 100 that the true value is 29.3 ± 3.68 or between 25.62 and 32.98 percent; chances are 95 out of 100 that the true value is $29.3 \pm 2(3.68)$, or between 21.94 and 36.66 percent; and chances are 99 out of 100 that the true

value is $29.3 \pm 2.5(3.68)$, or between 20.1 and 38.5 percent.

Confidence intervals for the difference of two parameters can be constructed in a similar manner. Suppose θ_1 and θ_2 are the values of the parameters of interest in two mutually exclusive population subgroups. If $\hat{\theta}_1$ and $\hat{\theta}_2$ are unbiased estimators of θ_1 and θ_2 respectively, then $\hat{d} = \hat{\theta}_1 - \hat{\theta}_2$ is unbiased for $d = \theta_1 - \theta_2$ and

$$\text{Var}(\hat{d}) = \text{Var}(\hat{\theta}_1) + \text{Var}(\hat{\theta}_2) - 2 \text{Cov}(\hat{\theta}_1, \hat{\theta}_2)$$

Unfortunately the estimation of $\text{Var}(\hat{d})$ presents a problem because it is not possible for the National Center for Health Statistics to provide the reader with covariance estimates for all possible pairs of subdomains of potential interest. However, if it is reasonable to assume that $\text{Cov}(\hat{\theta}_1, \hat{\theta}_2) = 0$, the standard error of d can be estimated by

$$S_{\hat{d}} = \sqrt{S_{\hat{\theta}_1}^2 + S_{\hat{\theta}_2}^2}$$

Then, under appropriate central limit theorem assumptions regarding d , the statistic $Z_d = (\hat{d} - d) / S_{\hat{d}}$ has an approximate standard normal distribution for large samples, and the interval

$$(\hat{d} + z_{\alpha/2} S_{\hat{d}}, \hat{d} + z_{1-\alpha/2} S_{\hat{d}})$$

is an approximate $(1 - \alpha) \times 100$ -percent confidence interval for the difference d .

By way of example, suppose we wanted to construct a 95-percent confidence interval for the difference between the percent of payments for charges for visits to psychologists paid by insurance or prepayment plan (θ_1) and the percent of payments for charges for visits to nurses paid by insurance or prepayment plan (θ_2). From Table 3 we have $\hat{\theta}_1 = 16.3$ and $\hat{\theta}_2 = 31.5$ so that

$$\begin{aligned} \hat{d} &= \hat{\theta}_1 - \hat{\theta}_2 \\ &= 16.3 - 31.5 \\ &= -15.2 \end{aligned}$$

Also, from Table III we have $S_{\hat{\theta}_1} = 3.83$ and $S_{\hat{\theta}_2} = 4.67$ so that

$$\begin{aligned} S_{\hat{d}} &= \sqrt{S_{\hat{\theta}_1}^2 + S_{\hat{\theta}_2}^2} \\ &= \sqrt{14.67 + 21.81} \\ &= \sqrt{36.48} \\ &= 6.04 \end{aligned}$$

Then as $\alpha = .05$, it follows that $z_{\alpha/2} = -1.96$ and $z_{1-\alpha/2} = 1.96$, so that the 95-percent confidence interval for the difference of interest is $(-27.04, -3.36)$.

The reader should be aware that the assumption that $\text{Cov}(\hat{\theta}_1, \hat{\theta}_2) = 0$ is frequently not true for complex sample surveys. This warning is especially germane for sample designs, such as the NMCUES design, which rely on cluster sampling at one or more stages of sample selection. If $\text{Cov}(\hat{\theta}_1, \hat{\theta}_2)$ is positive, the confidence interval will tend to be too large, and hence the confidence level will be understated. More seriously, if $\text{Cov}(\hat{\theta}_1, \hat{\theta}_2)$ is negative, the confidence interval will tend to be too small, and the confidence level will be overstated.

The statistics Z and Z_d can be used to test hypotheses. For example, the size α critical region for the composite hypothesis

$$H_0: d \geq d_0$$

versus

$$H_A: d < d_0$$

is given by

$$Z_{d_0} = \frac{\hat{d} - d_0}{S_{\hat{d}}} \leq z_{\alpha}$$

As an example, suppose that we had an a priori reason to believe that the percent of payments for charges for visits to nurses paid by self or family (θ_1) is less than the percent of payments for charges for visits to podiatrists which were paid by self or family (θ_2). Letting $d = \theta_1 - \theta_2$, this can be restated as a formal hypothesis as

$$H_0: d \geq 0$$

versus

$$H_A: d < 0$$

Note that what we believe to be the true state of nature is reflected by the one-sided alternative.

From Table 3 and Table III we see that

$$\hat{d} = 25.7 - 44.6 = -18.9$$

and

$$\begin{aligned} S_{\hat{d}} &= \sqrt{20.43 + 5.38} \\ &= 5.08 \end{aligned}$$

so that $Z_{d_0} = -3.72$. Then, assuming that the level of significance had been set at $\alpha = .01$ (which implies the one-tailed critical value as $z_{\alpha} = -2.33$), we would reject H_0 in favor of H_A as $Z_{d_0} \leq z_{\alpha}$.

As discussed in connection with the construction of confidence intervals, the assumption that $\text{Cov}(\hat{\theta}_1, \hat{\theta}_2) = 0$ must be carefully evaluated. If in fact the covariance is positive, the size of the test will be smaller than α ; and if the covariance is negative, the size of the test will be larger than α . The reader desiring to conduct more sophisticated analyses of the NMCUES data is advised to consult with a statistician knowledgeable in the analysis of data from complex sample surveys.

Table I
Sample sizes and standard errors of estimates relating to visits in Table 1

Place of visit	Physicians	All other practitioners	Nurses	Optometrists	Chiropractors	Podiatrists	Psychologists	Paramedics	Physical therapists	Social workers or counselors	Laboratory technicians	Radiology technicians	Other technicians	Other practitioners
<i>Number of visits in the sample</i>														
All visits	53,947	27,975	8,314	2,137	5,536	1,012	2,020	471	2,265	868	1,889	662	335	2,466
<i>Standard errors of total visits in thousands</i>														
All visits	10,734	10,734	6,282	1,335	6,597	1,183	4,136	1,434	3,771	2,385	1,461	1,176	1,637	4,116
<i>Standard errors of percents of visits in percentage points</i>														
Doctor's office	1.34	2.08	3.68	1.54	2.29	1.41	5.75	4.24	5.29	6.03	1.01	5.34	8.46	3.60
Doctor's clinic	0.92	0.76	1.36	0.80	2.01	0.35	1.24	3.86	1.06	0.71	0.58	0.41	0.73	0.53
Neighborhood health center	0.22	0.58	0.84	0.21	—	0.78	3.46	1.40	0.25	9.51	0.18	0.61	0.55	1.11
Company clinic	0.07	0.46	1.52	0.21	—	—	0.05	1.10	—	0.10	0.08	0.17	0.50	0.53
School clinic	0.16	1.02	2.09	0.15	—	—	0.79	—	5.14	0.13	0.08	0.32	0.36	1.57
Other clinic	0.16	0.98	1.82	0.63	0.39	0.30	4.95	3.01	1.23	3.42	0.28	1.48	17.47	2.64
Home	0.33	1.74	4.18	0.05	0.51	0.69	—	1.40	1.95	1.98	0.19	—	2.51	8.83
Laboratory	0.03	0.33	0.34	—	—	0.08	—	0.84	0.13	—	2.70	3.85	8.59	0.89
Hospital outpatient clinic	0.82	0.99	0.93	0.30	0.02	0.39	1.22	11.49	5.66	2.39	2.85	6.58	2.68	2.03
Other	0.15	0.79	0.75	1.16	0.99	0.24	4.84	2.32	2.85	8.55	0.62	1.63	13.03	3.26
Unknown	0.08	0.23	0.25	0.34	0.47	0.40	0.74	0.64	0.90	1.93	0.17	0.19	0.50	1.80

Table II
Sample sizes and standard errors of estimates relating to persons with visits in Table 2

M.D. specialist	Physicians	All other practitioners	Nurses	Optometrists	Chiropractors	Podiatrists	Psychologists	Paramedics	Physical therapists	Social workers or counselors	Laboratory technicians	Radiology technicians	Other technicians	Other practitioners
Number of persons in the sample														
All persons	12,084	5,798	2,259	1,557	662	337	216	214	209	117	1,114	452	122	787
Standard errors of total persons in thousands														
All persons	580	1,412	848	771	619	275	264	325	210	190	692	404	175	440
Standard errors of percents in percentage points														
Any physician	0.00	0.63	0.89	1.29	1.96	1.53	2.16	2.64	0.73	2.88	0.53	1.17	1.58	1.24
General practitioners	0.99	0.99	1.34	1.79	2.16	2.81	3.76	3.96	3.49	4.50	1.59	2.87	3.98	2.23
Specialists in:														
Allergy	0.13	0.21	0.48	0.31	0.61	0.73	1.17	0.41	1.03	1.38	0.47	0.72	0.81	0.55
Dermatology	0.24	0.30	0.47	0.60	0.64	1.14	1.78	1.83	1.57	2.66	0.80	1.01	1.52	0.62
Internal medicine	0.60	0.71	0.82	1.00	1.54	2.41	2.29	2.52	2.86	2.66	1.63	2.18	3.77	1.63
Pediatrics	0.50	0.45	0.84	0.61	0.46	0.95	1.90	4.44	1.75	2.62	0.87	1.05	2.35	1.17
General surgery	0.28	0.34	0.48	0.49	0.69	1.62	1.55	1.78	2.07	2.15	0.83	1.50	3.58	0.83
Obstetrics and gynecology	0.41	0.53	0.74	1.01	1.35	1.76	2.61	2.46	2.37	2.96	1.41	1.81	3.14	1.27
Ophthalmology	0.45	0.52	0.90	0.76	1.52	2.34	2.48	1.79	3.18	3.82	1.25	1.73	4.32	1.33
Orthopedic surgery	0.30	0.49	0.70	0.61	1.08	1.90	2.17	2.32	3.85	4.12	1.00	1.71	2.77	1.16
Otolaryngology	0.25	0.37	0.52	0.65	0.82	1.07	2.04	2.06	1.74	3.28	0.95	1.22	2.23	0.94
Urology	0.16	0.23	0.37	0.29	0.62	1.05	0.42	1.35	1.31	—	0.74	1.07	2.00	0.62
Other surgical specialties	0.14	0.19	0.25	0.32	0.69	0.68	0.92	1.02	2.15	0.89	0.60	1.10	1.00	0.55
Neurology	0.12	0.19	0.25	0.29	0.68	0.50	0.99	0.70	2.54	1.71	0.60	0.63	2.22	0.52
Psychiatry	0.18	0.26	0.34	0.39	0.58	0.79	3.31	1.05	1.86	2.99	0.47	0.84	0.90	1.14
Radiology	0.16	0.22	0.25	0.37	0.56	1.07	1.29	0.65	2.10	2.01	0.65	1.51	2.06	0.65
Other specialty	0.14	0.18	0.29	0.23	0.55	1.09	1.64	0.80	1.30	2.01	0.39	0.77	1.39	0.67
Osteopaths	0.08	0.11	0.13	0.15	0.36	0.60	0.49	—	1.13	—	0.24	0.28	0.96	0.49
Unknown type of specialty	0.26	0.36	0.56	0.46	1.13	2.32	2.15	1.68	2.39	2.43	0.73	1.26	2.51	0.90
Unknown if GP or specialist	0.42	0.49	0.79	0.51	1.07	1.68	2.23	1.68	2.34	3.25	1.02	1.25	2.01	1.23

Table III
Sample sizes and standard errors of estimates relating to payments for visits in Table 3

Source of payment	Physicians	All other practitioners	Nurses	Optometrists	Chiropractors	Podiatrists	Psychologists	Paramedics	Physical therapists	Social workers or counselors	Laboratory technicians	Radiology technicians	Other technicians	Other practitioners	
Sample amounts in thousands of dollars															
All sources	1,788	672	114	99	85	26	59	11	56	21	71	42	19	67	
Standard errors of total amounts in millions of dollars															
All sources	371	371	142	69	116	37	133	31	123	80	64	99	166	143	
Standard errors of percents in percentage points															
Medicare	0.90	2.32	2.65	0.87	0.78	4.14	1.47	0.46	7.23	0.45	1.16	5.20	14.91	8.44	
Medicaid	0.68	0.89	1.71	0.85	1.12	1.37	4.08	1.88	1.67	8.43	1.89	1.34	0.08	2.24	
Other government—military:															
Military	0.72	0.51	0.69	0.19	—	0.13	1.56	12.61	0.74	0.56	0.52	0.04	—	0.82	
Veterans Administration	0.33	0.49	0.25	—	—	—	2.91	0.58	0.41	1.95	0.30	—	—	1.57	
CHAMPUS or CHAMPVA	0.12	0.12	0.12	0.02	—	0.34	—	1.71	0.84	—	0.51	0.06	0.44	0.12	
Other government—nonmilitary:															
Federal Government	0.25	0.47	0.65	0.08	0.26	—	0.34	4.89	4.02	—	0.07	0.09	1.82	0.46	
Indian Health Service	0.05	0.02	—	—	—	—	—	—	—	—	0.16	—	—	—	
State or local government	0.29	0.77	1.62	0.11	0.04	0.04	3.12	0.67	1.69	13.79	0.50	1.32	1.47	0.53	
Workers compensation	0.17	0.37	0.32	—	1.68	—	—	0.20	2.80	—	0.05	0.49	1.06	0.27	
Public assistance	0.20	0.16	0.19	0.27	0.30	—	0.70	0.21	—	3.38	0.03	—	—	—	
Insurance or prepayment plan	0.91	1.50	4.67	1.42	3.93	4.89	3.83	7.80	6.04	9.39	2.17	5.39	4.89	2.98	
Individuals:															
Self or family	0.90	1.55	2.32	1.75	3.62	4.52	5.94	3.55	2.93	7.08	1.84	3.14	7.40	5.95	
Other relatives or individuals	0.04	0.14	0.19	0.31	0.18	1.11	1.12	0.11	0.11	—	0.05	—	—	0.14	
Other sources:															
Company or employer clinic	0.20	0.89	1.04	0.32	0.30	0.33	0.04	0.68	8.38	—	0.76	0.87	—	0.50	
Union	0.14	0.22	0.03	0.61	1.01	1.21	0.25	—	0.59	0.27	0.47	0.26	0.29	0.16	
School or school clinic	0.08	0.71	1.95	—	—	—	2.65	0.94	2.21	0.48	0.00	0.19	—	1.79	
Philanthropy	0.01	0.07	0.36	0.01	—	—	0.08	—	0.11	0.23	—	—	—	0.09	
Other sources	0.21	0.52	0.54	0.19	0.19	0.07	0.53	1.00	4.41	1.89	0.74	0.23	0.12	1.35	
Unknown	0.08	0.17	0.28	0.16	0.63	0.87	0.04	0.07	0.95	0.22	0.32	0.54	0.09	0.52	

Table IV
Sample sizes and standard errors of estimates relating to persons with visits in Table 4

Number of visits	Physicians	All other practitioners	Nurses	Optometrists	Chiropractors	Podiatrists	Psychologists	Paramedics	Physical therapists	Social workers or counselors	Laboratory technicians	Radiology technicians	Other technicians	Other practitioners
Number of persons in the sample														
All persons	12,084	5,798	2,259	1,557	662	337	216	214	209	117	1,114	452	122	787
Standard errors of total persons in thousands														
All persons	580	1,412	848	771	619	275	264	325	210	190	692	404	175	440
Standard errors of percents in percentage points														
1 visit	0.52	0.76	0.98	1.15	1.68	2.81	3.01	3.14	2.92	5.45	1.39	1.89	4.81	1.94
2 visits	0.33	0.46	0.85	0.92	1.42	2.01	2.47	2.19	1.60	3.64	1.09	1.75	3.12	1.29
3 visits	0.31	0.45	0.49	0.47	1.07	1.87	1.90	1.95	1.91	1.72	0.67	0.69	2.04	0.95
4 visits	0.29	0.29	0.35	0.29	1.09	1.44	1.28	1.45	1.53	2.50	0.48	0.31	1.19	0.59
5-9 visits	0.43	0.43	0.58	0.28	1.24	1.73	2.61	0.92	3.37	3.48	0.61	0.21	1.89	0.92
10-14 visits	0.28	0.27	0.40	0.13	1.36	1.17	2.04	0.26	1.93	3.84	0.27	0.16	-	0.57
15-19 visits	0.14	0.17	0.24	-	0.84	0.52	1.49	-	1.53	1.76	0.22	0.34	-	0.40
20-29 visits	0.14	0.19	0.32	0.09	0.91	-	1.52	0.30	2.27	2.02	-	0.09	2.08	0.32
30-49 visits	0.08	0.18	0.23	-	0.81	-	1.70	0.48	1.34	2.12	0.08	0.28	-	0.32
50 visits or more	0.04	0.16	0.20	-	0.59	-	0.98	0.35	1.46	1.03	-	-	0.94	0.33
Standard errors of average numbers of visits														
Average per person	0.08	0.17	0.23	0.03	0.51	0.18	1.09	0.37	1.19	1.12	0.06	0.15	1.03	0.39

Table V
Sample sizes and standard errors of estimates relating to visits in Table 5

Type of service	Physicians	All other practitioners	Nurses	Optometrists	Chiropractors	Podiatrists	Psychologists	Paramedics	Physical therapists	Social workers or counselors	Laboratory technicians	Radiology technicians	Other technicians	Other practitioners
Number of visits in the sample														
All visits	53,947	27,975	8,314	2,137	5,536	1,012	2,020	471	2,265	868	1,889	662	335	2,466
Standard errors of total visits in thousands														
All visits	10,734	10,734	6,282	1,335	6,597	1,183	4,136	1,434	3,771	2,385	1,461	1,176	1,637	4,116
Standard errors of percents in percentage points														
Diagnosis or treatment	0.49	0.89	1.84	2.18	3.21	1.02	4.00	6.49	0.08	5.74	1.38	2.45	3.31	3.45
General checkup	0.32	0.17	0.59	0.47	0.20	0.38	0.12	1.84	-	-	0.69	0.94	0.94	0.48
Prenatal or postnatal	0.31	0.22	0.42	0.04	0.08	0.08	-	0.60	-	4.28	0.55	0.64	0.58	0.59
Immunization	0.10	0.36	1.00	0.05	-	0.09	-	11.15	-	0.15	0.24	0.16	-	1.05
Eye exam for glasses	0.11	0.31	0.07	2.17	0.02	0.28	-	0.52	-	-	0.07	-	0.27	0.96
Family planning	0.15	0.08	0.19	0.05	-	-	-	0.91	-	0.62	0.31	0.39	0.33	0.34
Other	0.42	1.86	3.06	1.54	3.59	1.39	5.41	6.34	2.54	7.15	2.18	3.89	10.63	6.53
Unknown	0.04	0.03	0.04	0.08	-	-	0.23	0.27	-	-	0.11	0.14	-	1.79

Table VI
Sample sizes and standard errors of estimates relating to visits in Table 6

Condition	Physicians	All other practitioners	Nurses	Optometrists	Chiropractors	Podiatrists	Psychologists	Paramedics	Physical therapists	Social workers or counselors	Laboratory technicians	Radiology technicians	Other technicians	Other practitioners
Number of visits in the sample														
All visits	53,947	27,975	8,314	2,137	5,536	1,012	2,020	471	2,265	868	1,889	662	335	2,466
Standard errors of total visits in thousands														
All visits	10,734	10,734	6,282	1,335	6,597	1,183	4,136	1,434	3,771	2,385	1,461	1,176	1,637	4,116
Standard errors of percents in percentage points														
Infectious and parasitic diseases	0.21	0.16	0.18	0.08	0.03	3.01	0.19	1.34	—	—	0.60	0.52	0.88	0.26
Malignant neoplasms	0.21	0.30	0.32	—	0.11	—	—	0.21	—	0.25	0.94	8.22	1.24	0.49
Endocrine and metabolic diseases, immunity disorders ..	0.26	0.74	1.78	0.03	0.37	0.79	—	1.50	1.21	2.05	1.68	0.39	2.93	5.54
Mental disorders	0.43	1.25	0.78	0.05	0.60	—	7.41	0.52	0.05	9.05	1.40	0.34	0.30	1.93
Diseases of the nervous system	0.30	1.16	2.52	0.08	1.52	0.84	—	0.28	6.11	0.26	0.40	0.60	0.31	3.48
Disorders of the eye and adnexa	0.19	0.35	0.16	2.25	0.66	0.15	—	0.83	0.59	—	0.20	0.38	0.39	1.40
Diseases of the ear and mastoid process	0.20	0.18	0.22	0.07	0.72	—	0.06	1.31	0.04	—	0.44	0.21	0.70	0.80
Diseases of the circulatory system	0.53	1.40	2.83	0.05	0.94	0.39	0.50	1.72	3.72	0.76	1.61	0.81	4.06	6.55
Diseases of the respiratory system	0.42	0.90	2.33	0.08	0.54	0.21	—	4.33	0.65	0.10	0.60	1.58	7.95	2.31
Diseases of the digestive system	0.21	0.23	0.67	—	0.41	—	0.05	0.84	0.13	0.22	1.29	1.46	0.61	0.22
Diseases of the genitourinary system	0.57	0.48	0.72	—	0.11	—	—	1.29	—	0.24	0.93	2.52	17.81	2.13
Obstetric and gynecological conditions	0.29	0.22	0.41	0.04	0.08	—	—	0.60	—	4.28	0.53	0.64	0.48	0.53
Diseases of skin and subcutaneous tissue	0.28	0.36	0.67	0.06	0.46	4.09	—	7.62	—	—	0.28	0.49	2.25	0.40
Diseases of the musculoskeletal system and connective tissue	0.34	1.34	2.24	0.09	3.36	3.15	0.32	1.69	6.08	0.11	1.13	1.82	1.67	4.74
Signs, symptoms, and ill-defined conditions	0.24	0.92	0.43	0.18	0.57	1.15	6.47	1.00	3.14	6.38	0.63	1.54	2.03	3.63
Injuries and poisonings	0.34	1.24	2.25	0.46	3.07	2.65	—	4.73	7.59	0.08	1.39	2.60	1.75	1.62
Other or unknown conditions	0.17	0.81	2.29	0.04	0.69	1.12	0.63	1.09	2.91	0.24	1.08	0.54	2.13	0.50
No condition	0.44	0.99	1.65	2.18	3.19	1.19	4.58	6.18	0.06	5.49	1.48	2.49	3.39	3.53

Table VII

Sample sizes and standard errors of estimates relating to visits in Table 7

Item	Physicians	All other practitioners	Nurses	Optometrists	Chiropractors	Podiatrists	Psychologists	Paramedics	Physical therapists	Social workers or counselors	Laboratory technicians	Radiology technicians	Other technicians	Other practitioners
Number of visits in the sample														
All visits	53,947	27,975	8,314	2,137	5,536	1,012	2,020	471	2,265	868	1,889	662	335	2,466
Standard errors of total visits in thousands														
All visits	10,734	10,734	6,282	1,335	6,597	1,183	4,136	1,434	3,771	2,385	1,461	1,176	1,637	4,116
Standard errors of percents in percentage points														
Percent with x-rays	0.25	0.32	0.18	0.21	0.63	0.98	...	1.03	...	...	1.74	8.47	3.09	0.67
Percent with laboratory tests	0.58	0.57	1.46	0.63	0.39	0.38	...	3.13	...	...	1.72	1.54	9.09	1.23
Percent with EKG's, EEG's, or other tests	0.34	0.18	0.36	0.85	0.28	0.45	...	1.76	...	...	0.95	1.22	3.13	0.55

Table VIII
Sample sizes and standard errors of estimates relating to visits in Table 8

Charge for visit	Physicians	All other practitioners	Nurses	Optometrists	Chiropractors	Podiatrists	Psychologists	Paramedics	Physical therapists	Social workers or counselors	Laboratory technicians	Radiology technicians	Other technicians	Other practitioners
Number of visits in the sample														
All visits	53,947	27,975	8,314	2,137	5,536	1,012	2,020	471	2,265	868	1,889	662	335	2,466
Standard errors of total visits in thousands														
All visits	10,734	10,734	6,282	1,335	6,597	1,183	4,136	1,434	3,771	2,385	1,461	1,176	1,637	4,116
Standard errors of percents in percentage points														
None	0.45	1.44	3.48	0.93	3.23	0.82	2.20	3.74	2.04	2.52	0.89	1.51	2.43	1.76
\$3.00 or less	0.16	0.66	1.60	0.17	1.35	0.48	2.42	4.42	2.32	3.01	0.81	0.19	0.89	0.73
\$3.01-4.99	0.07	0.46	1.18	0.23	0.30	0.40	0.33	0.46	0.76	0.53	0.48	0.32	0.24	1.80
\$5.00-9.99	0.29	0.92	2.21	0.44	2.56	1.06	1.52	4.37	1.91	3.79	2.02	0.80	8.19	1.78
\$10.00-14.99	0.58	0.95	1.03	0.60	3.41	3.23	2.20	3.89	2.05	5.06	0.92	1.29	4.46	1.37
\$15.00-19.99	0.45	0.74	0.55	0.70	2.90	2.98	2.94	2.32	2.36	2.52	0.88	0.86	1.92	1.69
\$20.00-24.99	0.34	0.42	0.37	1.07	1.52	2.12	1.78	3.20	2.70	1.03	0.84	1.03	0.78	1.24
\$25.00-29.99	0.26	0.49	0.97	1.00	0.68	1.37	1.95	0.80	2.24	1.74	0.72	3.70	1.79	0.83
\$30.00-34.99	0.20	0.31	0.27	0.65	0.58	1.05	2.42	0.91	1.65	2.45	0.60	1.45	1.38	0.79
\$35.00-39.99	0.18	0.31	0.28	0.80	0.94	0.33	1.83	0.75	0.54	0.94	0.52	1.07	0.93	1.74
\$40.00-44.99	0.14	0.54	0.70	1.35	0.19	0.93	3.47	0.57	0.47	10.30	0.38	0.91	0.74	0.69
\$45.00-49.99	0.15	0.32	0.14	0.59	0.58	0.20	3.09	0.61	0.95	0.36	0.51	0.85	2.07	0.48
\$50.00-59.99	0.16	0.27	0.24	0.62	0.17	1.02	2.16	0.71	0.70	4.32	0.55	1.07	1.28	0.83
\$60.00-74.99	0.20	0.18	0.14	0.74	0.23	0.37	0.88	0.89	0.31	0.38	0.63	4.09	1.08	0.45
\$75.00-99.99	0.14	0.47	1.10	0.64	0.14	1.67	3.26	1.60	2.52	0.73	0.51	2.66	0.70	0.43
\$100.00 or more	0.17	0.44	0.21	1.00	0.23	0.76	0.24	1.10	0.84	0.58	0.72	4.46	14.23	2.10
Standard errors in millions of dollars														
Total charges	371	371	142	69	116	37	133	31	123	80	64	99	166	143
Standard errors in dollars														
Average charge	0.47	0.78	1.24	1.49	0.98	1.88	2.37	2.73	2.47	2.60	1.59	7.22	19.46	2.98
Average annual charge per person with visits	3.76	5.45	4.95	1.87	8.45	7.40	37.39	7.94	37.51	42.43	3.24	15.63	106.78	13.87

Table IX
Sample sizes and standard errors of estimates relating to visits in Table 9

Source of payment	Physicians	All other practitioners	Nurses	Optometrists	Chiropractors	Podiatrists	Psychologists	Paramedics	Physical therapists	Social workers or counselors	Laboratory technicians	Radiology technicians	Other technicians	Other practitioners
Number of visits in the sample														
All visits	53,947	27,975	8,314	2,137	5,536	1,012	2,020	471	2,265	868	1,889	662	335	2,466
Standard errors of total visits in thousands														
All visits	10,734	10,734	6,282	1,335	6,597	1,183	4,136	1,434	3,771	2,385	1,461	1,176	1,637	4,116
Standard errors of percents in percentage points														
Medicare	0.75	1.06	1.87	0.50	1.07	3.13	2.01	0.81	4.17	0.81	1.88	7.52	16.89	5.67
Medicaid	0.75	0.97	1.68	0.75	1.14	1.91	2.81	1.05	1.73	8.08	1.91	2.39	0.63	4.67
Other government—military:														
Military	0.38	0.49	0.28	0.21	—	0.13	0.69	14.47	0.38	0.33	0.57	0.20	—	0.39
Veterans Administration	0.18	0.52	0.12	—	—	—	3.84	0.76	0.50	0.49	1.22	—	—	1.77
CHAMPUS or CHAMPVA	0.09	0.10	0.15	0.07	—	0.10	—	1.13	0.90	—	0.19	0.19	0.36	0.10
Other government—nonmilitary:														
Federal	0.12	0.29	0.35	0.10	0.21	—	0.39	1.66	2.71	—	0.10	0.21	0.88	0.52
Indian Health Service	0.04	0.005	—	—	—	—	—	—	—	—	0.07	—	—	—
State or local government	0.18	0.74	0.65	0.35	0.06	0.08	6.13	0.60	2.39	11.11	0.29	1.88	8.19	1.03
Workers compensation	0.15	0.39	0.60	—	1.24	—	—	0.26	2.40	—	0.07	0.38	0.64	0.41
Public assistance	0.17	0.19	0.06	0.28	0.12	—	1.49	0.41	—	4.27	0.11	0.16	—	—
Insurance or prepayment plan ..	0.94	1.27	2.00	1.89	3.88	4.01	4.95	6.06	4.53	7.57	2.55	5.22	8.25	3.18
Individuals:														
Self or family	1.08	1.92	3.29	1.34	3.84	3.92	5.83	7.06	4.50	9.28	2.57	3.64	12.63	5.39
Other relatives or individuals	0.05	0.14	0.19	0.23	0.17	0.44	1.47	0.32	0.12	—	0.08	—	—	0.35
Other sources:														
Company or employer clinic ..	0.17	0.42	0.73	0.27	0.15	0.25	0.10	0.53	3.64	—	0.88	0.70	—	0.70
Union	0.16	0.33	0.04	0.60	1.39	0.67	0.05	—	0.78	0.17	0.32	0.37	1.32	0.13
School or school clinic	0.08	1.13	1.95	0.07	—	—	2.33	0.62	4.39	0.33	0.05	0.47	0.20	2.89
Philanthropy	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other sources	0.20	0.58	0.54	0.33	0.19	0.13	1.02	0.79	5.08	2.07	0.56	0.35	0.38	1.32
Free from provider	0.32	1.46	3.70	0.78	3.27	0.51	1.89	3.86	1.87	1.46	0.24	0.39	2.20	1.43
Unknown source or unpaid	0.03	0.11	0.13	0.04	0.02	—	0.04	—	1.03	0.12	0.16	0.15	0.26	0.52
Not applicable	0.03	0.05	0.07	0.08	0.08	0.09	0.22	0.14	0.33	0.27	0.08	—	—	0.27

Appendix II

Definition of Terms

Average charge per visit—The arithmetic mean calculated from charges reported by the household respondent without consideration for the amount actually paid or the source of payment. Zero charges were assigned to visits the household reported as free from the provider in response to three separate questions.

Average number of visits—The arithmetic mean calculated by dividing the number of visits to a particular type of practitioner by the number of persons having such visits during the year.

Condition—Any entry on the questionnaire that describes a departure from a state of physical or mental well-being. It is any illness, injury, complaint, impairment, or problem perceived by the respondent as inhibiting usual activities or as requiring medical treatment. Pregnancy, vasectomy, and tubal ligation were not considered to be conditions; however, related medical care was recorded as if they were conditions. Neoplasms were classified without regard to site. Conditions, except impairments, are classified by type according to the Ninth Revision of the International Classification of Diseases (World Health Organization, 1977) as modified by the National Health Interview Survey Medical Coding Manual (NCHS, 1979); these modifications make the code more suitable for a household interview survey. Impairments are chronic or permanent defects, usually static in nature, that result from disease, injury, or congenital malformation. They represent decrease or loss of ability to perform various functions, particularly those of the musculoskeletal system and the sense organs. Impairments are classified by using a supplementary code specified in the coding manual. In the supplementary code, impairments are grouped according to type of functional impairment and etiology.

Core Questionnaire—The basic interview instrument used during each interview to obtain data about health, health care, charges for health care, sources of payment, and health insurance coverage.

Emergency department—A hospital facility organized to provide medical services to people needing immediate medical or surgical intervention. The emergency department is staffed 24 hours a day. People receiving care in the emergency department may be admitted into a hospital.

Emergency department visit—A face-to-face

encounter between a patient (not necessarily ambulatory) and a medical person. Emergency department visits include encounters by patients transported to the emergency department by police or the emergency medical service. The visit may result in a hospital admission.

Family—A group of people living together related to each other by blood, marriage, adoption, or foster care status. An unmarried student 17–22 years of age living away from home was also considered part of the family even though his or her residence was in a different location during the school year.

Flat fee—A single charge for a service, a variety of services, or a series of visits. The single charge may have been paid in one lump sum or by installments, but in a way that could not be related to individual events of health care. If a hospitalization was involved, the total flat fee was assigned to the hospitalization and a zero charge was assigned to all visits. Otherwise, the flat fee was equally distributed among all the associated visits. Visits during and prior to 1980 were considered in the proration of the flat fee, but visits after December 31, 1980 could not be considered.

Group quarters—A structure occupied by five or more unrelated people who lived or ate together, or for whom there was neither direct access from the outside or through a common hall nor complete kitchen facilities. Only noninstitutional group quarters were included in the NMCUES sample frame.

HHS—National Household sample.

Hospital admission—The formal acceptance by a hospital of a patient who is provided room, board, and regular nursing care in a unit of the hospital. Included as a hospital admission is a patient admitted to the hospital and discharged on the same day. Also included is a hospital stay resulting from an emergency department visit.

Hospital outpatient department—A hospital-based ambulatory care facility organized to provide non-emergency medical services. Persons receiving services do not receive inpatient nursing care. Examples of outpatient departments or clinics are Pediatric, Obstetrics and Gynecology, Eye, and Psychiatric.

Hospital outpatient department visit—A face-to-face encounter between an ambulatory patient and a medical person. The patient comes to a hospital-based ambulatory

care facility to receive services and departs on the same day. If more than one department or clinic is visited on a single trip, each department or clinic visited is counted as a separate visit.

Household—Occupants of a housing unit or group quarters that was included in the sample. This could have been one person, a family of related people, a number of unrelated people, or a combination of related and unrelated people.

Housing unit—A group of rooms or a single room occupied or intended for occupancy as separate living quarters: That is, 1) the occupants did not live and eat with any other persons in the structure, and 2) there was either direct access from the outside or through a common hall, or there were complete kitchen facilities for the use of the occupants only.

Institution—A place providing room, board, and certain other services for the residents or patients. Correctional institutions, military barracks, and orphanages were always considered institutions for NMCUES. Places that provided health care were also identified as institutions if they provided either nursing or personal care services. Certain other facilities licensed, registered, or certified by a State agency or affiliated with a Federal, State, or local government agency were also defined as institutions. People residing in institutions were not included in the household samples.

Key person—A key person: 1) was an occupant of a National Household sampling unit or group quarter at the time of the first interview; 2) was related to and living with a State Medicaid Household sample case member at the time of the first interview; 3) was an unmarried student 17–22 years of age living away from home and related to a person in one of the first two groups; 4) was a related person who had lived with a person in the first two groups between January 1, 1980, and the round 1 interview, but was deceased or had been institutionalized; 5) was a baby born to a key person during 1980; or 6) was living outside the United States, was in the Armed Forces, or was in an institution at the time of the round 1 interview but who had joined a related key person.

MV—Medical visit or medical provider visit other than stays in a hospital or visits to a hospital emergency or outpatient departments. It was used as an identifier of the space on the control card for the interviewer to record the number of medical visits, as an interviewer instruction to record in that space, and as a prefix to page numbers in the hospital stay section of the Core Questionnaire.

Median charge per visit—The amount at which half the visits had lower charges and half had higher charges.

NMCUES—National Medical Care Utilization and Expenditure Survey.

NP—Next person. It was an interviewer instruction to ask the set of questions for the next person in the reporting unit or to go to the next section of the questionnaire if there were no additional people.

NV—Next visit. It was an instruction interviewer to ask the set of questions for the next reported visit, or to go to the next section of the questionnaire if there were no additional visits.

National household component—One component of NMCUES, consisting of multiple household interviews with an area probability sample of people in the noninstitutional population of the United States in 1980.

Nonkey person—A person related to a key person who joined him or her after the round 1 interview but was part of the civilian noninstitutionalized population of the United States at the date of the first interview.

OPD—Hospital outpatient department visit. OPD was used as an identifier of the space on the control card for the interviewer to record the number of hospital outpatient department visits, as an interviewer instruction to record in that space, and as a prefix to page numbers in the hospital stay section of the Core Questionnaire.

PID #—Participant identification number. It was a unique number assigned to a person for the duration of the survey.

PSU #—The primary sample unit number used to identify the first stage of the sample selection process.

Place of visit—For each medical provider visit the respondent was asked where the person saw the medical person, and the type of place was coded accordingly. (See Appendix III.)

Practitioners—Medical providers, i.e., all persons engaged in the prevention, diagnosis, and treatment of physical or mental health problems whether or not they had medical degrees. Included were persons such as chiropractors, speech therapists, faith healers, psychologists, and nurses, as well as medical and osteopathic doctors. The types of practitioners and the specialties of physicians visited by household members were as reported by the household respondent.

If a physician or osteopath was seen in a medical visit, no other practitioner who may have been seen in the same visit was recorded. If no physician was seen but a nonphysician practitioner was seen, that type of nonphysician practitioner was recorded as having been visited. If two or more types of nonphysician practitioners and no physicians were seen, then a visit was recorded for each type of nonphysician practitioner seen.

Principal RU respondent—The member of the reporting unit who provided the majority of the information for the people in the reporting unit.

Proxy respondent—As used in this survey, a proxy respondent was a person who provided information for people in the reporting unit but who was not a member of the reporting unit. A proxy respondent was used only when no member of the reporting unit could supply the information because of physical or mental incapacity.

RU—Reporting unit. The basic unit for reporting data in the household components of NMCUES. A reporting unit consisted of all related people residing in the same housing unit or group quarters. One person could give information for all members of the reporting unit.

RV—Repeat visit. This portion of the questionnaire was used if a number of visits were made by the same person to the same provider of health care for the same services and with the same charges.

REF. DATE—Reference date. The reference date was the date of the previous interview in most cases. For the first interview, however, it was January 1, 1980. For new persons, it was the date they joined the reporting unit.

Round—A round was the administrative term used to designate all interviews that occurred within a given period of time and that used the same instruments and procedures.

SMHS—State Medicaid Household sample.

Sample type—National Household sample or State Medicaid Household sample.

Segment #—A number used to identify the sample unit at a stage in the sample selection.

Sources of payment—The source of payment for the total charge was ascertained for each visit. Total payments from the family were determined first and then payments from other sources. No distinction was made between whether the payment had been made or was expected to be made in the future. The summary of responses review and updating allowed for sources to be added or deleted. Three separate sources could be recorded; if more than three sources of payments were involved (excluding the family), the three covering the highest amounts were recorded.

State Medicaid Household component—One component of NMCUES, consisting of interviews with households containing case members selected from the November 1979 Medicaid eligibility files of California, Michigan, New York, and Texas.

Summary of responses—A computer-generated report sent to the interviewer and reporting unit just prior to a follow-up interview. It contained summary information of previously reported health care, charges for the care, sources of payment, and health insurance coverage. It was designed for updating information, especially charges and sources of payment which may have not been available to the respondent at the time the health care was originally reported.

Total charge for visits—Information was collected on the total charge for the service or supply provided in each visit. The total charge included everything that was done or provided during the visit. This total charge was the amount billed, not necessarily the actual amount paid or accepted as payment by the provider of the care. Ideally a dollar-and-cent amount was available at the time of the interview. When this amount was not available at the time of the interview, the reasons were separated into several categories.

An unknown charge was recorded as such and could be obtained during the next interview during the review of the summary of responses. If the respondent reported that there was a very small or no charge for the visit, a probe question was asked. When Medicaid or welfare

covered the bill the respondent would probably have no idea how much it actually cost. Therefore, the interviewer was instructed for "Medicaid/Welfare" to skip the rest of the charge and source of payment series.

There may have been no charge reported because another source or sources would pay. This could have been an organization that provided services and was funded or reimbursed by members' fees or by public or private funds, such as a health maintenance organization, a prepaid health plan, private insurance, a public clinic, or a student health clinic. The code "free from provider" was used only when the provider gave a service for which he or she was not reimbursed, for example, a professional courtesy or volunteer service. A small charge—\$3.00 or less for a medical visit—sometimes is associated with a prepaid health plan or health maintenance organization. A small charge also may reflect the actual charge for the visit, and so additional questions were asked.

A person may receive a single charge for a service, a variety of services, or a series of visits. This single charge may be paid in a way that cannot be related to the individual events of health care. Such a charge was termed a "flat fee" (see definition).

Types of service (medical visits)—The type of service the respondent reported receiving was assigned by the interviewer to a precoded category. Each applicable service was coded into one of the following categories: Diagnosis or treatment, General checkup, Eye exam (for glasses), Immunization, Family planning, or Other. Services coded as Other were recorded by the interviewer and coded before entry into the computer. In order to have one service associated with each visit for the purposes of this report, a hierarchy for selecting one service was developed. Visits for services not known or visits for services not reported were excluded. The seven service categories, in order of priority, follow:

Prenatal or postnatal care includes visits related to care of the mother during pregnancy (prenatal care) and visits during the period just after delivery (postnatal care).

Diagnosis or treatment includes visits with an associated condition. The visit was for an examination or test to detect the presence of a disease or for a procedure to counter or manage the effects of a disease or injury. Excluded from this category are visits for a general checkup during which a condition was discovered.

Family planning includes visits for consultations relating to methods of birth control, sex education, genetic counseling, and so forth. If the respondent reported a tubal ligation or vasectomy, it was coded as Family planning.

Eye exam (for glasses) includes visits for examination of the eyes either to establish a need for eyeglasses or contact lenses or to modify the type of eyeglasses or contact lenses.

Immunization includes visits to receive shots or injections to prevent one or more particular diseases. Visits for allergy shots are included in the Diagnosis or treatment category.

General checkup includes visits to determine the general state of a person's health. This category includes physical examinations required for employment, entrance to school, and insurance; routine annual physical examinations; visits to the well-baby clinic, and so forth.

Other includes visits for medical services not mentioned in the previously described categories.

Visits—Medical provider visits other than stays in a hospital or visits to a hospital emergency departments. Visits to hospital outpatient departments were included. A visit was counted whenever a medical provider was seen for the purpose of receiving some health-related service or supply, except for visits to pharmacies or to dentists, which were counted elsewhere.

Appendix III

Survey Instrument

For all instruments used in the National Medical Care Utilization and Expenditure Survey, see Bonham (1983).

In each of the five rounds of interviewing, the interviewer asked a series of probe questions to determine whether any member of the family had received medical services during the reference period. For the first round of interviewing, which took place in February and April 1980, the reference period was from January 1, 1980, until the time of the interview. In each subsequent round the reference period began with the date of the previous interview and ended with the current interview, except that the reference period for the fifth round ended December 31, 1980.

The first question relevant to this report among the provider probe questions was number 4: "Since (REF. DATE), did (you/anyone in the family) go to a hospital clinic or hospital outpatient department for medical care?" If the answer was yes, the respondent was asked, "Who was this?" and "Anyone else?" For each person so indicated, the respondent was asked, "Since (REF. DATE), how many times did (PERSON) visit a hospital clinic or outpatient department?" For each such visit the questions on page OPD-24 of the questionnaire were asked, including number 4: "Did (PERSON) see a medical doctor on that visit?" If the answer was no, then the respondent was asked question 4.C., "What type of medical person did (PERSON) see at (CLINIC NAME)?" and the interviewer had the following pre-coded types to circle: "Chiropractor, Podiatrist, Optometrist, Psychologist, Social Worker, Nurse, Physical Therapist, Lab Technician," and "Other (SPECIFY)." The "others" were subsequently given special codes.

The next relevant probe questions followed the question as to whether family members had seen a medical doctor. Question number 10 then was asked: "(Not counting the visits (you already told me about) since (REF. DATE), did (you/anyone in the family) see any medical practitioners such as optometrists, foot doctors, chiropractors, or physical therapists?" If yes, respondent was asked "Who was this?" and "Anyone else?" and, for each such person, "Since (REF. DATE), how many times did (PERSON) see such a medical practitioner?" Question 11 then probed further: "(Not counting the visits you've already told me about) since (REF. DATE), did (you/anyone in the family) receive treatment from any other medical person such as a nurse, nurse practitioner,

paramedic, health aide, physician assistant, or other such medical person?" If so, respondent was asked who such persons were, and how many times they saw such medical persons. The interviewer then asked question 12, "(Not counting what you have already told me about), since (REF. DATE), did (you/anyone in the family) see a psychiatrist, a psychologist, a psychiatric social worker, or any other mental health person?" and, if so, who such persons were and how many times they saw such mental health persons. The interviewer next asked provider probe question number 13, "(Not counting the visits you've told me about) since (REF. DATE), did (you/anyone in the family) go to a doctor's office, clinic, or laboratory *just* for (an) examination(s), tests, shots, x-rays, or treatments?" and, if so, who such persons were and how many times they went for such services. Then the final relevant probe question was number 14: "(Besides the visits we've talked about) since (REF. DATE), did (you/anyone in the family) go to a health clinic, company clinic, school clinic, infirmary, neighborhood health center, family planning clinic, mental health clinic, or any other medical place?" If so, respondent was asked who such persons were and how many times they went to one of these places.

For all instances in which the interviewer had elicited positive responses to any questions 10-14, the questions on "medical provider visit" (pages MV-38 and following on the Core Questionnaire) were asked. These include questions on the date of the visit, type of place, provider's name, and location. Then was asked, "Did (PERSON) see a medical doctor on that visit?" If the answer was no, then the interviewer asked, "What type of medical person did (PERSON) see?" and had the following items to circle: "Chiropractor, Podiatrist, Optometrist, Psychologist, Social Worker, Nurse, Physical Therapist," and "Other (SPECIFY)." Special codes were subsequently given to types of medical persons entered under "Other."

With regard to the medical provider visit, the respondent was asked the reason for the visit, and the interviewer was given codes for the following options: Diagnosis or treatment, General checkup, Eye examination for glasses, Immunization, Family Planning, and Other (SPECIFY). The interviewer then asked, "Was this for a specific condition?" and, if yes, "For what condition did (PERSON) visit (PROVIDER) on (DATE)?" and "Any other condition?" Each condition mentioned was noted. Then the interviewer asked, "Did

(PROVIDER) discover any condition?" and, if yes, "What was it?" Other conditions mentioned also were noted. Thus, the nature of the complaint or condition occasioning the visit, as presented in this report, was as perceived and understood by the survey respondent.

Following these were questions on some particular tests made during the visit, detailed questions on charges

for the visit, and how these charges were paid for. For a detailed discussion of the coding of charges, see Bonham (1983), pages 15 and 16.

The following nine pages reproduce the pages of the Core Questionnaire containing the questions that elicited information on services from nonphysician health-care practitioners.

PROVIDER PROBES

The next questions deal with visits you (and members of your family) have made to dentists, doctors and other types of medical specialists since (REF. DATE). First, we will talk about dental visits.

1. Since (REF. DATE) did [you/anyone in the family, that is you, (EACH PERSON IN FAMILY)] go to a dentist?

Yes 01(A)
No 02(2)

A. Who was this? CODE "DENTIST" IN PERSON'S COLUMN.
Did anyone else go to a dentist since (REF. DATE)?

1A Dentist 01

B. Since (REF. DATE), how many times did (PERSON) go to a dentist? RECORD IN PERSON'S COLUMN.

B Times

2. (Not counting the visits you just told me about), since (REF. DATE) did [you/anyone in the family] go to a dental surgeon, oral surgeon, orthodontist, dental assistant or any other person for dental care?

Yes 01(A)
No 02(DV)

A. Who was this? CODE "OTHER DENTAL" IN PERSON'S COLUMN.
Anyone else?

2A Other Dental 01

B. Since (REF. DATE), how many times did (PERSON) go to such a person for dental care?
RECORD IN PERSON'S COLUMN.

B Times

DV	ENTER TOTAL OF EACH PERSON'S DENTAL VISITS (Q's 1B & 2B) IN "DV" BOX ON CONTROL CARD.	DV	
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3. Since (REF. DATE) did [you/anyone in the family] go to a hospital emergency room for medical care?

Yes 01(A)
No 02(ER)

A. Who was this? CODE "EMERGENCY ROOM" IN PERSON'S COLUMN.
Anyone else?

3A Emergency Room 01

B. Since (REF. DATE) how many times did (PERSON) receive treatment in a hospital emergency room? RECORD IN PERSON'S COLUMN.

B Times

ER	ENTER TOTAL OF EACH PERSON'S EMERGENCY ROOM VISITS IN "ER" BOX ON CONTROL CARD.	ER	
----	---	----	--

4. Since (REF. DATE), did [you/anyone in the family] go to a hospital clinic or hospital outpatient department for medical care?

Yes 01(A)
No 02(OPD)

A. Who was this? CODE "CLINIC OR OPD" IN PERSON'S COLUMN.
Anyone else?

4A Clinic or OPD 01

B. Since (REF. DATE), how many times did (PERSON) visit a hospital clinic or outpatient department? RECORD IN PERSON'S COLUMN.

B Times

IF PERSON WENT TO MORE THAN ONE CLINIC OR OUTPATIENT DEPARTMENT ON A SINGLE TRIP TO THE HOSPITAL, COUNT EACH CLINIC OR DEPARTMENT AS A DIFFERENT VISIT.

OPD	ENTER TOTAL OF EACH PERSON'S CLINIC OR OPD VISITS IN "OPD" BOX ON CONTROL CARD.	OPD	
-----	---	-----	--

PERSON 1

PROVIDER PROBES

PERSON 1

5. Since (REF. DATE), [were you/was anyone in the family] a patient in a hospital overnight? (Be sure to include newborn babies.)

Yes 01(A)
No 02(6)

A. Who was this? CODE "IN HOSPITAL" IN PERSON'S COLUMN.
Anyone else?

5A In hospital 01

B. Since (REF. DATE), how many different times was (PERSON) a patient in a hospital? RECORD IN PERSON'S COLUMN.

B Times

6. Since (REF. DATE), [were you/was anyone in the family] admitted as a patient to a hospital and discharged on the same day?

Yes 01(A)
No 02(7)

A. Who was this? CODE "IN AND OUT" IN PERSON'S COLUMN.
Anyone else?

6A In and out. 01

B. Since (REF. DATE), how many different times was (PERSON) admitted to and discharged from a hospital on the same day? RECORD IN PERSON'S COLUMN.

B Times

7. [Were you/was anyone in the family] a patient in a nursing home, convalescent home or similar place since (REF. DATE)?

Yes 01(A)
No 02(HS)

A. Who was this? CODE "NURSING HOME" IN PERSON'S COLUMN.
Anyone else?

7A Nursing home. 01

B. Since (REF. DATE), how many different times was (PERSON) a patient in a nursing home or similar place? RECORD IN PERSON'S COLUMN.

B Times

HS	ENTER TOTAL OF EACH PERSON'S HOSPITAL STAYS (Q's. 5B, 6B & 7B) IN "HS" BOX ON CONTROL CARD.
----	---

HS

8. During this period did [you/anyone in the family] get any medical advice from a doctor over the telephone?

Yes 01(A)
No 02(9)

A. Who was the phone call about? CODE "TELEPHONE" IN PERSON'S COLUMN.
Anyone else?

8A Telephone 01

B. How many telephone calls were made to get medical advice about (PERSON)? RECORD IN PERSON'S COLUMN.

B # of calls

DO NOT INCLUDE TELEPHONE CALLS IN V BOX.

PROVIDER PROBES

		PERSON 1	
9.	Since (REF. DATE), how many times did (PERSON) see a medical doctor? (Do not count doctors seen during visits to [an emergency room/hospital clinic or outpatient department/or while a patient in a hospital.]) RECORD IN PERSON'S COLUMN.	9	None seen. 00 Medical Doctor 01 <input type="checkbox"/> Times
10.	(Not counting the visits you already told me about) since (REF. DATE), did [you/anyone in the family] see any medical practitioners such as optometrists, foot doctors, chiropractors, or physical therapists? A. Who was this? CODE "MEDICAL PRACTITIONER" IN PERSON'S COLUMN. Anyone else? Yes 01(A) No. 02(11) B. Since (REF. DATE), how many times did (PERSON) see such a medical practitioner? RECORD IN PERSON'S COLUMN.	10A B	Medical Practitioner . 01 <input type="checkbox"/> Times
11.	(Not counting the visits you've already told me about) since (REF. DATE), did [you/anyone in the family] receive treatment from any other medical person such as a nurse, nurse practitioner, paramedic, health aide, physician assistant, or other such medical person? A. Who was this? CODE "MEDICAL PERSON" IN PERSON'S COLUMN. Anyone else? Yes 01(A) No. 02(12) B. Since (REF. DATE), how many times did (PERSON) see such a medical person? RECORD IN PERSON'S COLUMN.	11A B	Medical Person 01 <input type="checkbox"/> Times
12.	(Not counting what you have already told me about) since (REF. DATE), did [you/anyone in the family] see a psychiatrist, a psychologist, a psychiatric social worker or any other mental health person? A. Who was this? CODE "MENTAL HEALTH PERSON" IN PERSON'S COLUMN. Anyone else? Yes 01(A) No. 02(13) B. Since (REF. DATE), how many times did (PERSON) see such a mental health person? RECORD IN PERSON'S COLUMN.	12A B	Mental Health Person . 01 <input type="checkbox"/> Times
13.	(Not counting the visits you've told me about) since (REF. DATE), did [you/anyone in the family] go to a doctor's office, clinic, or laboratory <u>just</u> for an examination, tests, shots, X-rays, or treatments? A. Who was this? CODE "TESTS, SHOTS" IN PERSON'S COLUMN. Anyone else? Yes 01(A) No. 02(14) B. Since (REF. DATE), how many times did (PERSON) go just for examinations, tests, shots, X-rays, or treatments? RECORD IN PERSON'S COLUMN.	13A B	Tests, Shots 01 <input type="checkbox"/> Times
14.	(Besides the visits we've talked about) since (REF. DATE), did [you/anyone in the family] go to a health clinic, company clinic, school clinic, infirmary, neighborhood health center, family planning clinic, mental health clinic or any other medical place? A. Who was this? CODE "CLINIC, HEALTH CENTER" IN PERSON'S COLUMN. Anyone else? Yes 01(A) No. 02(MV) B. How many times since (REF. DATE) did (PERSON) go to one of these places? RECORD IN PERSON'S COLUMN.	14A B	Clinic, Health Center. 01 <input type="checkbox"/> Times
MV	ENTER TOTAL OF EACH PERSON'S VISITS (Q's. 9, 10B, 11B, 12B, 13B AND 14B) IN MV BOX ON CONTROL CARD.	MV	

HOSPITAL OUTPATIENT DEPARTMENT VISIT

(You told me that (PERSON) visited a hospital clinic or hospital outpatient department (NUMBER) times since (REF. DATE).)

1. On what date did (PERSON) [first/next] visit a hospital clinic or outpatient department?

2. What is the complete name of the hospital and in what city and state is it located?

3. What is the name of the clinic or department (PERSON) went to during the visit on (DATE)? Any other clinic? ENTER NAME IN FIRST AVAILABLE COL. IF DK NAME, ASK: What type of clinic is it?

FOR EACH CLINIC, ASK Q's. 4 - 21

4. Did (PERSON) see a medical doctor on that visit?

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

B. What is the doctor's specialty?

C. What type of medical person did (PERSON) see at (CLINIC NAME)?

VISIT A

PERSON _____ # _____

1 _____
Month / Date

2 Name: _____

City / State

3 _____
Clinic/Dept. Name or Type

4 Yes 01(A)
No 02(C)
Don't know 94(5)

A General Practitioner . . . 01(5)
Specialist 02(B)
Don't know 94(5)

B Cardiologist 01(5)
Internist 02(5)
OB/GYN 03(5)
Ophthalmologist 04(5)
Orthopedist 05(5)
Pediatrician 06(5)
Psychiatrist 07(5)
Other (SPECIFY) 08(5)

C Chiropractor 01
Podiatrist 02
Optometrist 03
Psychologist 04
Social Worker 05
Nurse 06
Physical Therapist 07
Lab Technician 08
Other (SPECIFY) 09

HOSPITAL OUTPATIENT DEPARTMENT VISIT

5. Why did (PERSON) visit the (CLINIC NAME) on (DATE)? CODE ALL THAT APPLY

A. Was this for any specific condition?

B. What was the condition? Any other condition?

C. Did (PROVIDER) discover any condition?

D. What was it? Any other condition? RECORD IN B ABOVE

VISIT A											
PERSON	#										
5	Diag. or Treat. 01(B) General Checkup 02(A) Eye Exam (glasses). 03(6) Immunization. 04(6) Family Planning 05(6) Other (SPECIFY) _____ 06(A)										
A	Yes 01(B) No. 02(C)										
B & D	<table border="1"> <thead> <tr> <th>Condition</th> <th>Cond. #</th> </tr> </thead> <tbody> <tr> <td>_____</td> <td>CC (6)</td> </tr> <tr> <td>_____</td> <td>CC (6)</td> </tr> <tr> <td>_____</td> <td>CC (6)</td> </tr> <tr> <td>_____</td> <td>CC (6)</td> </tr> </tbody> </table>	Condition	Cond. #	_____	CC (6)	_____	CC (6)	_____	CC (6)	_____	CC (6)
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_____	CC (6)										
_____	CC (6)										
C	Yes 01(D) No. 02(6)										
6	<table border="1"> <thead> <tr> <th></th> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr> <td>6. Were any X-rays taken during this visit to (NAME OF CLINIC) on (DATE)?</td> <td>01</td> <td>02</td> </tr> </tbody> </table>		Yes	No	6. Were any X-rays taken during this visit to (NAME OF CLINIC) on (DATE)?	01	02				
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HOSPITAL OUTPATIENT DEPARTMENT VISIT

		VISIT A									
		PERSON _____	# _____								
10.	How much of the (CHARGE) charge for the visit <u>did</u> or <u>will</u> you (or your family) pay?	10	Partial \$ _____ % Total charge.01 None.00(C BOX)								
11.	Do you expect any source to reimburse or pay you back?	11	Yes01(A) No.02(C BOX)								
	A. Who will reimburse or pay you back? ENTER UNDER "SOURCE". Anyone else?	A	<table border="1"> <thead> <tr> <th>SOURCE</th> <th>AMOUNT</th> </tr> </thead> <tbody> <tr> <td></td> <td>\$ _____ %</td> </tr> <tr> <td></td> <td>\$ _____ %</td> </tr> <tr> <td></td> <td>\$ _____ %</td> </tr> </tbody> </table>	SOURCE	AMOUNT		\$ _____ %		\$ _____ %		\$ _____ %
SOURCE	AMOUNT										
	\$ _____ %										
	\$ _____ %										
	\$ _____ %										
	B. How much will (EACH SOURCE) reimburse or pay you back?	B	<table border="1"> <tbody> <tr> <td></td> <td>\$ _____ %</td> </tr> <tr> <td></td> <td>\$ _____ %</td> </tr> </tbody> </table>		\$ _____ %		\$ _____ %				
	\$ _____ %										
	\$ _____ %										
C BOX	CODE ONE: TOTAL CHARGE PAID IN Q. 10 PARTIAL OR NONE PAID IN Q. 10	C BOX	Total Charge Paid01(RV) Partial or None Paid. . .02(12)								
12.	Did <u>did</u> or <u>will</u> anyone else pay for this visit?	12	Yes01(A) No.02(RV)								
	A. Who else paid or will pay any part of the charge? ENTER UNDER "SOURCE". Anyone else?	A	<table border="1"> <thead> <tr> <th>SOURCE</th> <th>AMOUNT</th> </tr> </thead> <tbody> <tr> <td></td> <td>\$ _____ %</td> </tr> <tr> <td></td> <td>\$ _____ %</td> </tr> <tr> <td></td> <td>\$ _____ %</td> </tr> </tbody> </table>	SOURCE	AMOUNT		\$ _____ %		\$ _____ %		\$ _____ %
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	\$ _____ %										
	\$ _____ %										
RV	IF PERSON HAD 2 OR FEWER ADDITIONAL VISITS TO A HOSPITAL CLINIC/DEPARTMENT, GO TO S BOX. IF PERSON HAD 3 OR MORE ADDITIONAL VISITS TO A HOSPITAL CLINIC/DEPARTMENT, CHECK Q's. 6, 7 & 8. CODE IN COLUMN. "YES" WAS ANSWERED IN Q. 6 OR 7 OR 8 "NO: WAS ANSWERED TO ALL QUESTIONS	RV	Yes01(S BOX) No.02(13)								
13.	You mentioned that (PERSON) had (NUMBER) visits to a hospital clinic/department. We have already talked about (NUMBER) of those visits. How many of the remaining (REMAINING NUMBER) were also to [HOSPITAL CLINIC/OUTPATIENT DEPARTMENT]?	13	<input type="checkbox"/> Visits (14) None.00(S BOX)								
14.	Of those (ANSWER TO Q. 13) visits, how many were also for (CONDITION(S))?	14	<input type="checkbox"/> Visits (15) None.00(S BOX)								

HOSPITAL OUTPATIENT DEPARTMENT VISIT

		VISIT A			
15.	Of those (ANSWER TO Q.14) visits, how many cost the identical amount as the visit we just talked about?	15	PERSON _____ # _____ <input type="checkbox"/> Visits (16) <input type="checkbox"/> Visits included in same FF_ (17) None 00(S BOX)		
16.	Of those (ANSWER TO Q. 15) visits, how many were paid for in the same way as the visit you just told me about?	16	<input type="checkbox"/> Visits (17) None 00(S BOX)		
17.	How many of the (ANSWER TO PREVIOUS QUESTION) visits did not include any X-rays, lab tests or diagnostic procedures?	17	<input type="checkbox"/> Visits(18) None 00(S BOX)		
18.	Not counting the visit on (DATE) you just told me about, what were the dates of the other (ANSWER TO Q. 17) visits?	18	1) _____ / _____ 6) _____ / _____ Month / Date Month / Date 2) _____ / _____ 7) _____ / _____ Month / Date Month / Date 3) _____ / _____ 8) _____ / _____ Month / Date Month / Date 4) _____ / _____ 9) _____ / _____ Month / Date Month / Date 5) _____ / _____ 10) _____ / _____ Month / Date Month / Date		
<table border="1" style="display: inline-table; vertical-align: top;"> <tr> <td style="text-align: center;">S BOX</td> <td> CODE ONE: HHS Sample 01(NV) SMHS Sample. 02(19) </td> </tr> </table>		S BOX	CODE ONE: HHS Sample 01(NV) SMHS Sample. 02(19)	19.	Street: _____ City: _____ State: _____ Zip: _____
S BOX	CODE ONE: HHS Sample 01(NV) SMHS Sample. 02(19)				
IF MEDICAL DOCTOR SEEN (SEE Q.4), ASK Q's. 20 & 21. 20. What is the name of the doctor (PERSON) saw?		20	Name: _____ Don't know 94(NV)		
21. Does (DOCTOR) have an office outside the hospital? A. What is the complete address of the doctor's office?		21	Yes. 01(A) No 02(NV) Don't know 94(NV)		
		A	Place: _____ _____ Street: _____ City: _____ State: _____ Zip: _____		

NEXT VISIT

MEDICAL PROVIDER VISIT

Person Name _____ # _____

[Besides the visits we already talked about/You told me that (PERSON) had seen a medical person (NUMBER) times since (REF. DATE).]

1. On what date did (PERSON) [first/next] see a medical person?

_____/_____
MONTH / DATE

2. Where did (PERSON) see the medical person on (DATE), at what type of place -- was it a clinic, hospital, doctor's office, or some other place?

IF CLINIC, ASK:
Was it a hospital outpatient clinic, a company clinic, or some other kind of clinic?
Doctor's office or group practice.01
Doctor's clinic.02
Neighborhood/Family Health Center.03

IF SOME OTHER PLACE, ASK:
Where was this?

Company clinic04
School clinic.05
Other clinic06
Home07
Laboratory08

Hospital outpatient clinic, hospital inpatient, emergency room. 09(INSTRUCTION BOX)

Other (SPECIFY) 10

INSTRUCTION BOX MAKE SURE A HOSPITAL STAY, EMERGENCY ROOM OR HOSPITAL OUTPATIENT VISIT HAS BEEN COMPLETED FOR THIS DATE. INVALIDATE THIS PAGE AND GO TO NEXT VISIT.

3. A. What is the name of the medical person (PERSON) saw on (DATE)?

Provider's Name

B. What is the name of the medical place (PERSON) went to on (DATE)? In what city and state is it located?

Place Name

_____/_____
City / State

4. Did (PERSON) see a medical doctor on that visit?

Yes.01(A)
No02(C)
Don't know94(5)

A. Is the doctor a general practitioner or a specialist?

General practitioner01(5)
Specialist02(B)
Don't know94(5)

B. What is the doctor's specialty?

Cardiologist. . . .01(5) Orthopedist. . .05(5)
Internist02(5) Pediatrician . .06(5)
OB/GYN.03(5) Psychiatrist . .07(5)
Ophthalmologist . .04(5) Other (SPECIFY).08(5)

C. What type of medical person did (PERSON) see?

Chiropractor. . . .01(5) Social Worker. .05(5)
Podiatrist. . . .02(5) Nurse.06(D)
Optometrist03(5) Phy. Therapist .07(D)
Psychologist. . . .04(5) Other (SPECIFY).08(D)

D. Does (MEDICAL PERSON) work for or with a doctor?

Yes.01
No02
Don't know94

MEDICAL PROVIDER VISIT

5. Why did (PERSON) visit (PROVIDER) on (DATE)? CODE ALL THAT APPLY.

- Diag. or treatment.01(B)
- General checkup . .02(A)
- Eye examination
for glasses03(6)
- Immunization . .04(6)
- Family Planning.05(6)
- Other (SPECIFY).06(A)

A. Was this for any specific condition?

- Yes01(B)
- No02(C)

B. For what condition did (PERSON) visit (PROVIDER) on (DATE)? Any other condition?

CONDITION	COND.#
CC	(6)
CC	(6)
CC	(6)
CC	(6)

C. Did (PROVIDER) discover any condition?

- Yes01(D)
- No02(6)

D. What was it? RECORD IN B ABOVE. Any other condition?

	Yes	No
6. Were any X-rays taken during this visit on (DATE)?	01	02
7. Were any laboratory tests such as a blood test, urinalysis, culture, or any other kind of test done?	01	02
8. Was an EKG, EEG, (a pap smear) or any other diagnostic procedure done?	01	02

9. How much was the total charge for this visit on (DATE), including any amounts that may be paid by health insurance, Medicare, Medicaid, or other sources? (Include any separate bill for [X-rays/laboratory tests/diagnostic procedures].)

- \$_____ (10)
- \$3.00 or less. 01(A)
- No charge. 02(A)
- Included with other charges. . . 03(FF____(RV))
- Don't know 94(10)

A. Why was there [no/such a small] charge for this visit?

- Welfare/Medicaid paid. 01(RV)
- Included with other charges. . . 02(FF____(RV))
- Free from provider 03(12)
- Other source(s) will pay 04(12A)
- Standard HMO/PHP/Health Center charge 05(RV)
- Other. 07(10)

10. How much of the (CHARGE) charge for the visit did or will you (or your family) pay?

- Partial \$_____ %
- Total Charge 01
- None 00(C BOX)

11. Do you expect any source to reimburse or pay you back? Yes . . . 01(A) No. . . . 02(C BOX)

A. Who will reimburse or pay you back? ENTER BELOW. Anyone else?
B. How much will (EACH SOURCE) reimburse or pay you back?

SOURCE	AMOUNT
	\$ %
	\$ %
	\$ %

MEDICAL PROVIDER VISIT

C BOX	CODE ONE:
	TOTAL CHARGE PAID IN Q. 10. 01(RV)
	PARTIAL OR NONE PAID IN Q. 10 02(12)

12. Did or will anyone else pay for this visit?

Yes 01(A)
 No. 02(RV)

A.

Who else paid or will pay
 any part of the charge?
 ENTER BELOW. Anyone else?

B.

How much did or will
 (EACH SOURCE) pay?

SOURCE	AMOUNT
	\$ %
	\$ %
	\$ %

RV	IF PERSON HAS FEWER THAN 5 ADDITIONAL VISITS TO A MEDICAL PROVIDER, GO TO S BOX.
	IF PERSON HAD 5 OR MORE ADDITIONAL VISITS TO MEDICAL PROVIDER, CHECK Q's. 6, 7 & 8, CODE BELOW. "YES" WAS ANSWERED IN Q. 6, OR 7 OR 8. .01(S BOX) "NO" WAS ANSWERED TO ALL QUESTIONS . . .02(13)

You mentioned that (PERSON) had (NUMBER) medical visits.

13. We have already talked about (NUMBER) of those visits. How many of the remaining (REMAINING NUMBER) were also to (PROVIDER/PLACE)?

_____ visits(14)
 None.00(S BOX)

14. Of those (ANSWER TO Q. 13) visits, how many were also for (CONDITIONS)?

_____ visits(15)
 None.00(S BOX)

15. Of those (ANSWER TO Q. 14) visits, how many cost the identical amount as the visit you just told me about?

_____ visits(16)
 _____ visits included in FF____(17)
 None.00(S BOX)

16. Of those (ANSWER TO Q. 15) visits, how many were paid for in the same way as the visit you just told me about?

_____ visits(17)
 None.00(S BOX)

17. How many of the (ANSWER TO PREVIOUS QUESTION) visits did not include any X-rays, lab tests, or diagnostic procedures?

_____ visits(18)
 None.00(S BOX)

18. Not counting the visit on (DATE) you just told me about, what were the dates of the other (ANSWER TO Q. 17) visits?

- | | | |
|--------------------------|---------------------------|---------------------------|
| 1) _____
Month / Date | 6) _____
Month / Date | 11) _____
Month / Date |
| 2) _____
Month / Date | 7) _____
Month / Date | 12) _____
Month / Date |
| 3) _____
Month / Date | 8) _____
Month / Date | 13) _____
Month / Date |
| 4) _____
Month / Date | 9) _____
Month / Date | 14) _____
Month / Date |
| 5) _____
Month / Date | 10) _____
Month / Date | 15) _____
Month / Date |

S BOX	CODE ONE:
	HHS SAMPLE.01(NV)
	SMHS SAMPLE02(19)

19. What is the complete address of (PROVIDER/PLACE)?

Place: _____
 Street: _____
 City: _____
 State: _____ Zip: _____

NEXT VISIT

Department of Health and Human Services

Margaret M. Heckler, Secretary

Health Care Financing Administration

C. McClain Haddow, Acting Administrator

Office of Research and Demonstrations

David J. Butler, Acting Director

Office of Research

Allen Dobson, Ph.D., Director

Division of Program Studies

Carl Josephson, Director

Surveys Studies Branch

Herbert A. Silverman, Ph.D., Chief

Public Health Service

Donald I. Macdonald, M.D.

Acting Assistant Secretary for Health

National Center for Health Statistics

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

Office of Interview and Examination Statistics Program

E. Earl Bryant, Associate Director

Division of Health Interview Statistics

Robert R. Fuchsberg, Director

Utilization and Expenditure Statistics Branch

Robert A. Wright, Chief